And do not tell them, “make your opinions like mine”—for, this is their prerogative and not yours.
— Rabbi Ishmael ben Rabbi Yossi; *Talmud, Abbot*, 4:10

What a man dislikes in his superiors, let him not display in the treatment of his inferiors; what he dislikes in inferiors, let him not display in the service of his superiors; what he hates in those who are before him, let him not therewith precede those who are behind him; what he hates in those who are behind him, let him not bestow on the left; what he hates to receive on the left, let him not bestow on the right: this is what is called “The principle with which, as with a measuring square, to regulate one’s conduct.”
— Confucius, *The Great Learning*, James Legge translation

An ounce of prevention is better than a pound of cure.
— Benjamin Franklin, *Pennsylvania Gazette*, Feb. 4, 1735

I have carefully endeavored not to deride, or deplore, or detest but to understand.
— Spinoza, *Tractatus Politicus*, 1 §4
Instead Of A Dedication

A spirit hovers over these pages, that of Imre Lakatos. Outstanding mathematical philosopher, he had no need for plagiarism, intrigues, and confusion; alas, he had a weird sense of fun. Were he not such a windmill, I might not be such a Quixote; or am I a Sancho; perhaps his lost ass. The advice offered here should help prevent damage of the kind he spread.
My Part in the Story

My reports on life in Academe may be false: for example, I report that professors often waste too much time reading works of students when grading them, yet for all I know, few professors read anything. Still, my observations are repeatable, testable anthropological field-reports—on a tribe scarcely studied. Do kindly test them. Thank you. My proposals I intend to reflect the philosophy of my teacher Karl Popper. Do test them too. Thank you again.

The villains in my piece are legendary Harvard President James Bryant Conant and his public-relations envoy, trendy philosopher and historian of science Thomas S. Kuhn. They served the Pentagon. The miserable failure of its efforts to force J. Robert Oppenheimer to return to its nuclear armament programs led it to pour money into coffers of universities to goad their administrators to pressure their professors to apply for research grants as means for harnessing physicists to their dirty-bombs wagon. This needed the blessing of leading academics. Conant and Kuhn volunteered.¹ This forced Academe to reluctant corruption worldwide. It is time to begin public discussion of ways to restore Academe’s lost honor. The present handbook should help inaugurate that discussion.

¹ Steve Fuller noted this first; Hans-Joachim Dahms disputed this: https://link.springer.com/chapter/10.1057/978-1-137-55943-2_5.
SYNOPSIS

This utterly scatter-brained study is a take-off on Laurence Sterne's 1759 classic, *The Life and Opinions of Tristram Shandy, Gentleman* that was a spoof on the ambiance of the time. It is, however, no spoof and its narrative appears only as insinuation. I have two purposes in my decision to send the following ruminations to the press. The first is my overall view that there is enough suffering in God's world, with no need to add to its stock. Nowhere is the needless sacrifice so pervasive and so conspicuous as in the system of education. This embitters the sweet life of learning that Academe still offers. Academic jobs are still more in demand than in supply, rendering competition for it hard. The (unavoidable) absence of clear criteria for intellectual excellence makes it hard to keep the competition clean and prevent needless suffering. This volume is an effort to reduce the needless suffering that the rightly coveted Academic life may cause.

I have also tried to add rudiments of a story line to emulate my model, the life of Tristram Shandy. I gave it up. There are many novels and movies on life in Academe; some of them are excellent works of art, and others include perceptive comments. I have no intention, much less the ability, to add to them significantly. There is story enough in the true anecdotes that I report here and there throughout this work.

See the table of contents below for details.

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2 The almost universally endorsed view of the matter goes the other way: in every possible clash of interest between society and any single individual, society should win—since it can survive individuals but they need their societies. Yet, as modern history repeatedly shows, most individual sufferings for the sake of society are redundant.
PREFACE

I began writing the following pages in summer 1965 by constructing the table of contents that appears below unaltered. It was one of the low points in my life and the lowest point of my academic career. Asked to leave the University of Illinois—the only failure in my otherwise reasonably satisfactory academic career—I gratefully accepted a position in Boston University philosophy department created for teaching a summer-semester course in the history of medicine in Boston University School of Medicine in a new accelerated experimental course in medicine. I did not know where to start: the program was hardly developed and I had no background in medicine, in the life sciences, or in their history. My family was absent; I was between homes, staying in a flophouse, with no acquaintance, no books, idling before the semester start. I waited for the semester to begin. Seated on a bench in a park, I designed the table of contents that appears below to keep myself busy.

The course in the history of medicine that began soon after, incidentally, had an inevitably disastrous ending—due to the poor planning of its place in the curriculum and the excessive submission that medical schools notoriously impose on their students. Unprepared, I expected the students to participate. They were engaged in full-time summer jobs in the school’s hospital. Overworked, they fell asleep in class, as my course was sheer bonus. Also, my teaching was too unusual: I tried to help them learn to write and to develop some theoretical interest when their other courses were crowded with practical information. In addition to smatterings of the history of medicine, I offered rudimentary basics in natural science, particularly biochemistry and nosology (theory of disease). In my second summer there, I faced a rebellion. The students were at a loss: they had no social skills and I had to chair their meeting against me. Their dean, alas, quashed their rebellion without a hearing: he insisted on unconditional submission. Alienated from faculty and students, I resigned. Fortunately for me, the head of the department of philosophy rejected my resignation and won my profound gratitude.

My medical-school experience left me with a part of a first draft of this work. Very negative responses to it made me take a break from writing it. For half-a-century, other business kept me away from it. I am still skeptical about its value, but I like the challenge to keep its youthful exuberance. I cannot judge how outdated it is, as this invites field-study. I think it is regrettably still hardly outdated—as medical education is inflexible. A 1954 American medical-school field report says, no American medical school was planning then any change of curriculum or teaching method. It had then only one professorship devoted to medical education (in the University of Chicago). Its occupant did not respond to that report, he told

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3 I owe the job offer to my publication, *Towards an Historiography of Science, History and Theory*, Beihett 2, 1963; facsimile reprint, Middletown: Wesleyan University Press, 1967; reprinted with corrections in my *Science and Its History, Boston Studies in the Philosophy of Science*, Vol. 253, 2008. To check the appointment, the faculty of medicine interviewed me. They did not believe my confession of ignorance, since I spoke there of the episode in the history of medical research that I was familiar with—having been involved in it as a patient—and since by sheer luck I guessed correctly what book a faculty member very vaguely referred to.


me, because that reform was an ongoing process. Yet it follows no plan. Any mention of a reform of the American medical education system met with a pious reference to the Flexner reform of the early twentieth century, as if he could object to further innovation. His reform altered anyway. Here is one item of evidence: a recent lead-article in Transactions of the American Clinical and Climatological Association. It says,

Both medical school education (UME) and graduate medical education (GME) for decades have been perceived to be not as coherent or as well structured as they could or should be. Kenneth Ludmerer, in his now classic study of the history of medical education, Time to Heal [1999], showed in painful detail how medical education slowly took a back seat in medical schools and academic health centers (AHCs), first to the focus on the research enterprise and then, more recently, to the focus on re-engineering the clinical enterprise. With professional development and faculty rewards geared towards research and patient care, the education of medical students and the training of residents and fellows went into the academic equivalent of “automatic pilot.”

I will leave all this for a later discussion, except for two general points.

1. Flexner wanted medical students to have some broad education. To that end, he ruled that they acquire bachelor’s degrees first. Courses for this degree became strictly pre-medical.

2. Innovations, especially organ transplants, raised new moral problems. Medical outfits appointed in-house consultants on medical ethics. Soon the job ceased to be full-time: it became an additional task for professors whose job-descriptions wanted a boost.

The next great reform in academic education after Flexner took place in France. It was utterly unplanned as it came as a response to the students’ revolt (May 1968). The greatest discussion of academic education at the time was in Britain, in two detailed, competent, official reports on it: the Robbins Report (1963) and the Rothschild Report (1971) that generated a literature on the topic. The changes that they recommend that are relevant to this study appear below in detailed discussions.

An obvious recent important change in Academe, concerns discrimination (mainly by skin-color, religious affiliation and gender) as well as sexual harassment. Neither is particular to Academe. (The entertainment world comes nearer to this position.) Although these pages discuss injustices, it overlooks these. Let me say a few words on them here, as a mere token.

Discrimination causes untold damage. Exploitation looks tempting. This is an illusion:

8 Adam Smith suggested that perfect competition precludes discrimination. He tried to explain why most societies are less advanced than the Europeans: this led him to options that are these days deemed racist. The same happened to pioneering anthropologist Lewis Henry Morgan. Edward Said became popular as he
Adam Smith said, it is too costly, since cooperation is more beneficial all round. Karl Marx agreed. Popular though he is, this view of his is not. Advocates of unbridled competition claim that the market will reach freedom from discrimination fastest. It did not. Excuses for this defect amount to toleration of discrimination.\(^9\) When laws against gender discrimination appeared, many employers circumvented them by falsely declaring inferior jobs gender-specific.\(^10\)

You might expect that since academics are better educated than the average citizen is, and since Academic discrimination is costly, the contribution of Academe to the struggle against discrimination should signify. As it is supposedly a pioneer in the struggle for progress, it should be a leader in that front. To some extent, it is, but its overall record is not what it could and should be. Except that—since discrimination rests usually more on ignorance than on malevolence—all education helps fight it indirectly. I belonged to a minority group—the Jewish people—that suffered violent discrimination that defies the wildest imagination (in and out of Academe). By contrast, the nation I belong to—Israel—excels these days in the discrimination against its own citizens—women, non-Jews and blacks—thus shamelessly defiling the impressive time-honored Jewish record of valiant support and of struggle for justice and humanism (Exodus 21:23; Deuteronomy 21:17). Israel's current government exploits Academe craftily to further its agenda. Most Israeli intellectuals find this atrocious but are scarcely able to fight it, since there are so many excuses for the Israeli official identification of civil society with traditional congregation that imposes the religious discrimination that deprived of religion proper becomes racist unintentionally but unavoidably. It is hard to expect Israeli Academe to support reform in national affairs before the implementation of some urgently needed reforms in Academic education. But I anticipate myself: this is the topic of the very conclusion of this study.

Medical education today differs from all other parts of higher education in its taking apprenticeship as a part of education; this is due to a complex system of cooperation between medical education and practice. The reform of medical education must involve a much wider social setting than other parts of higher education. For this, I can only direct the interested reader to studies that concern aspects of the system wider than I can consider here.\(^11\)

The only change within Academe that is possibly relevant to the present concern is within philosophy: its improvement is (or will be) due to the current (or future) increase of the recognition of the fallibilist, liberal studies of my teacher Karl Popper. When I began writing these pages, the philosophical literature generally overlooked his output. The exceptions were some baffling denunciations of it and some occasional backhanded compliments. This altered significantly after he died. An interesting comment that semi-officially recognizes


\(^11\) Yehuda Fried and JA, Psychiatry as Medicine, 1983; Nathaniel Laor and JA, Diagnosis: Philosophical and Medical Perspectives, 1990.
change appears as late as in 2016—in the *Notes and Records of the Royal Society*.\(^\text{12}\) It mentions the election of Popper for a fellowship of that Society as a counter-balance to the Rothschild Report, I cannot judge with how much justice.

— Herzliyah, Israel, Summer 2020.

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PROLOGUE

1. The Publisher to the Learned Reader

The present volume addresses young readers. To humor them, the author casts it in a sophomoric manner. Its style may easily give an impression that is quite unintended an impression that may unjustly slight the kind of work you are dedicated to, perhaps even unjustly poke unbecoming fun at it. To add unintended insult to less-intended injury, it contains poor and sketchy proposals for improvement, rudely overlooking the one that you and your colleagues have developed over years of hard work with much more detail and responsibility. You may feel that the author should have made some effort to acquaint himself with some information concerning the present state of affairs in academic education and your contribution to it, and not let his ignorance permit him to condemn it offhandedly and irreverently.

I am unable to contest all this. Rather, I hope that you allow me to recommend restraint. I hope you will show enough patience and tolerance towards the author’s frolics, especially since, we must say this in his favor (he is unfair to you, but I know you will not stoop to reciprocate), he has successfully unmasked some academic pretenses that unfortunately are still with us. You will claim (at least you have the right to claim) that you and your colleagues are unmasking academic pretenses regularly during the whole of your academic careers, that you are so doing without much fuss, and thus without the likelihood of introducing newer and worse pretenses, meaning those that the author of these pages seems to condone if not to encourage and possibly even to partake in, Heaven forbid.

I shall not argue. Rather, I wish to elicit your good will and mature understanding towards a work intended to encourage the young. I hope you would consent to view its exaggerations with a kind eye as humorous literary license. You might consider disastrous any effort to take these pages seriously. The author tries to prevent you, I do not deny, from considering it light-hearted, saying that his jokes will prevent only the stuffed shirts from taking his remarks with all the seriousness it deserves. His claim for scientific status for his observations is truly unfortunate, I admit, but it is a part of his game; an aspect you might say of his twisted humor that, though with less success, it still is in the wake of great twisted humorists like Jonathan Swift, Laurence Sterne, Heinrich Heine, Isaac Erter, Samuel Butler and Bernard Shaw. Even these great lights annoyed their contemporaries with the lightness of their touch, just or unjust as they may have been at their times. (This is not for me to judge.) Possibly, vain imitations of them are even more irksome, remaining unredeemed by any merit—not even by such acknowledged literary and stylistic merits as the works that they (unduly) claim to imitate.

I plead for kindness. If you cannot avoid taking these pages more seriously than (by your own lights) it deserves, if such seriousness is disagreeable to your temper, if you find it worse than a waste of precious time, may I humbly propose you cease reading it and revert to a more rewarding literature on academic life. If you send me your name and address, I shall personally see to it that you receive a list of more appropriate publications, including such classics as The Sciences Were Never At War, The Two Cultures United, The University Contribution to
2. The Author to the Hurried Reviewer

Academe is my home. I have spent practically all of my adult life in it. I have spent most of my working time and energy on teaching and writing and editing, in addition to supervising research, refereeing and corresponding with peers, in addition to public lecturing and such. I also spent time on academic organization and administration, on consultation for and on organization of and participating in conferences. I like it—I like it, all of its aspects considered. Yet I do not consider it a utopia; I view with astonishment popular discourses to the contrary, especially the vigorous public-relations machinery of Academe that causes much avoidable trouble. Serious, notorious defects in academic life are its injustices, intrigues and jealousies, anxieties and incompetence, pseudo-scholarship, drab courses, pious, empty public lectures, and boring pointless rituals. Throughout my career, I met few academics who can intelligently articulate and debate a policy with respect to setting exams or supervising doctorates,¹ or ones who ever think about the abysmal, at-times even scandalous, conditions or terms of operations of most university publishing houses.² Few dream of reducing the academic red tape that choke educational efforts; fewer have a vision of reasonably administered Academe. Academic education is indisputably atrocious. The Robbins Report of 1963 came up with but one clear and uncontested conclusion: crush courses on teaching should be available to beginners. Robbins’ autobiography reports that as a beginner with no idea about teaching, he had only a very brief, very casual chat with a senior colleague. This is so for historical reasons: the tradition of university lectures matured before the advent of the printing press; lecturing was the standard efficient way then for replicating texts. Lecture-courses, Marshall McLuhan has observed, are thus five centuries out-of-date. Lecture-courses, Carl Rogers has observed, are often textbooks that have found no publisher.

The academic educational system is the most ossified, with no training for it, and with almost no reform of it. For, too many institutional control mechanisms keep it hyper-stable. Moreover, it tends to make a virtue of necessity: students who survive the atrocious arrangement of Academe in order to become proper scholars or proper citizens serve as arguments in favor of the system, in oversight of the ones who do not survive it and ones who excelled in it only to become social failures. The system destroys students’ curiosity and keeps some by practically destroying their ability to flee. It thus perpetuates itself by perpetuating its worst ills. The heartlessness of the few whose views on academic education

¹ The standard requirement is that a doctoral dissertation adds to the stock of human knowledge. Few ask, what criteria apply here. Few professors tell their graduate students what they have to do to succeed.
² University publishing houses often enjoy subsidies meant to enable them to publish worthy books with small demand. They usually do not, and nevertheless they manage to suffer financial troubles.
is articulated enough is barely tolerable; pompous professors repeat some hackneyed expressions, demanding up-to-date lecture courses and high-powered scholarship and uttering deafness to the cruelty that the system flaunts. This is not too surprising; not so the cruel remarks on academic education that some of the wisest and nicest colleagues on campus repeat casually. Many of them speak cruelly, thoughtlessly on diverse ceremonial occasions. They justify the neuroses that academic education inculcates. They express this view not in such a blunt manner, yet it has an immense impact on academic education, especially in keeping it stagnant despite the educational innovations that can easily reduce needless suffering.

The academic world is nonetheless just wonderful—for two reasons. One is accidental: academics are quite well paid and highly esteemed—due to the Bomb, the Computer, and the Internet. The second is essential: they have much freedom and leisure some of which they can use intellectually—in teaching, studies, and research; on occasion even in some table talk. Regrettably, rather than enjoy high income and status, many academics waste their lives on a perpetual treadmill, with anxieties and neuroses tragically impairing their activities.

The message of these pages is simple. Intellectual activity is inherently and primarily tremendous fun, the satisfaction and gratification and fulfillment of a strong, deep-seated impulse: curiosity. Academic life is primarily fun because it is primarily intellectual. We should help young academics protect their sense of fun, do their ability—as well as that of their students—to enjoy intellectual pleasures. For this, my message proceeds, one should learn and know the enemy—the defects of Academe, especially as an educational system of conditioning people to carry on in the academic maze, to allow bizarre cues stimulate them and make them respond to senseless rewards (fame) and penalties (ridicule) that they should better ignore. More than anything else, it is bizarre conditioning that produces long-lasting neuroses (Ivan Pavlov, Joseph Wolpe); as it happens, this phenomenon is less frequent on campuses than elsewhere. (In the rare cases when mass conditioning does happen, however, it causes breakdowns in large groups of students. Academic administrations handle these cases deftly: they diffuse the damage and conceal its source. The short-term result of a successful concealment is excellent; its long-term result is disastrous.) Learn the conditioning systems and learn how to neutralize it with ease.

Once sufficiently many students neutralize their education and then become healthy academics, and the New Renaissance of Learning may commence and come to its full bloom. I wish you would live to see its inception.

So much for my message in brief. Instead of browsing through the volume, you may consider looking up its table of contents. The most rewarding student-resistance to the ills of Academe that I have found is to ask, why your professor singles out these rather than other details. Usually, professors do not know why: they follow tradition. In modern societies (not in magical ones), however, people who create tradition are usually more intelligent than the average: they know that these details signify. They conceal this not out of spite but due to a tradition with which they are unfamiliar. It is the methodological myth of empiricism: allegedly, theories rest on factual foundations. The myth itself has its own foundations in Renaissance mysticism now almost totally forgotten.¹ To make the myth plausible they revert the time-order of the appearance of theory and of information and present facts first as meaningless in themselves but as justification of a theory. You will find that regularly the

¹ My The Very Idea of Modern Science: Francis Bacon and Robert Boyle, 298, 2013, 43.
alleged foundations of significant theories refute older scientific theories. This most professors cannot admit—not yet, that is—since the very expression “false scientific theory” makes them shudder. (This illustrates the greatness of the revolution that Einstein has fashioned as he superseded Newton.)

To conclude this brief remark to you (meant to exempt you from the need to go on reading this study): my (quixotic) hope is to bring Academe nearer to the admission that criticism is the heart and soul of scholarship—to welcome criticism as its official attitude, rather than to preach toleration of critics. I hope this has an appeal to you. If not, then let me repeat my proposal: leave this volume right now: it is not for you: I write it for people who might derive pleasure and benefit from reading it. Those who do not delight in criticism of their opinions and of their deepest convictions, they will find these pages boring and irksome. Whenever possible, wasting precious time on boring and irksome material is better to avoid.

— The author

3. The Author to the Student Counselor

Some of the people you meet on Campus may have told you that you have to read these pages. This is not true. Still, if you wish to satisfy them, you need not go beyond this note to you. I am sorry for your inconvenience: you work hard enough and students come to you often enough with crazy ideas, as if you have nothing better to do then to listen to their advice; you do not need me to add to your burden. So let me report the central points of these pages: you can work out the details by yourself. This note should suffice to support your suspicion that you need not read the rest.

Educationally, I suggest that the teaching methods we of Academe are antediluvian. You surely know this.

Psychologically, I suggest that educationists harm students by the perennial application of conditioning (Pavlov) that causes trauma (Freud). Carelessly. I suggest that young humans deserve the hope to resist this treatment. My telling students something about their instructors and their psychological profiles may offer some of the antidote against the conditioning and traumatization. I know you agree that undesired events do take place on Campus, though we may differ about their frequency, weight and import.

Politically, I advocate education for democracy. This invites training in this direction; this means democratizing institutes of learning, higher and lower alike, and to the greatest extent imaginable. (Albert Einstein; Janusz Korczak) You will see this as a reasonable idea, although you may consider exaggerated my presentation of it and view as breezy my insistence that it is practical. If you say that students cannot equal professors in the running of the university, then I will retort that this holds for every comparison of normal people with experts, and that if taken as weighty, then it forces democracy to give way to technocracy. (Plato) Philosophically, I suggest that much of what my colleagues teach is of little value. Even the most valuable items that professors ram down students’ throats are of little use as they come

2 My Science and Its History: A Reassessment of the Historiography of Science, 2008, 64, 319, 326.
with no indication as to what that value might be.

Students who study only to please themselves acquire with ease sufficient stock of knowledge and ability to evaluate it; others must acquire these the hard way. Professors judge lazy the students who do not do well, even if usually they are hardworking, blocked, stupefied, credulous, muddled and painfully frustrated. This is truly heartbreaking; there is no need to increase the stock of human misery.

— The author

4. The Author to the Bewildered Reader

My apologies, first, for calling you “bewildered”, in case you are not. I do not know you personally; for all I know, you may be not a bit bewildered. You may be a well-adjusted stable member of the community, one who just peers into these pages, perhaps because you have recently read a review that says how bad, superficial, and harmful these pages are, and perhaps because you wonder what use was made of all the money you—or is it your neighbors?—contributed last year to the college of your choice—or is it their choice? You may be a self-assured professional reviewer whose task it is to pass verdict on these pages as a part of your job, or a competent college administrator who wishes to keep abreast, well informed about the public image of your college and that sort of thing. You may be a proud parent whose child is doing well—or at least so you hope—in the local college or in a top university in some distant metropolis. You may even yourself be a successful and complacent student or professor. In short, you may be any of the many people of all sorts who are not bewildered in the slightest—at least about life in Academe. In that case, my apologies to you. In that case, I have no objection whatsoever to your proceeding to peruse these pages. You may find them quite boring, annoying, or even bewildering. (To your surprise—and perhaps to your loss—you may find that it is all too easy to bewilder almost any people whose readiness to reconsider and rethink is not as utterly in complete ruins as they hope it is. This Socrates of Athens found twenty-five centuries ago; it is surprising to learn that even clever and informed commentators overlook so much public knowledge, and systematically so.)

4.1

If you do find these pages disagreeable in any of these manners, or in any other manner for that matter, do desist from reading it any time—according to your own choice, of course. If you insist, you may proceed regardless. It is unimportant, even if you are a reviewer whose judgment (possibly though not very likely) may affect to some extent sales of this book, or if you are a college trustee or a colleague, who may not like the fact that a person like myself hangs around. (Disapprove may be useful: whatever your impression of this volume may be, I am reasonably confident that if we chance to bump into each other we will learn to adjust to each other’s peculiarities in a civilized, friendly manner, and then we may discuss this book.) All I wish to say to you is one brief sentence. I have said already too much in preparation of this brief message; the length of the preparation was necessitated by the brevity of the message; readers may all too easily skip a brief message, so that writers of brief
messages have the choice of elaborating if they are anxious that their brief messages will catch the eyes of their readers. They may elaborate on their brief messages, enlarging either their contents or their fringes; and I would rather not elaborate my message itself for fear of being misunderstood. In particular, I find that readers tend to find qualifications in the elaborations of any given message, the writers own protestations to the contrary notwithstanding. More than that, such protestations may even strengthen readers’ suspicions that the elaborations contain hidden qualifications. And these readers do have good reasons and ample precedent to justify such suspicions: many authors who find that their message are validly and convincingly criticized, themselves look in their elaborations some passages that they may construe as qualifications, or, still more sophisticated, as qualifying interpretations, so as to render valid criticisms not criticism of their own messages (as now understood), but of much stronger ones (as initially meant, but as now retroactively surreptitiously altered). I will return later to the silly refusal to admit error. Now my message to the reader who is not bewildered and who may nonetheless show interest in this volume. It is simply this: the present volume is not intended for you; it has been written on the opinion that too many people in the multitude of colleges, universities, and other institutions of higher learning are perpetually bewildered—among students and among professors, scholars, and research fellows, and including perhaps even an odd university administrator or two; far too many members of Academe are thoroughly bewildered, namely, muddled; they scarcely have an idea of what it is all about and how they themselves might fit into the picture—if there is anything in this universe of our discourse to merit the title of a picture in any possible sense, however loose or metaphorical. Still, on a second thought, remembering some modern paintings, I see that I should take this back in its entirety. So back to my message to the non-bewildered: this volume addresses the bewildered in the hope of helping them in some way or another (and of receiving remuneration one way or another: I am not particular). Which possible benefits of the relative lucidity that I dare to promise I now wish to discuss.

And now, my dear bewildered reader, now that we are hopefully rid of (most of) the non-bewildered, especially of the pompous amongst them—I am sorry it took such a long time, but the pompous are often reputed bores of the worst kind, and it takes some effort to shake them off—we can attend to your present ailments with some hope of not being interrupted by some thick-skinned cantankerous guardians of the status quo—at least with the hope of not being interrupted too often to proceed with the important matter at hand with a hope for some measure of success. Allow me to tell you, then, the advantages of relative lucidity. Let me tell it to you right now: the advantage is of relative lucidity, of the clarity of thought that is the contrary to bewilderment: the advantage of the clarity of presentations is that it lays them open to criticism and thus amenable to progress. That is it.

4.2

Kindly allow me to notice that not knowing you personally I may be ignorant of your specific complaint. I realize that it may be incurable. I wish to express my regret if this

3 Not that qualifications have to be detailed to be effective. At times the opposite is true: notoriously, the standard brief qualification “ceteris paribus” (“all things being equal”) suffices as an excuse for defunct (economic) predictions.
should turn out to be the case. I hope that even if my advice is inapplicable to your case, having read it may somewhat comfort you. It is fairly well-known that people suffering all sorts of pains have their agonies increased to a point of beyond toleration by their ignorance of their sharing their sufferings with others, an ignorance that makes them feel victims of fate particularly unjustly chosen; that makes them feel that their specific ailments are marks that separate them from fellow humans, thus adding the tortures of loneliness to their already heavy burdens and erroneous conviction that their sufferings cannot be diminished by consultation— with friends, housemothers, or departmental chairs—both because (out of misconceived sense of shame and/or guilt) they try to hide their sufferings and because they erroneously consider their ailments unique and thus entirely beyond remedy by any cure that is familiar, ready-made, or old-fashioned.

So, by describing others’ sufferings I may help even you to come to better terms with your academic environment, by showing you how far you are from being unusual in this respect (hopefully you are, or will soon discover how to become, unusual in some positively significant and happy respects, especially by publishing some useful progress-reports). I may help you perhaps by helping you to raise your ability to help your friends and colleagues. Being able to help others is a great personal advantage in a number of ways. (Bertrand Russell, The Conquest of Happiness, 1930) One’s ability to help opens one’s eyes to the problems of others, and thus to a better understanding of one’s environment. It is also quite interesting and engaging to try to be helpful, and when the attempt is successful to any measure it leads to some satisfaction from a sense of accomplishment, as well, at times, to close friendships of great value to all concerned. As David Hume and Adam Smith and Jeremy Bentham have repeatedly stressed, it is nice to be nice: the acquisition of friends is sufficient incentive for good behavior. Just encouraging others may suffice to make a difference all round. You would be surprised how sparing of this most people are.

You may find in these pages not only some pieces of (hopefully somewhat valuable) advice, but also the general method of constructing them—I try to conceal nothing from you, particularly in cases in which it may be of any personal help to you—so that after having read these pages, even if regrettably it does not address itself to your specific kind of ailment, it may be useful for you in your devising your own method of handling your peculiar problems in manners more successful than the ones you have tried thus far. (I assume you have tried; otherwise, you hardly have a problem.)

No matter how much one tries to broaden one’s horizon, one still stays not far from the vicinity of one’s own concerns, past and present, one’s own problems, past and present, and one’s own experiences, past and present. I do wish to tell you something about myself, so that you can see what my limitations are apt to be, so that if I disappoint you in not taking sufficient cognizance of your specific troubles, you will see that it is not from spite or nonchalance or indifference but from a normal human shortcoming, namely, poor imagination.

Well, then, job-wise I see myself as a successful, happy, and satisfactorily (by my own requirements, at least) adjusted to life in Modern Academe. I have problems, of course: only the dead have none, and only the utterly complacent and smug pretend to have none. My on-the-job problems were manageable, and most of them are either part of my academic work so that I tackle them with pleasure, or rather marginal, so that I am quite able to
overlook them—which usually I do. Academically, I count myself fortunate: I have made many friendships, most of them with colleagues, and I have won the esteem of quite a few; some of my old students are among my friends and colleagues; I had relatively good positions and my pension keeps the wolf away from my door. I had few job troubles to speak of and fewer complaints. The sole exception is of injustices, chiefly to my graduate students on their way to graduation and in their search for academic careers. I suffered that complaint throughout my career. I had to fight hard in efforts to rectify injustices to my students. My efforts to rectify some injustices to them in the open market, in their search of jobs, were mostly failures; my efforts to do so in my own school, on their way to graduation, usually met with success. (This was largely due to determination. I usually yield; otherwise, I put all my money on one card.) Finally, I do not participate in academic competitions and I belong to no clique. Oh, I had my fair share of enviable offers of good deals; I happily turned them all down unhesitatingly. This had its cost, of course: I had to forego all sorts of grants and honors, which is easy, and I had to fight against flagrant injustices—to me and more so to my students. I do not feel pressures, whether to publish or to do anything else; to fill the part of my formal contract, I always appeared in class promptly and submitted grades promptly. True, some close friends feel it is their duty to make me suffer in vain effort to prevent me from becoming too smug and too complacent. They fear I will not do my duties to the world, to the academic community, and to my own lazy self. Fortunately, the cost of making light of their advice is reasonable.

There is no need to go into details: these will scarcely interest you.

4.3

Let me confess: while I wrote these pages, I had the hope that they would somehow make these friends stop pestering me. I know: if they can, they will read these pages reluctantly yet closely (how much they are willing to suffer for the sake of a friend!). I have no wish to displease them, but I have failed in using all other means at my disposal of helping them to give up hope of reforming me and rendering me a serious scholar in accord with the rather limited and somewhat dogmatically upheld image they have of the serious scholar. Moreover, they are doubling their efforts to make their own students what they consider serious scholars who suffer agonies throughout their academic careers, and so I think I have to try to compensate these poor students whose sufferings increase through no fault of theirs. For, although I am not to blame for the educational blunders of friends and colleagues, it is still a plain fact—inasmuch as plain facts at all exist, of course—that my cheerfulness that they so unimaginatively interpret as intellectual frivolity, has caused them to be, unintentionally of course, or rather through the best intentions and in the name of the highest ideals of the commonwealth of learning, much less friendly and more harmless to their students than they otherwise would be. To show you that I intend to conceal nothing from you, I should mention that the individual who tried to save my soul most was my teacher and mentor, the famous philosopher Karl Popper, who wanted me to stay as his colleague in the London School of Economics. I left the School before I had any alternative option, which could cost me my academic career. When I found a post in the Far East, he told me it was likely I would be stuck there, thus losing the option of becoming a significant member of my academic field. I will not tire you with the details of the story. If you are
interested, you can read my book on my relations with him.\textsuperscript{4} Here let me end by observing that much as my leaving was against his advice, he did help me get that job. He has my sincere gratitude.

All this puts me in an unfavorable position as an adviser to the future academic that you are.

Not suffering now the agonies I intend to discuss, I might be a poor authority on them. It is, indeed, hard to know what makes one an authority, what not. In some of the sciences, peers with significant contributions to their names automatically win recognition as authorities, and not merely in expounding their own contribution, but in the field to which they have contributed, more or less. This is sometimes ill fated, as one may contribute—make a great contribution, even—and then regrettably lose touch. This has happened: Alessandro Volta, the inventor of the electrochemical battery, lost contact with research and became a dignitary—or a tool in the hands of Napoleon—with little or no intellectual concern in any field of learning. Dr. Joseph Priestley continued his researches to the last, but becoming more and more old-fashioned—as did later Lord Kelvin and like Einstein and Planck and Landé. As to myself, I have never had any authority to lose or to keep; as the default option, public opinion will consider my suggestions less serious than those of my peers who possess the status of original contributors to the stock of human knowledge, and even to those less productive ones who have more time and inclination to stay in the public eye than I do. Leaving them aside, we should notice in the name of fairness that there is some measure of objectivity in considering authorities contributors to the growth of knowledge. The difficulty is in deciding who has contributed and what the significance of this or that contribution. Abbot Gregor Mendel, the celebrated father of Mendelian genetics, did not live to see his contribution recognized. Things are more problematic in the arts. Whether Lord Macaulay or Thomas Carlyle has made a significant contribution is still under dispute. Things are much more problematic in the fine arts: how are we to judge contributions there? Playwright Bernard Shaw puts in the mouth of an established theatre-critic to say, that it is impossible to judge a play without knowing who its author is, since, if that author is good, then the play is good, and \textit{vice versa} (\textit{Fanny's First Play}, 1911). This makes the audience burst into laughter, yet it is no laughing matter. (My way of joking is to tell the truth, said Shaw.\textsuperscript{5}) It is the funniest joke in the world.) Was the contribution of Richard Wagner to opera or that of Henry Miller to literature beneficial or detrimental? This question becomes even more difficult, of course, when we come to the amorphous field of philosophy. Hegel influenced many philosophers (and some political historians and even some biologists); some say for good, some say for ill; who are we to judge. If it is doubtful with such big names, how much more doubtful it is when it comes to the small fry who inhabit your university and mine. If I have contributed to any field, it is to philosophy, especially to applied philosophy, particularly to the historiography of science. I belong to a small sect of philosophers, headed by Karl Popper of the London School of Economics, and hence known by some (never by many) as the London School of Pauperism. I cannot adequately describe my position in that school of thought since the very head and other leading members of that school have frowned upon most of my contributions, to the extent that one might say with some justice


\textsuperscript{5} Bernard Shaw, \textit{John Bull's Other Island}, 1904
that they do not belong to the standard works of that school. This much depends on the worth of my contribution. I have arrived at a stalemate; and so, on the criterion that any authority depends on the significance of some contribution, my own authority is questionable: many of those who can judge my contribution contest its value. Since my contributions belong to applied philosophy, why not forget all questions of authority and simply test my views in their application? I would like nothing better; some might feel reluctant to use my contributions so long as they are questionable, which is what they are and will remain, at the very least until they are put to test. This is a vicious circle: there is no patent office, national bureau, or federal agency, for that.

4.4

Healer, heal thyself! This ancient maxim is very strange. Sick doctors, they may say, surely cannot heal others; doctors who are well, they may add, have no first-hand knowledge of the illness that they wish to cure. Even if healers who were ill, deciders may further add, they forget, so that they cannot show the sympathetic understanding necessary for cure, especially of complaints of the heart and the mind and the soul. Cured healers may be in a worse condition than those who have never suffered, possibly because they are trying hard to suppress all painful memory and possibly because they have little sympathy with those who would not make the effort and cure themselves unaided as they had.

There may be some justice in all of this: have you seen many professors who remember how it felt to be a miserable student? They were, most of them, and their tacit denial of this, if they do deny it, may be due to the suppression of painful memories. I have met young instructors, fresh from college, who have obliterared any trace of their ever having been students (miserable or not), intentionally and doggedly, entirely and successfully to an amazing degree. (They even managed to adopt the gait of elderly, distinguished peers!) In the name of fairness, however, we must remember two facts. First, some professors never forget their student days as struggling young upstarts. Secondly, the suppression of memories of early hard times is by no means peculiar to Academe and is not in any way culpable. I am unfairly picking on the academics, of all people, because we are—or, to be precise, I am and you hope to be (with or without my aid; I admire your tenacity)—in the same racket. The gist of the last paragraph is—yes, you may glance at it again; if this makes you lose the thread of the discussion, you need more training in reading, of which more later—the gist of the last paragraph is that we have enough a priori reasons to dismiss any (academic) adviser. Which is silly, considering the fact that we need no reason for dismissing any adviser (myself naturally included), regardless of how good or poor they may be. For, obviously, it is obviously a privilege not to take advice without any further ado. Otherwise, the alleged advice is more in the nature of instruction or imperative or command than in the nature of advice or suggestion or proposal. So, why in the first place are we looking for advisers' credentials to find out whether they are or are not authorities?

This question is general; it is after my heart. It has much to do with my research as an applied philosopher. My peers study the rules of the game of science, on the supposition that

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they are obligatory, on the argument that (by definition) those who break them do so not as friends of science, much less as qualified scientific researchers. I am proud to notice that in my doctoral dissertation already I wrote that the rules are mere heuristics, so that they are at best akin to the advice of a tourist guide rather than of a platoon commander. So, why in the first place are we looking for advisers’ credentials to find out whether they are or are not authorities?

To answer this, we must recap a little. (You see, we did lose the thread after all, but not, you will now see, because I have advised you to glance at the preceding paragraph.) I said, judging by what I have already told you about myself, I am a poor authority. Even when I tell you more about myself (you may skip the story of my life if it bores or frustrates you) you will see how limited I am, so that in case I do not discuss your own specific problems in these pages, you will kindly attribute that omission to my narrow experience, poor power of observation, and lack of imagination, and deficiency in writing skills too, rather than to some nonchalant or careless disregard of what you must consider fairly significant. More generally, looking at people’s credentials and finding them impressive does not render their advice authoritative to the degree that would impose on you the need to concoct some reasons to justify your disregard for it; you can disregard it, to repeat, just because it is your pleasure so to do; but seeing people’s credentials may provide you with a rough idea as to what kind of advice they may provide or concerning what question you may expect them to give answers interesting or useful in any measure. The operative word here is “may”. This is all in the nature of suggestions: it is not binding in the least.

The law of the land provides for licenses for some sorts of advisers, chiefly medical and legal, and it requires that they acquire these licenses before they officially possess permission to provide their advice to the public at large. No matter how critical you are of these professions, and how serious and valid your criticism of them is, you must agree: cancelling the system of licenses will worsen matters. (This is open to empirical test. The test of the usefulness of drivers’ licenses was simple: cancelling them turned out to increase the number of serious road accidents.) By the rule of liberal legislation, if laws that require of practitioners to possess licenses do not improve matters considerably, then legislators should better cancel them or at least improve their use.

People often request advice and then give reasons against adopting it. This greatly disparages the adviser. Advisees often explain why they refuse advice as evidence that they do not think poorly of it. This is erroneous: the adviser has been bothered enough and has no need to be bothered further to no practical end. If they are any good, then they have their own explanations for any rejection of any piece of advice of theirs. The reason for it is all too often, they know, that people seldom wish to receive advice; often the half-hearted, ill-expressed request for advice is all too often merely a pretext for telling an adviser one’s life-story. Similarly, as psychiatrists know, many people seek their service only in order to talk, not in order to listen, much less to seek cure or assistance. As Henry Miller has reported (on his experience as a self-appointed psychotherapist), the only significant characteristic of a good psychotherapist is listening. A few psychotherapist friends of mine concluded that most of their patients are simply beyond help, and softened this conclusion by the suggestion that remaining greatly unimpressed and unsympathetic they may nonetheless help reluctant patients, at least those patients who express displeasure with their therapists’ indifference, as they protest against manifestations of their heartlessness. Be this as it may,
we should also take note of the situation: not all people who claim to be seeking advice
know that they wish to take none. All too often, they do not know: those who merely wish
to talk usually feel that way because they suffer, and sufferers usually feel very ready, of
course, to act in order to reduce their own suffering. Only, regrettably, they do not always
act that way. For one thing, they may be unable to act. And the means by which one
prevents oneself from action, by which one imposes on oneself inaction much against one’s
interest or good will or better judgment, is by the misapplication of universal skepticism,
which is applicable to any situation, and which the powerless so miserably discovers that it
applies to their cases, whatever these cases happen to be (Ludwig Wittgenstein). They usually
attribute this to their bad luck. Their powerlessness and their blindness to the a priori character
of their doubts unfortunately make them always applicable; they thus cause general
helplessness. An example given above (in the paragraph I advised you to reread) is the way
of casting doubt on the authority of an adviser. You may meet many other examples in the
marketplace and in all official meetings in Academe, on the departmental level, the faculty
level and the senate. (One wonders, after all this, why administrators take over the senate’s
duties and run the university!) So, if your advisees are ones who play this kind of game of
expressing helplessness and apprehensions and inner conflicts by merely concocting poor
objections, possible to construct a priori anyhow, my advice to you is, do not advise them.
Leave them alone. Tell them you deeply regret inability to help them. At least for the time
being. Send them to professional advisers. Later, if you become more sophisticated, you may
learn to lay down your own objections before allowing your friends and colleagues to moan
and whine on your shoulder. This requires a degree of sophistication. My own friends and
well-wishers, of whose persistent good will I have already told you, are no small judges of
character, wisdom and philosophy of life, yet from time to time even they forget (much to
my chagrin, as I have also told you) that one should not offer advice before it is expressly
and sincerely requested; yes, particularly not to friends and relations. One can and should
express concern and willingness to help, but not a jot more than that—unless one meets
with an explicit request for help. Explicit.

This long discourse should explain to you why the practice of support groups was so
successful, in cases in which patients need only determination to cure their ills—such as drug
addiction—as well as in cases in which they can do nothing against their shared complaint.
Alas, there are no support groups for academic agonies.

Please, do not conclude that I think no advice concerning academic agonies is ever useful. If
this were so, I would not busy myself with writing these pages—at least not with so much
hope that I will be able to help you a little. Indeed, were it not for the advice that I myself
have received and followed, good, bad, and indifferent (especially from my teacher and
mentor Karl Popper), I would not be in a position to advise you at all. I was myself the kind
of student you are, more or less: bewildered, miserable, incompetent, and infuriating teachers
I honestly tried to befriend. (I tried hard to befriend them, perhaps because I desperately
tried to become a successful student, perhaps because I respected them and thought in my
adolescent way that you should try to befriend people you respect, rather than people whose
company you enjoy. Perhaps I did so simply because I was terribly, painfully lonely,
especially as a student but also in general.) My teachers had some hope for me—one need
not find that surprising: they had previously succeeded in molding shapeless and bewildered
students in their own images. They gave me the recipe: work hard! Develop will power!
Grind your teeth, and work! Look at the more successful classmates of yours and try to
imitate them! And so on. How inhuman! How blind! How absurd! I do not know if I was fortunate or unfortunate in being unable to follow their counsel—try hard as I did. For the sufferings at the time were unbearable. In recompense I am now (academically) free from petty intrigue and ambition, worry and trepidation, and all other ills and neuroses of the profession that I can see around everywhere in Academe, among its least and most successful fellows alike. Thinking of you, my bewildered reader on the way to becoming a neurotic academic but still sincerely looking for help, I think I owe it to you to relate to you my experiences, in the hope that you might benefit from my chat. I owe it to my teacher, Karl Popper, who generously advised to me, to return the favor. The only way to do this is by transmitting the favor received from the earlier generation to the later one—not exactly, but in kind. For, if we are to progress, then history should not repeat itself. Not only is your suffering unnecessary, but also, if I help you a little to rid yourself of some errors that you are going to commit and perhaps later to correct, you may have more time and energy to study newer ways and correct other errors, such as mine. Famously, the saying, the wise learn from experience, has an improved version: whenever possible, it is better to learn from other people’s errors than from one’s own. The common to both versions of the saying is this. Learning from error is adding to the stock of human knowledge (Popper).

4.5

The stock of human knowledge is immensely varied, and in many respects (Paul Feyerabend). The accumulation of knowledge was traditionally performed in at least two largely different ways; both unsatisfactory, perhaps, but differently so. The one way was the accumulation of knowledge in the learned academies and institutions of the day, in their libraries and in their classrooms. These covered important subjects beginning with religion and ending with unimportant topics, but at least ones that at the time scholars deemed sufficiently important to merit attention. The other way was the accumulation of knowledge by tradition, custom, folklore, and folkways (Maxim Gorky). For this kind of accumulation of knowledge, there were no libraries and scarcely any written records, and instead of transmitting knowledge by recruiting students, the method was possibly word-of-mouth and possibly engagement of apprentices. Perhaps what I have just said should meet criticism immediately. The two ways of accumulating knowledge were originally identical, or at least they always overlapped significantly. The learned doctor and the village herbalist were in communication, quite apart from the identity of their origins. Moreover, as long as religion controlled every custom and every tradition, the village priest was contact with the priest belonging to their churches in one way or another. Yet, much of the practical affairs of the world were unknown to the learned and vice versa. The learned (as well as the public at large) ignored widespread ideas and practices that had been stock-in-trade of members of occupational groups. The learned world greatly improved its knowledge when the Royal Society of London showed interest in mundane things that its predecessors had barely noticed. This included methods of foresting and of shipbuilding, as well as of mining and of producing gunpowder. Early in the nineteenth century, market research won some scientific interest too. Still, scholars and educators scarcely noticed many important items, such as sex-education. So much so, that the 1925 book of Margaret Mead, *Coming of Age in Samoa*, was sensational because it includes (scant) details about the sex education and sexual conduct of unmarried young girls in Samoa. The book includes also some official
information of the colonialist government that suffices to prove her stories too utopian to be true; this very defect made her anthropological book a bestseller. By the time her stories were subject to public criticism, her reputation was invulnerable. The same happened with the much more realist 1927 *Sex and Repression in Savage Society* of Bronisław Malinowski that is too utopian as comparison of it with his diaries makes clear.¹ Sex education remains a part of tradition, transmitted from mothers to daughter and from adults to their adolescent friends, as well as between children around the block. For a long time this poor method of transmission prevented wider public forums from airing opinions and scholars from comparing notes. With the relaxation of taboos about a variety of subjects, these could be discussed in handbooks to the benefit of the public (despite the many superstitions that these books supported), the books criticized by reviewers and improved by succeeding writers. Look at the barrage of recent books that come to replace folklore and introduce better and wider knowledge and understanding of matters that may or may not be intellectually valuable, but which improve life considerably (Doctor Ruth). This way, the do-it-yourself literature included such items as, how to find a house to rent, how to raise a baby, how to succeed in business without really trying, and even how to date and how to wed; to say nothing about what astute Allen Wheelis has called the “do-it-yourself psychoanalysis kit”.² The Swedish government made it its business at that time to provide a television program teaching young girls how to masturbate hygienically. This may be not terribly important to the world of learning, but it seems to me eminently reasonable. Academics may and often do sneer at literatures of this kind, which offers specific advice or tidbits of philosophies of life. Philosophers are particularly prone to sneer at volumes like Bertrand Russell’s terrific 1930 *Conquest of Happiness* and his 1935 *In Praise of Idleness*. I think the ones who sneer at these works display pomp or ignorance of the information that such volumes have helped quite a few suffering individuals. They are useful, as their authors have meant them to be.³ Books that help cram efficiently for exams should give way to books that help pass exams without cramming or even to books that help us deliver academic courses with no need to force the students to study—by exams or any other imposition. This volume is a starter in this direction.

It is not possible, you say. I say, it is, and profitably so for all concerned, chiefly students and professors but also academic administrators. I would not know that, since academics and academic administrators do not meet except at the very top of the academic pyramid, but it was my fortune that as a student I worked for my living in the office of an academic secretary and in other academic administrative offices. Later on I learned that as a medieval institution the university can run its internal affairs any way it likes; nothing stops it from doing this more systematically. And you never know what you can do until you try.

I was fortunate to have terrific professors who taught me by example how to exercise my freedom with impunity. I hope to tell you how to do it even though I am already retired and so I cannot offer you an up-to-date personal example. The reason for it is the absence of material akin to the absence of material on sex, and for similar reasons: too much confusion about it. The rapid growth of the academic world prepares for academic life as much as for

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¹ See my *Science and Culture*, 2003, Chapter 1.6.
³ There are exceptions, such as handbooks that teach manipulative conduct. These are obviously objectionable. My example for this is Dale Carnegie, *How to Win Friends and Influence People*, 1936.
sex. Education has managed to deprive many people of the joys of sex,¹⁰ in the same way it deprives people of the joys of learning, and much more easily. There may be little intellectual content in the information and training that young people receive who prepare to teach infants the arts of reading, writing and arithmetic. The aim of imparting of this information is to reduce human suffering. One way to do this is the use of information to and training of teachers who first face a class of tiny tots as replacement of their reliance on their memory and on their knowledge of folklore. This should apply to young academic teachers who face a freshman class; it does not. At least in nine cases out of ten the preparation for this event is practically nil. It makes the event traumatic. Everybody knows this, and talks about it, but does nothing about it, when all we have to know is that taking care of your quest for knowledge makes you immune to most of the academic agonies with hardly any preparation. But I am anticipating myself. All I wish to say now is this. As a student I suffered from bad teachers and benefited from good ones; also, I flatter myself, as a teacher I have succeeded in improving the methods of my predecessors and found that I could give advice to young students that helped them—some of them, to be precise—to avoid some of my past misfortunes. I use the printed page to broadcast ideas and techniques—for some to use, and for others to improve upon, in the manner quite traditional in the commonwealth of learning, even if only marginally so.

For, whereas the training of youngsters to become schoolteachers may at times be of little intellectual interest—though it need not be, and in the hands of the dexterous teachers it will not be—the training of youngsters to become proper academics, intellectuals and recruiters and trainers of intellectuals, is itself of a great philosophical interest, whichever way you look at it. Hence, these pages, though intended as a manual of sorts—as a bag of tricks that will help you, I fervently hope, orient yourself in this jungle of the modern academic world—it is also an exercise in applied philosophy, no less.

It is a new venture. Incredible as it sounds, most evils of Academe are rooted in a philosophy of learning whose folly I am tired of discussing in books, articles, lectures and debates, in seminars, colloquia, and symposia, local, national, and international. I am tired of these exercises, particularly in view of my own teacher having fought the same battle for many decades already; he was tireless in the battle, but it bored me already then.¹¹ For, as he himself stressed, those who prefer not to heed criticism have the right to behave as they wish. That the current view of learning is full of defects is no news, yet most philosophers stick to it in the hope that these can undergo some correction. The prevalent philosophy, it seems, once it takes its grip over one philosopher or another, makes one lose all ability of even remotely entertaining the possibility that it is false and better given up altogether rather than undergo repeated patching up.

Now, there is more than one way to skin a cat. Rather than debate the relative merit or fault of this philosophy or that, we can try to look at both of them, each on a large scale, and see what comes of it. Of course, this kind of argument is neither conclusive nor safe. It is

¹⁰ The Joy of Sex of London University biology professor Alex Comfort, 1972, was a bestseller just because sex was then too often joyless. Similarly, Betty Friedan’s 1963 The Feminine Mystique was a bestseller since it expressed the tremendous frustration of middle-class women by the expectation that they devote their energies to attend to the needs of their families and please their husbands.

¹¹ See my “Our Agenda and its Rationality”, in Gérald Bronner and Francesco Di Iorio, eds., The Mystery of Rationality: Mind, Beliefs and the Social Sciences, (Lecture Notes in Morphogenesis), 7-15.
inconclusive as the wrong party may win by default or by the force of accidental and barely noticed circumstances. When it comes to education, it is not safe; it is indeed positively dangerous to experiment with human guinea pigs, since we do not know how harmful the outcomes of our experiments can be. Yet, I do recommend that you should make some of the experiments herein proposed and take full responsibility for it. Why?

4.6

Before answering this question, allow me to stress: I do consider quite an adventure your possible taking up my advice. Even if at the end of an experiment or two you will revert to your old ways, you may thereby lose something of no small significance to you. I have given such advice to quite a few people and watched their progress, so that I even have quite some empirical basis for what I say—here or later in this report—if this means anything to you (it should not; at least not much). I do not wish to report here the successful cases, nor the cases of people who pretended to want advice but did not. There were also, come to think of it, the disastrous cases of people who followed compromise solutions falling between their own ideas and mine—I need not discuss them either, since if you will read the following pages you will realize the frivolity of such procedures. I do wish to mention cases of following my ideas for a while and then giving up further attempts even though the ones tried were not quite failures. When one realizes that the jail’s door is open yet stays in jail, the experience causes some serious damage to one’s self-esteem: one learns this way that possibly one is a coward or a weakling (Sartre, *No Exit*, 1944). More accurately, those who ceased experimenting prior to failure have learned thereby that they prefer to live as they did hitherto, that they need not complain about their situations. This is progress.

This is not any sort of psychoanalysis of hidden or suppressed wishes. Though hidden wishes do exist, Sigmund Freud greatly exaggerated it when he saw it everywhere. Although by viewing our true aims as different from our hidden aims he seems to have proclaimed us all too irrational, he has also proclaimed us much too rational by ascribing hidden aims wherever overt rationalities were missing, and thus he also ascribed to us some hidden rationalities. This was Freud’s great error: he underestimated the force of confusion even when unaided by the unconscious, the sub-conscious, or the super-ego, or by any other complex mechanism. The following case will clearly illustrate this contention, as it has no connections with hidden motives.

Adam Smith’s great contribution to economics was his view that when two individuals trade they both expect to win, and his explanation of this new claim. The claim is so strange that not only all of Smith’s predecessors, but also many of his successors, including brilliant thinkers like Karl Marx, took it for granted that all gain through trade is compensated by equal loss through trades—for one party to gain another party must lose—particularly when workers sell their labor to employers. He labelled “surplus value” the value of employment for the employer minus what the employment pays to the worker. He was so proud of having added this idea to standard economic theory (that, incidentally, is more than a century

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out-of-date). To use modern jargon, the error is the claim that all trade is zero-sum game. (John Nash) Now, suppose that all trade is zero-sum. The question immediately presents itself, why does the losing party agree to the transaction? This question surfaced regularly since antiquity, and the answer was always the same: the losing parties agree to transactions under pressure: they undertake them reluctantly.

It is almost inconceivable that for so long so many scholars assented to this answer and that this answer is still popular. What is the reluctance that they notice? If it is that one may undertake a trade against one’s wish to avoid it, then we should notice that trading at gunpoint is not trade at all: it is highway robbery masked as trade. If it is the wish for a better deal, then this is true for all every act, including trade: the deal one accepts one deems the best one can get but it is far from what one would like it to be; the question is, why trade at a loss? Why trade when a better deal is possible? Is it believable that every year a farmer sells crops reluctantly and under pressure? Yes, it is; one can argue that farmers let the merchants rob them from no choice. That means that they forego a better option unwillingly. The anarchists say, in addition to buyer and seller, every deal involves the government that people bow to—out of ignorance (Lev Tolstoy). Smith agreed but considered this a minor matter.

Smith cut across the complications by insisting on one fact. Selling not at gunpoint is voluntary; hence, all parties to a trade expect benefit. The starving old lady is reluctant to sell the silver that she had received as a wedding gift; ultimately, however, facing two ugly alternatives—of starving now with her silver in her possession to the last or letting the silver go in order to postpone starvation—obviously, she rightly settles for sale.

Smith faced a new problem: how do all the parties to a trade deal benefit from it? Whence the value added through trade? Answer: from specialization: any specialization requires trade—by truck and barter or by any other means. As far as economics matter, all of us, with no exception, are in the same position as that old lady: we all fervently wish to have more and better alternative options to choose from and we can all find some defect or another in any of the given alternatives. We can easily imagine an unavailable preferred alternative to the given options. When we choose a transaction, we choose among existing alternatives the one from which we hope to gain most. Karl Marx legitimized the complaint that we have all entered transactions involuntarily. He called the benefit surplus value and declared that it is due to a capitalist systematic error that robs the workers of their fair share: the seller and buyer, said Marx, are not always in a position different from the robber and the robbed. Because of this muddle, he considered himself an economist, and even in the great tradition of Adam Smith and David Ricardo. This deserves notice: there were mitigating circumstances, though: Smith had advocated the theory that the price of a commodity reflects its value and its value is the amount of labor invested in it. This ignores the scarcity of resources, a point made by Thomas Malthus whom Ricardo respected but whom Marx ridiculed. Although the surplus value theory of Marx is sheer hate propaganda (Bertrand Russell), he viewed politics as dispassionately as he could. All this is water under the bridge, since soon after Marx died economics underwent a great revolution. The hatred that he inaugurated has evolved into a whole irrationalist, anti-liberal philosophy, ignoring economic theory since it is liberal, resting as it does on Smith’s observation that all contracts are voluntary, and considering freedom as the freedom of choice, so that the more options one
has the freer one is. Economist are still prone to the idea that workers have to accept the conditions of the employer or seek another employer, forgetting a plain fact: the improvement of the quality of working life is achievable, but not through the free market. Even if employers resist the improvement of the quality of working life due to the constraints of the free market, all people involved benefit from the implementation of the improvement and they take it for granted.

The earlier refutation of Marx’s theory was the rise of the standard of living of workers. Vladimir Ilych Lenin explained away this refutation. As a student, I wanted to discuss this with my philosophy professor. He evaded me. He evidently did not know what to do, or how to save me confusion and resultant troubles. You need not be as foolish as I was. Do not fall for illiberal irrational fireworks. (Lenin explained the success of the western workers as due to their sharing the loot from the poor countries that the imperialists were robbing. Unlike Marx, he had no theory to explain how this alleged economic process takes place; he advocated the idea simply because it allowed him to cling to his dogma.)

4.7

Back to our business, then. We can say that those who willingly submit to constraints that they can refuse may still complain about them; they then phrase their complaint in a muddle that conceals their ability to refuse submission to the constraints about which they complain. There is a rationality in that confusion: since some people do choose to be free of the constraints in question, the ones who submit to them do so voluntarily, which is embarrassing. It is seems comforting to be too muddled to face the situation and admit that one is submissive. Nor is it easy to distinguish between law-abiding and submissiveness. We owe to Immanuel Kant the clear distinction between submissiveness and law abiding. Yet he could not tell us how to unmask submission that comes in the guise of law-abiding. The experiments that I suggest are to try to refuse to live by some constraints and see how it feels; for one who feels good yet returns to the live of submission will have to face one’s submissiveness, and find it very unpleasant. Sartre has rightly observed that realizing this torments prisoners as it shows them that they are unable to leave their jail anyway. Selma Lagerlöf is morally superior to Sartre, as she has rightly observed (The Wonderful Adventures of Nils Holgersson, 1906) that even slight encouragement may help the prisoner escape.

You may think that I am rather over-dramatic. I admire you for thinking such thoughts, because it shows how little you think of self-deception through confusion. Unfortunately, I think it is a powerful factor. I shall elaborate no further, because I do hope that you, at least, will not mind the risk of reducing your ability to deceive yourself by confusion; it is possible you barely know how much you deceive yourself unknowingly. We all do! Never mind that for the time being. We should take personal problems seriously only when we bump into them.

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15 Under the influence of Wittgenstein, Carnap advocated the amazingly naïve idea that all disagreements between reasonable people are rooted in confusion so that clarification will bring about complete agreement. Although this exaggeration is naïve, its true core is important: many confusions want clarification. This exaggeration led to no practical achievement. Hence, my model is Adam Smith, not Wittgenstein or Carnap.
To the answer to my question, then: why am I suggesting certain risky experiments? It is because I hope you are daring enough to take certain risks in the hope to learn something about yourself, your environment, and the various ways you may fit in it and thereby improve your lot and thus also your ability to contribute. Obviously, if you will try out some of my suggestions you may fail—in some exams or in the delivery of some lecture course that you may undertake, or anything else you try. You may even unwittingly make yourself an enemy or two. This is surprisingly easy to achieve. Such failures are no catastrophe; rather, avoiding them entirely or even avoiding most of them is the catastrophe that I wish to help you avoid. For, the only way to avoid failure almost entirely is to integrate with the system from the start through excess servility, through supreme caution, and through the relinquishing of all readiness to examine critically, not to say to improve, any part or aspect of the extant system. You can meet such conformists—in Academe as elsewhere; some of these get through successfully with the aid of unusual doses of great luck and immense talent. All too often, they are nervous wrecks. I do not know why this should be so, and I found that psychologists do not help me understand this. All they can say is that we all need a sense of challenge that we cannot sustain without some measure of failure; which is true, but not helpful and not enlightening. I have met a psychoanalyst from Hollywood—if you think for a moment you see that one can expect such talented straight successes to be there in a concentration higher than normal, and with a higher than normal ability to pay an analyst—and the said psychoanalyst boasted to me of having found a way to bring these people somehow to come to terms with their success. Unfortunately, I was unable to believe the story: I think it was bragging in the safety of the company of people like myself: ones with no contact with Hollywood so that they cannot divulge the violation of professional secrecy that such conversations may involve.

The point, you see, is general, but when applied to academic education and initiation, its significance undergoes great amplification. Academe requires conformity from all initiates, elicits it more often than usual, and remunerates it more often than usual. This has disastrous effects on both the commonwealth of learning as a whole and on its individual members. Academe requires conformity more often than usual, because conformity is to something ever so valuable as the treasures of accumulated knowledge, because every so often professors try to mold students in their own best self-images. They may fall short of their own self-images and then they deeply regret it; consequently, they might try to elicit better conformity from their students; alas, the defects are unintended consequences of general ideas and of general circumstances; and so, as long as the circumstances do not alter drastically, student will provide the same characteristic defects as their professors. Oh, students often go for conformity for the same reasons that their teachers offer when demanding it. The need for added incentive is obvious: the established want worthy successors (by our own standards); the unestablished want the help that only their professors may help them acquire. This is natural and very sad, and all those who complain about the great conservativism of Academe, as well as all who deny it, are slightly too superficial. The question is, how are we to reduce excess conservatism although it comes naturally? My answer will depend on my criticism of the ideologies of professor and of student alike, and on my alternative ideology that I have borrowed, let me repeat, from my teacher Karl Popper.

The story that Richard Feynman tells in his autobiography is telling: he had to teach in Brazil to observe students’ submissiveness and to realize that he abhorred it. His experience is not unique.
His view of intellectual life as a spiritual adventure is not new; it is sufficiently popular to need no elaboration upon, not even in a longwinded text like the present one. His innovation, the point to elaborate on, is that the spirit gets broken all too often before the first occasion for an adventure by the ideology of the commonwealth of learning that supposedly accounts for the adventurous character of intellectual life but which instead opposes it and stifles it. The idea that endorsing the latest advances of science is obligatory sounds very reasonable; it is harmful. There is no need to advocate the latest advances of science: they are imposing. It is much harder to try to find their shortcomings. It is the first step for independence, says Popper, and possibly also for the rare ability to contribute to the growth of science.

This is not abstract. I too look for the bright-eyed student on whose shoulders the burden of the next generation may fall. The older I get the more I pay less attention to many merits and defects of students. I am now less impressed with their mental agility: on this point, Thomas S. Kuhn is right: the average student is intelligent enough to become a normal scientist. The quality I look for is therefore less intelligence and more intellectual-courage. It does not matter where it comes from—whether from physical courage, or from honesty and straightforwardness or uncompromising curiosity, or due to the hope of escaping from private miseries or social disadvantages and discriminations, or as means of social climbing or of impressing a member of the opposite sex. What matters is the degree of intellectual courage one can mobilize. On this I hope to tell you more later on—if you stick with me. The present inquiry is thus a combination of my attempt to help you through developing with ease your intellectual courage and your will to make experimentation part and parcel of your academic career, as well as a part of my attempt to make my own contribution to the commonwealth of learning through applied philosophy, through the development of the idea of the role of intellectual courage in the growth of knowledge that is part-and-parcel Popper’s theory of knowledge.

By now, I think you had ample warning and a fair opportunity to cease reading this volume. In any case, fare well!

— Boston, Massachusetts, summer 1965;
— Herzliyah, Israel, Summer 2020.

P. S. My Advice in Brief

A classmate and a good friend of mine, Abdelhamid Ibrahim (“Bashi”) Sabra, later a Professor of the History of Arabic Science at Harvard University, has taught me something very important. He told me that he only published what he would have read profitably as a student, were it available then. I intend to emulate him: the present musing should comprise the advice that would have helped me if it were available to me when I was a student or a young academic. Not quite, however, since the present musing is rambling, unlike Sabra’s works that are admirably concise and well structured. I hope you are proficient in the art of browsing. It is of great value for a prospective academic who wants to choose independently what texts to overlook, what texts to read, and what texts to study diligently. Here is a preview of my chief idea as far as your conduct is concerned. Find out what you want, independently of whether it is accessible. If you cannot find out, just decide. If you
cannot decide for yourself, consult anyone or imitate anyone, but decide; if your decision does not appeal to you, then it is your prerogative to change it. (If you hesitate, you do not decide, and then you have no decision to change.) Have a goal, however tentative, and plan seriously your actions toward it. Do not plan hard work, do no plan dedication, and, above all, do not plan to do anything disagreeable to you. In particular, do not plan a martyrdom: we have too many martyrs already and they comprise sheer ballast. Try to avoid these as best you can. If you cannot see yourself overcoming the obstacles, look for a second best. But wait a bit. Many obstacles look at first glance much more formidable than they are. Be prepared to break every empty taboo, rule, or regulation on your way, as long as it incurs no pain to people around you (but ignore homilies against your decisions). If you do so with impunity or while paying a penalty smaller than remuneration for it and so not regretting the penalty, you are a better person and a better citizen for it. If the penalty is too heavy but not disastrous, consider it tuition fees. Avoid disastrous penalties as far as possible: in civil society, martyrdom is a defect, not a merit. Look around and you will find people who complain that they have worked very hard for the public interest only to get penalties in return. You will notice quickly that you do not want them as role models.

My intent here is to elaborate the above points that I consider universally valid but particularly fruitfully applicable to Academe, and for two (polar) reasons. First, academic freedom is more valuable for achieving intellectual ends than other freedoms for their related ends, and then it is hard to depict and to offer institutionalized guidance for the protection of academic freedom. Some economic freedom, for instance, is essential for economic progress, but (pace Ludwig von Mises and Friedrich von Hayek) there may be different systems of partial economic freedoms, of different economic incentives. Not so with academic freedom. Yet, due to the post-World War II rapid expansion of Academe (due to the GI Bill and similar incentives), current well-paid university professors are more regimented and more harassed—by bureaucrats and by their own red tape—than any other professionals within the same income-brackets. After all, returns for breaking taboos are enormous—both intellectual and material—particularly in Academe. I intend to elaborate on all this. The detailed discussions and suggestions that I will offer may well fail to help you in your specific predicament, but I hope you will notice their general drift and improve on them: modify my proposals to suit your specific needs, and do it in diverse ways and try them out; gently.

The leading lesson here is one that Gloria Steinem has advocated, and Ernest Gellner did earlier, as did George Orwell; perhaps Adelbert von Chamisso did so first. It is the most important general piece of advice: retain at any cost the most precious thing in your possession, and that is your self-esteem. There are reasons for endorsing any absurd thesis: that men are better than women are, the emperor’s new clothes are beautiful, that two plus two equals five or that you can live well enough without your shadow. Taking these absurdities seriously is the simplest, easiest, cleanest and most natural way to approach allowing yourself to lose your self-esteem whole. This loss is the first step towards the loss of all freedom.

I am glad you have chosen to become a colleague, and I welcome you warmly, even though I am not authorized to welcome you (especially since I refuse to examine your qualifications);

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17 Bernard Shaw, Prefaces to Fanny’s First Play, 1911 and to Too True to be Good, 1933.
I have no advice to you as to how to obtain an academic appointment; my advice to you is, do not trade your self-respect for an academic post—or for anything. No matter what they offer as compensation for the loss of self-esteem, it is a bad deal. Never allow anyone to offend your self-esteem (Gloria Steinem)! It turns out that you have no need to suffer such offense: odd as it sounds, guarding your self-esteem zealously never blocks happy and productive membership in any society, not even in Academe (Gellner). Many experts will say that this is naïve optimism; not so: it is the plain truth. It is also the right version of a familiar philosophy called eudaemonism: happiness and personal well-being is best achievable—if at all—by intelligent selfish conduct. If this idea is advisable anywhere, the obvious place for it is Academe.  

This is not to advise you to join Academe. Far from it. Unless you are intent on becoming an academic, you may find better luck elsewhere. What place in society you consider best for you, that place you should aim at. You may be mistaken about it; hence, you should be critically minded about it. Folk wisdom says so clearly. Even if you are a famous academic, if you do not like your place in Academe, my advice is, leave it at the first opportunity. Henceforth, I take it for granted that it is your decision to be an academic. I wish you success. If I can help you increase your odds, I will do so gladly. Alas, I have no idea how to do that; only how not to. Do not expect academic appointment to come from getting good grades in your academic studies. If anything helps enter Academe, it is being a good scholar, not from gaining good grades. Professors like students who go for good grades, as they give them least trouble; from peers they expect something else. It is often not academic excellence or anything like it. As far as experience can guide us, it tells that success in entering any profession is largely a matter of luck. To the extent that it is not, the simplest advice is, do your best to improve yourself. Study the classics of your chosen profession and learn to speak and write clearly and to the point. Above all, do not write to fit the current fashion; it is too fickle, and it brings remuneration only to those who have sold their souls to powerful academic leaders who can see to it that at times some slavish acts that they supervise are remunerated. Leave them alone! The best tool for this is planned spontaneity. Whatever you do out of a sense of compulsion and without joy is not sufficiently good; admittedly, at times it is necessary, but then it may be a necessary evil. You will be surprised to learn how much of what people consider necessary evil is not necessary, as you may find a version of it that is good and enjoyable. As urbane novelist William Somerset Maugham said (1940), “Now it is a funny thing about life; if you refuse to accept anything but the best you very often get it” (The Mixture As Before, “The Treasure”).

18 If there is any counter-example for this, it is from the admirable me-too movement. Hopefully, the exploitation it was exposing is a thing of the past.  
19 Celebrated sociologist Max Weber said (“Science as a Vocation”): 
I personally owe it to some mere accidents that during my very early years I was appointed to a full professorship in a discipline in which men of my generation had achieved more that I had. And indeed I fancy on the basis of this experience that I have a sharp eye for the undeserved fate of the many whom accident has cast in the opposite direction and who within this selective apparatus in spite of all their ability do not attain the positions that are due them.  
This is a bit too self-effacing as a self-appraisal; yet it is true about the academic marketplace. My late wife was a leading sociologist and she failed to have a normal academic employment, partly as a woman, partly as anti-Marxist, and partly out of bad luck.
The reason for this surprising observation of Maugham is simple: most prohibitions are senseless. Only yesterday, most writers about sex, you may remember, viewed it as necessary evil. You will be surprised how much of what so many consider the worse evil turns out to be better than the alleged lesser evil. To stick to my example, consider matchmaking and free choice of one’s mate. Let me generalize. The commonest doctrine on earth is that of the original sin or the beast in us: let people do what they want, and they will steal, fornicate, and murder, causing social collapse. The extreme opposite doctrine is anarchism: people are good when no force steers them. Both doctrines are obviously false. However, surprisingly, recent history shows truth to be nearer to anarchism than to the doctrine of original sin. Thus, we may plan for the conditions under which spontaneity is more to the good than to destruction.

Planned spontaneity seems an oxymoron; it is not. What you wish to do now much depends on your immediate environment; you may choose it. Notoriously, you may carefully think up a few options, and then your eye falls casually on something exciting, and then things change in a flash—if you are game. Real intellectuals surround themselves with books they wish to read but have no time for: Dante, Galileo, an introduction to the calculus (elementary, analytic, or historical—depending on your background) some poetry, the score of a late Beethoven quartet. Purchase them in paperbacks; stuff with them your drawers, glove compartments, overcoat pockets. You will soon find yourself reading a few lines of Dante Alighieri while waiting for your girlfriend in your car. And enjoy it, too. It is indeed amazing how much flavor such minor occasions add to the general quality of life.

This is a simple example. Waiting for your girlfriend, however, is not a major part of your life. Can you make your profession, too, a happy pastime? Is it advisable? Is it moral? Yes. (You Can’t Take it with You) For further details go on reading.

This work is full of digression that I hope you will find amusing and/or instructive. They may also frustrate you, especially if you are very intent on quick advice. I have, therefore, given you my chief points already, so that you may now choose to dump this volume to the waste-basket, put it aside (in your glove compartment?) for a more propitious moment or settled down comfortably to read a few pages at the intended (by me) slow pace. You may have skipped the preface—this at your own risk, since the preface contains a caveat. You may now skip the first two parts of the book and go straight to the third one—on the condition that you do not place only me all the blame for your misunderstandings. Nevertheless, good luck!

Supposing you are decided on seeking a post in Academe and that everything you do do right and even that you excel, the default assumption is that you will sooner or later succeed in obtaining an academic post. A least most of the students I met in my student days, admittedly very long ago, took this for granted. The most important point to make here is that this assumption is remote from the truth. Do not waste your precious time following it. There is no guarantee that anyone will receive an academic appointment nor that one’s tenure-track appointment will lead to tenure. The only optimist proviso to this observation is that in this respect selling your soul to the devil hardly improve your chances. It depends on whether the intriguing group that you align with wants you and succeeds in launching you. Know this: when you sell your freedom, you lose it at once; for what they promise you in return, you have no guarantee. (This explains why so many people in power are bitter: too
many of them were victims of deceit: they were hurt and their subsequent success did not heal their wounds.)

I will return to the unpleasant part of Academe, intrigues and their insignificance. I will not return to your chances in entering Academe: there is little to say about it. All I can advise you to do is independent on whether you succeed or fail in this central issue. Remember: the time you spent in vain search of a job is sheer waste, and the most significant thing you can do to improve your chances at finding a job is to perform well the tasks that you like most. The only reasonable suggestion I can give you—no, it comes with no guarantee—is this. Find the expert who has published work nearest to your interest and taste. Study it. Find that person and present an explicit and clear request for assistance. End of suggestion. During my lengthy academic career, I learned that this is the only piece of advice that when it does not work you learn about it pronto, so that in that case it costs minimal loss of time and effort.

Let me end this introductory part with my lifelong effort to clear the intellectual confusion that feeds intrigues most: the silly view of criticism as hostile; already Plato has refuted it (Gorgias), yet to little avail.

Crites is the Greek for judge. We often confuse a judgement with the arguments that feed it, particularly negative ones. This leads to viewing the world as black-or-white: pointing to some strength / weakness of a position seems a judgement that is favorable / unfavorable; it limits comment to favorable / unfavorable ones. It leads to the view of any factual judgment with the moral judgment of it; to confuse mistake with guilt. Now all sense of guilt is silly. (Walter Kaufmann, Without Guilt and Justice, 1973) The view of all error as guilty overlooks the (legal) distinction between culpable, negligent error and reasonable error. It overlooks the (methodological) distinction between interesting and boring errors—which is more to your concern. Not so: teaching science includes classical theories that science has superseded; so does technology. The simplest form for a paper is to ask a question, examine and refute the most obvious answer to it, replace it, and so on, approaching the latest scientific theory in the clearest steps possible.\(^\text{20}\)

PART I: DIAGNOSIS

1. Anything Wrong? Not Really

Anything wrong in Academe?—Not much really; on this let me cite Steven Brint (Times Higher Education, January 3, 2019).

The success of US higher education goes far beyond the two dozen American universities that dominate the world tables. The vast majority of the top 200 research universities are stronger than ever, and the system as a whole has shown an amazing resilience through recession and expansion alike. In my new book, Two Cheers for Higher Education: Why American Universities Are Stronger than Ever—And How to Meet the Challenges They Face, I have traced the contours of American higher education from 1980 to the present—and, despite the validity of some of the gloom and doom stories we see every day, a very different picture emerges. I seek to paint this picture not because I want to sweep the problems of higher education under the rug but instead to set these daily challenges in a broader—and frankly more positive—context.

My readiness to endorse this view should not mask my dissent from the approach that it displays. Its author considers higher education as a part of the national society and economy, and this is fine, especially since this refers to the “underrepresented, first-generation, and low-income students” (even though too briefly). “The boom in undergraduate education created opportunities for mobility” that is extremely significant as a tool for overcoming discriminations of all sorts. Yet there is no mention here of the love of learning that boring courses tend to destroy and such matters that signify individually rather than socially, and there is likewise no mention here of the injustices typical of the academic system. This is where I hope to help you personally. I hope to help you dodge injustices.

Anything wrong in Academe?—Not much really; but enough to crush some of its weaker members, or at least to make their lives a misery and their toils futile. Hence, it deserves a diagnosis. Moreover, the diagnosis may be quite interesting. More to your concern, the more attractive an academic job is, the harder it is to acquire it; the more unclear the entrance conditions are, the more arbitrary the induction to Academe becomes. Those who try hardest and follow the rules conscientiously, then, those are the most vulnerable to the injustices of the system. Avoid this. At any cost. Keep your nose clean, they say, meaning, do your homework and do not complain. I say, Ignore this advice / demand of theirs. Take care of your own interests, mainly of your self-esteem and of your curiosity.

1.1

Anything wrong in Academe?—There is no reason to assume that the academic community is worse off than any other sector of western society, or of American society, or of yours, whatever it happens to be. On the contrary, one can safely assume that the academic
Part I: Diagnosis

community fares much better than the community to which it belongs in both economic status and in social status, as well as in the escape from much of the worst ills of racial and gender prejudice and religious bigotry, not to mention illegal conduct. Happiness, health, and robust and relatively free modes of living, are to be found more on campuses than elsewhere, whether in town or in country, whether in high society or in show-biz, in big or small business, in industry or in crafts, or in state or church. The situation in Academe is, overall, unusually satisfactory in many respects. This is so if we consider the faculty alone, or if we consider any combination of faculty, administration, and student-body, or even a wider group of Academe-and-associates, and when it comes to a university town, the whole of its population. This does not mean that all is well in Academe. Centering on the ills of Academe (as I intend to do) might lead to (my) being blamed for a lack of any sense of proportion, to be sure, but such a blame can be equally leveled against the physicians who concentrate on illness and on its possible sources, such as low hygienic standards in some metropolis; one can all too easily blame physicians for their not recording health as opposed to the pocket of illness that still remain, for their not paying sufficient tribute to recent progress and for not noticing that some other places are much more afflicted by the same maladies that physicians observe here and by other maladies that have been successfully eradicated here.

That we do not often hear these charges is the result of our viewing physicians as technicians with a vital job at hand; it is likewise our readiness to consign the task of judging the state of public health to politicians rather than to medically trained public-health officials. Patients asking for medical help will not criticize physicians for not observing healthy people but mainly sick ones; when one thinks of physicians, one thinks in terms of patients’ specific ailments rather than view them as, say, public-health inspectors (which very few of them are). Yet, to think matters out carefully, among the possible allegations mentioned above, there is one with a kernel of truth: the state of health of the population in almost all countries of the world is poorer than that in the advanced countries, and so local physicians would, perhaps, better serve humanity if they went to work in the poorer parts of the world. This, after all, was largely the motive behind the many missionary health-professionals who went, and who still go, to less developed countries, and their admirable secular heirs, the Doctors without Borders and their likes. Can we, then, blame the doctors who stay home? I do not think so. First, we cannot properly assess the relative merits of staying or going abroad: when we can come any closer to reaching a reasonable assessment of that kind, then we do indeed open propaganda campaigns for the transportation of doctors (say from town to country, or from a Christian to a heathen community) or in order to make them stay where they are (rather than go in search of a better living to the rich countries or to the Big City, or to West Side). For my own part, I consider the modes of reasoning of most of these propaganda campaigns much too shaky. Even were that reasoning feasible, let me stress, nothing beyond propaganda may be justified except in short periods of emergency (war, natural disaster). Once we can force people to do the best they can where they can do it best and we may thus seriously endanger and destroy things more significant than the lives of their patients, such as the interests of whole societies due to their possible loss of the democratic way of life. Even if one values life more than democracy, one should think carefully before one allows oneself to try and hassle doctors around, since by doing that one may destroy democracy, and with it the legal sanctity of individual life, leading more to the destruction of lives than to their preservation.

The same considerations of preventive medicine go to preventing crime: effort in that
direction may boomerang; incentives for leaving the life of crime is by far better than efforts to eradicate it.

So, however healthy a society (or a sub-society) is, the choice of ills to study and the complaint about that choice are at best expressions of regret that we do not invest the most efficient mode of employing talents or of deploying scarce resources. One is as much at liberty to desist from trying to cure any ills in preference for living in peace within one's means while doing little or no good and while attempting to harm no one. It is not anyone's job to praise the health of the society in which one dwells, whether or not one volunteers to study its wounds or to try to cure them.

1.2

My own choice of the study of the ills of Academe is personal: I have myself suffered from them and I am still keen-eyed in spotting on faces of students the pains similar to those that I had suffered. Some students have come to the university in order to escape the boredom of the humdrum daily life in their home-community and of the high school classroom that they had attended, in order to integrate in the community of inquiring spirits and participate in all the excitement of college-life as seen on the television and the silver screen and as echoed in coffee bars and in the homes of elder neighbors—only to find themselves again saddled on the same sort of boring curriculum with the added agonies incurred by bewildering courses and by life in bewildering student-societies, especially the diverse primitive fraternities and sororities and student societies and clubs of all sorts, not to mention graduation ceremonies and all that. I have chosen to study the ills of Academe also because many of my friends there suffer harassment by publication-pressure and writing-blocks; enormous classes that they—as almost anybody—are hardly able to manage with any measure of success frighten them out of their wits. Some of them cannot cope with tasks provided by college bureaucrats; they are unable to cope with the mounting correspondence with the administration of the university and with the multitude of chores, departmental and committee; they are at a loss to find their own place and usefulness in the ever-growing complex of Academe. They are possibly beyond help, but their successors are not necessarily beyond help—provided they learn of the troubles that they are going to face before this happens to them and before they find themselves in the net of neuroses and lack of leisure-time so essential for learning how to adjust to the situation and cope with it. (I remember with incredulity the utopian view of Academe that my peers, science students, entertained like naive children.) In addition, I have chosen to study the ills of Academe and to try to offer what little I can towards improvement, because I am myself affected by these ills; though, I hope, largely indirectly. Small ills of society (as they may appear tomorrow and as in part are already manifest in Academe today) may undergo amplification tomorrow and similarly the small cures of these ills may undergo amplification too. Academe has an ever-increasing effect on society: for better and for worse, in the modern world Academe stands for the intellectual side of public life: it encompasses almost the whole of intellectual life, with its new up-to-date departments of media-technology and of mass-communication and of the diverse fine arts. With its multifarious research projects and with its providing a second home for any free-lance thinker, artist, writer, and journalist willing to have their names on the lists of faculty members and offer a few spare lectures at a decent honorarium. Today, Academe, at least in the United States and by projection soon perhaps in the whole
of the advanced part of the world, encompasses almost all intellectual life, at least by attempting to allure any part of the intellectual world deemed to be of any value in the eyes of even small sectors of the population, and by subsequently providing training for almost any sort of profession of any significance.

A minor example: the conspiracy theory. The world is full of conspiracies of all sorts, most of them lame. The conspiracy theory is the idea that a large-scale clandestine accord between members of a small minority (the Jews; the capitalists; the clergy; aliens; you name it) is responsible for the ills of modern society. This theory is attractive as it ascribes intention to some seemingly unintended events, as is characteristic of magical thinking, while ascribing the intentions to some anonymous humans, as is characteristic of the social sciences (although without being as testable as the empirical sciences are). Advocacy of the conspiracy theory is less common in Academe than elsewhere. Another example: Academe is generally more liberal than the population at large.

Finally, I offer this my study of the wrongs of Academe plus my suggestions about the possible ways to ameliorate them as a partial payment of a debt of gratitude. I am an academic and I owe to Academe my successful life, such as it is. If you like my diagnoses but not my proposals for help, I request that you replace them by better ones.

1.3

Your troubles, young prospective academic, belong to an unadjusted intellectual of the future; they are largely rooted in our inadequate methods of rearing intellectuals of all sorts. Academe has largely reformed and expanded, especially in the West, to cover all sorts of intellectual activities; it has forgotten, in the midst of all the furor and excitement of such expansion, to improve or even preserve the methods of rearing new generations of intellectuals, particularly future academics. Herein lie your specific troubles. The rest of your troubles many other young people in modern society share, and I shall ignore them here. How to court members of the opposite sex and how to live with your dormitory inmates, for example, these are universal problems. All that I say about these problems in the present context is that the better integrated and successful you are in your own specific community and in accord with the specific norms of that community, the better are your chances of coping with the universal problems of living with neighbors, and of achieving some decent standard of social and economic existence. At the very least, if you are successful in the first, special task of improving the system but not in the second, universal task of making a decent living, you will have some measure of compensation in having some sort of achievement, especially in the intellectual world (whether in the arts or the sciences, or in education or elsewhere; it does not matter where): as painter Frida Kahlo and philosopher Karl Popper have noted, in the intellectual world achievement is ever so gratifying, even in the depth of misery. (You must have read this in some cheap novels and biographies. At times literature does hit upon the truth, be it cheap or not, popular or not.) Your trouble is, I suppose, that you do not know what are the general standards of your community, and the specific ones that you do know, such as those accepted in your classroom, you justly abhor. Well, then, at last we have put our finger on something when we have expressed your bewilderment!

At least, put that way, the description sounds more scientific. What exactly is this being
scientific? I have compared myself to a physician already, and claimed in effect the same privileges as physicians, even comparing my relations to you with doctor-patient relations. This is mischievous and quite unbecoming. On what basis? By what standards? Suppose I do claim the status of a scientific authority for my advice—although I do not, as I was at pain to point out in my Preface; how do you know what these standards are and how can you judge whether I am a proper physician or a quack? Even if I had good credentials and my standards were those that Academe endorses, as the best members of the academic community might, how can you judge that this is the case? The trouble is, you remember, that you do not know what they are! Hence, we are back where we started!

Not quite. For, I am going to tell you what the standards of the academic community are, and what seems to me good in them and what not, what of the rules you may violate with impunity and what you may try to adhere to for your own good, for the good of the community, or for both. Moreover, unlike the physician’s recipe, mine will be in plain language, not in Latin or jargon; unlike that of the fashionable philosopher, it will not be too abstract to apply: you will be able to understand it, examine it closely, and put it to experimental test with relative ease. You will be obvious. This is my promise to you. In return, I request that you write some critical comments on my advice and try to improve upon it. We all need progress.

Let me start now with the first prevailing rule—first as far as you are concerned—and the ways to prevent its application to you. You will improve your lot after you learn to spot its application and after you learn to immunize yourself against it, as it is the root of most of your present troubles. It is, Lead students by the nose until they become utterly docile! Very few professors will admit that they try to lead their students by the nose, but

1.4

Lead students by the nose! You will not hear professors mutter under their breath this sentence while crossing the quad on their way to the classroom. You will not hear them say so to each other nodding in agreement with each other like gangs of ancient politicians or of slick war-horses. You will not hear the departmental chair say so triumphantly in a speech to the new instructors delivered on registration-day. You will not hear it at all, simply because professors seldom speak about methods of teaching, and they seldom if ever think of them. New instructors can search with lanterns and not find any single person, qualified or unqualified, to advise them on such a base topic as methods of teaching. Rare Professors who are officially experts in teaching-methods do discuss them, of course, if only because they must have published enough on their expertise to merit promotion or tenure. Consequently, the Web is full of papers on teaching methods. If you have an hour to spare, you can look them up and satisfy yourself that this literature is hardly usable; and that when it is, its advice is immensely misanthropic. Obviously, there are exceptions for that.

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1 I do claim scientific status for my reports, but not the status of scientific authority. A normal proposal for an airplane, for example, has scientific status, but not necessarily the status of airworthiness that allows launching it in the market. This status is of scientific authority. To be scientific an idea has to be testable; to be authoritative it has to pass some specified tests. In modern countries, the law of the land specifies the qualities required for the attainment of authority.
Conspicuous among them are John Locke, Janusz Korczak and Albert Einstein. No one I know recommend them as advice to young academic teachers on their way to the classroom. In response to complaints about the absence of useful material for academic teaching, some professors stress that Academe is primarily the home of the scholar, and secondly, but only secondly, the home of the student.

I do not know what comes first, teaching or research. Since in my opinion academics should have no special obligation, I have no objection to either option: I think what is first and what is second matters little and often has no meaning—at least no manifest meaning—when too differently important tasks are involved. (We do not always have a standard of comparison of significance, let alone under what conditions.) Academe can and does profitably house the scholar who cannot, will not, or simply does not teach; and this holds equally well for the brilliant teacher whose scholarship shines but who has not published—for any reason. These teachers may fail to achieve tenure and they often have lower posts that they are prone to lose despite their able performances. The reason is that we identify research with publication. This leads to multiple authorships of papers. Such a paper is often the products of a professional writer; his names appears as the last on the list of authors.

An outrageous fact about Academe is its tuition fees that some prospective students are unable to pay. This is easy to overcome by a law that makes every student loan guaranteed by the state treasury. Anyone who says this is too great a burden on the state treasury is ignorant of the techniques of forging budgets. Once all registered students are able to pay their fees, it will be in the interest of all universities to remove the modern demand for qualifications for becoming a student: opening the gates of the university to all will make it a much better place, with much less red tape.

I will not elaborate on all this. It is too obvious. Back to teaching.

Academe offers teaching as training for future academics. This is especially true these days: since World War II, Academe will never invite one with no doctorate for any appointment to any academic post, no matter how brilliant an intellectual one is. Still, most graduates do not end up with academic posts. Teaching them is a service that Academe renders to the community, for which it receives ample remuneration. Whatever task one performs, one may just as well attempt to perform it adequately. It would be easier for the professors to teach if they did discuss more often, more frankly and much more critically, their teaching problems and views (with each other or in specific sessions of a senate sub-committee). Not only you, hopefully a future academic, but also faculty-members, even experienced ones, hardly know what are the rules of university teaching, because the rule that permeates the university is that such rules, whether they exist or not, should seldom be put on any academic agenda for discussion (not even in schools of education), except in extreme situations and then as briefly as possible. Some events invite discussion of teaching. To that end some dignitary, professor or not, will contribute hot air—for half-an-hour or so. The trouble is too serious to discuss, since hardly anyone notices even this pervasive rule. If you must have an example, let me add reluctantly, you can skip to the last pages of this work, where you will find a discussion of an example in detail. Let me add reference to a welcome new addition, conferences devoted to academic teaching. I have little to say about conferences; even the poorest ones are beneficial, since academics who meet peers in corridors in conferences can
only benefit from added communication opportunities.²

Back to my present topic: leading students by the nose. Many will not even know they think
that they should lead their students by their noses. They will not recognize this wording of
their views except, perhaps, as a crude caricature—perhaps rightly so. It can be reworded,
perhaps, in ways more agreeable to them, but not to you, my intended reader, the bewildered
future academic. Mathematics professors, for instance, do say in many universities and on
varieties of occasions and in different kinds of places, from classrooms to international
conferences, that students should develop their mathematical intuitions rather than ask too
many questions. Philosophy professors say derisively that it is not their task to provide a
preview of the whole course at its beginning. Professors in schools of medicine curiously snap
at any rebellious or inquisitive students, telling them that on their first contact with patients
they will readily realize the immense value of the massive information now kindly rammed
down their throats. Psychology professors, like other insecure souls, say in exasperation that
they have too little time to spend on folklore that their naïve students may have swallowed
mistaking folklore for science, much less time to spend on the philosophical questions that
bug them mainly because they are untrained, ignorant, and grossly misinformed.

Let me report to you the very opening of my very first mathematics course. It was a course
in the infinitesimal calculus. The professor began with some administrative matters and we
all understood him. He then told jokes about mathematics professors. We all laughed, but
we did not know what he was doing. He was trying to put us at ease, which is very
commendable, of course, even though it was not too successful. He then cleared his throat,
and this we all understood: the lecture begins. He said, “Peano’s Axioms. Axiom Number 1.
One is a number.” I lost him. What he said was very systematic and up-to-date (Peano
published his axioms in 1900), beginning with the foundation of arithmetic, then using a
sophisticated method due to Bolzano and Weierstrass of founding the differential calculus,
and then taking it from there. It was not historical, since the calculus evolved
unsystematically and with no foundations. I had no idea about it all. It bewildered me
beyond description. What saved me was my Talmudic education: I looked up as many books
as I could (this was well before the internet was available) in an effort to plough my way
through the minefield. Fortunately for me, on my second year one of my professors was
Abraham Halevi Fraenkel of the famed Zermelo-Fraenkel abstract set theory axiom system.
Studies with him helped, not to mention his availability to students. Somehow, I pulled
through. I was a poor student to the last and graduated by the skin of my teeth.

No matter where you study, it is likely that the principle is the same: students have no idea
about the content of the courses they take; they are ignorant; this is precisely why the course
is on the syllabus; this is why they should study first and ask questions later; much later, said
philosopher Michael Polanyi. Philosophy fares worst. Teachers are prone to follow leading
philosophers Martin Heidegger or Ludwig Wittgenstein with no explanation of what it is all
about, hoping to see students lose interest in questions that had excited them during their

² Conferences too are imperfect. I have organized some sessions in conferences that authorities found wanting
since I refused to permit powerful dignitaries to waste my audience’s time. Nevertheless, even sessions with
many worthless papers serve a purpose, not to mention the service of the worthless papers themselves. See my
adolescence. This is truly heartbreaking.

Do not let all this depress you. Admittedly, some of the questions that students ask are stupid. Many professors take this as proof of their own disdain: if the students are good students, many professors take for granted, then they will soon discover this and will desist from polluting the atmosphere of the classroom with futile questions. The better questions are answered in the course anyhow, in their proper place in the course; raising them in a disorderly fashion only causes loss of time and rupture in the organized internal development of courses painstakingly prepared by conscientious professors; let students forget their silly questions and keep to themselves all their good questions, and they may sooner or later meet the answers to the good ones anyhow. Other good questions that they may have, they can retain and postpone the study of—until they embark on post-doctoral research if they retain interest in them rather than choose the better ones that the experienced professors may suggest. So, there! No questions, please! At least not on my shift; perhaps in section meetings that comprise the proper places for discussions of the lectures and that teaching assistants should handle.

To see how prevalent this nasty-and-stupid hostility to active learning is, we may throw a glance at the exception. It is *Proofs and Refutations* (1970) by Imre Lakatos. That book illustrates the method that he used in teaching mathematics: he demanded students’ interventions and used them to further his discussion. He made every student in his class a true mathematician—admittedly a poor one, but as one able to learn mathematics with pleasure and with understanding. It is most unfair to expect that every math teacher will be as brilliant as Lakatos. He met with nasty resistance. He left his focus on math and published on physics and he published popular ideas in order to win the fame that his neglected studies of mathematics richly deserved. Pity.

I have mentioned Lakatos in order to elaborate on my claim that there is no substance to the suggestion that professors have no option but to lead students by the nose. The better academics will have nothing to do with this folly. Find better academics and try to be their student.

1.5

Let me repeat. Not all the defects of Academe detract from its being the best place to spend your time in. Nevertheless, this is no reason to tolerate its defects. Its major defect, I say, is its education method: lead the students by their noses! Not even that; it is the dogmatic conviction that this must be so. Do not let the prevalence of the arguments for it fool you. You can endorse any argument in defense of dogmatism; as long as you are ready to listen to criticism of it, you are not dogmatic about it. In any case, remember: you are the customer, and the customer is always right. The customers are normal citizens, common or garden bewildered citizens; that is good enough; just avoid the stiffness of dogmatism: it is superfluous. The dogmatists in Academ want you to learn; so learn. You want elucidation of what you learn, and you want it now; they ignore your wish; they want you to commit to memory a semester of lectures that may (and then they may not) fall into place miraculously at the end of the semester, or at the end of years of submissive training. Disregard this.
Can you get what you want? Right now? After all, the customer is always right. Now, customers may wish to purchase the moon; since the moon is not for sale, they may purchase nothing or settle for the second best. You can get only some of what you want; not the moon; maybe comprehension; an overview of the course you take and a statement of its importance. This signifies for your finding your place in the scheme of things. You will find in almost any college or university, however small and/or second-rate, some outstanding instructors who do try to help bewildered students. Go talk with them. Just knock on their doors and ask for help. If they are any good, they will respond and in a friendly manner and they will try to see what ails you. And then you will be alone no longer.

This chapter is the opening of the part of this book devoted to diagnosis. I will leave you to the concerned faculty to discuss your ailment. I will come for you again in later parts of this book to discuss what comes next. Let me nevertheless offer here already one small recipe, well ahead of its place (Part III, Prescriptions). Try to shop for courses conducted by the better instructors, or read the better available books on what interests you. It often amazes me how indifferent students can be to variations in instruction: one big university may offer ten or twenty instructors teaching simultaneously so many sections of the same introductory course, yet students barely investigate before registration which of these sections is more to their taste. Campus gossip thrives on courses that require little or no efforts (“mickey-mouse” courses; often enough the instructors who deliver them are totally uninterested or insecure; they may feel the need to court students and have nothing to offer but unearned good grades), or about pairs of courses that largely overlap so that studies for one enable a student to receive credits in both (they are given by instructors who usually can offer only one course but are forced to teach two or more different ones). Even this kind of gossip is less frequent than one might expect, and gossip is seldom reliable, especially gossip that faculty generates to discourage students from flocking to courses of outstanding lecturers. (Good teachers invite pressure on them to conform, but Academe forgives good teaching much more easily than high schools do, for the simple reason that it is much easier to fire a high-school teacher than a tenured academic.) As to other options, there is almost no information among students, partly at least because the departmental chair tends to discourage broadcast of evidence that may lead to undesirable distribution of students in sections and to jealousy among faculty members. This is for the chair to manage, not for you; what you can do is to shop for courses as intelligently as you can (and this includes not trusting too much quasi-official gossip, since it is departmentally controlled). You can always ask and shop around. The rule often allows for window-shopping for the first week or two of the semester. The use of this option is available to all, for free, and with hardly any repercussion.

I have placed this piece of advice here, ahead of its proper place, to show how obvious it is that there is no need to lead students by the nose. This is evident already from the conduct of the better instructors, of those instructors who enlighten their students about the aims and standards of Academe, at least with respect to the subject matter of the courses that they teach while they teach them. Courses satisfactory for bewildered students are admittedly rare; admission to them may be entangled by red tape of all sorts—not because they are

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3 Fortunately, this arrangement is not under threat from the increasing availability of courses online, since its task is to facilitate face-to-face interactions between teachers and students. What online teaching does threaten are the customary introductory courses delivered in huge classes, labelled in the USA as 101.
satisfactory but due to the need to curb any exercise of choice in the interest of law and order. (More about this later.) When bewildered students find such courses, their lives brighten up and they have something to look forward to—with anticipated pleasure. It is the fun of learning that marks the intellectual. This fun Benedict Spinoza referred to in his unforgettable expression “the intellectual love of God”; there is no need to be religious in order to find this expression impressive any more than in order to enjoy religious art.

How, you may say, how can I get into a course that may interest me? How do I know which course will, to begin with, even if I listen to campus gossip? And how do I manage the red tape? These questions are not very serious. Those who know how wonderful it is to be in a course that they like, gladly gatecrash even on the off chance that a course may be interesting. There is no loss in trying, and those need no encouragement who know how great is the profit from any interesting course. So do it.

1.6

You need not believe me that learning is great fun. Learning was always such a chore for you, and if you ever chanced to enjoy a reading book—and this becomes more and more of a rarity among undergrads and even among graduate students—it is likely that this book hardly relates to your required scholarly activity. I cannot blame you. By the time you will have experimented in your academic activities in line with some of my suggestions, you will be less incredulous, I hope. What, you will persist (and I like your persistence), what about all the unhappy professors whom I have mentioned? We will reach them soon, too, and we will then discuss both the agonies that they incur and the ways you may try to avoid them. Let me tell you already now that the intellectuals among them—yes, you have understood me correctly: it is barely reasonable to expect all virtuous professors to be intellectuals—the intellectuals among them find in their studies ample compensation, if and when they have the leisure to study. Hence, they are not so badly off after all. Still, I hope that you will be better off than they are. (Lest you misunderstand me, let me say explicitly that the intellectual academic is not much dissimilar to the non-intellectual academic in this respect: both may be bewildered and/or unadjusted, and both may be well-adjusted; both may be performing their academic duties to the best of their abilities and in the manners they envisage, with or without neuroses, with or without cowardice. Both may enjoy all sorts of extra-curricular activities as well as much of their academic work. What then makes one an intellectual and the other not? The answer lies entirely elsewhere—in the one’s capacity and the other’s incapacity to delight in a new idea or a good book or even a conversation with a bright student; the student may be ignorant—we all are—but she has to enjoy sharing delight with an intellectual—a professor or not. All this may matter little to you. For my part, I do prefer to speak of the intellectual, being one myself and hoping that you too are, or will be soon enough—and hopefully a well-adjusted one to boot.)

This, then, should be the supreme rule of Academe: the highest good is the intellectual love of God, the love of learning, the pleasure in learning, alone and more so in company. All else is secondary. For instance, if your hobbies have little to do with learning, then possibly you should consider career retraining. For another instance, once you know what questions (if any) a course is designed to throw light on, and once you learn to find the significance and appeal of such questions, you will feel properly challenged and interested; you will not be
bewildered about the course material and of its presence in the curriculum and the coursework will look to you not a chore but the labor of true love. For still another instance, good instructors are either ones who manage to benefit from teaching, or ones who can participate in the task of students’ intellectual progress. The agonies and ills of Academe come mostly from deviations from this supreme rule. Which rule I shall soon discuss.

Adam Smith envisaged the capitalistic Utopia where individuals serve the economic interest of the community best by attending to their own economic interests and by profiting as much as they know how. This ideal has not been fully achieved and it can never be fully achieved—not along the lines (or according to the model, as economists would say) that Smith himself envisaged and defended. Yet, throughout the history of economics, and in spite of the Keynesian revolution, Smith’s idea has remained an ideal—unattainable, perhaps, but still a useful guide—of liberal economics and even of liberal social philosophy in general. It is hard to believe that it is at all possible to eliminate all conflicts between individual and society even in one given sector, be it the economic sector or any other sector. Yet as an ideal, at least, but also as one best amenable to approximation, no sector is more agreeable to it than the commonwealth of learning is. The best way intellectuals can serve themselves is nearest to the best way they can serve the community of scholars and thereby the community at large: by trying to satiate their own curiosity such as it is.

1.7

This is so obvious that it would barely need statement, except that the ills and agonies of academic life come all too often from disregard for it. Hence, it needs restatement. Often. In any case, this is the leading light of the present handbook. If you do not like it, then perhaps you will save your time by putting this book aside.

2. A View From The Periphery: Academic Mystique

Before starting the discussion of the role of the periphery in the forging of academic life, let us take this for granted. Every occupation can have its mystique, even the most pathetic life of petty crime. We are all possible victims of any kind of mystique. Here our concern is with intellectual mystique and with academic mystique. (Confusing them is part-and-parcel of academic mystique.) A most obvious manifestation of a mystique is the feeling that life would be meaningful again for me, were I able to be X, to do Y, to control Z. It is but an excuse for poverty, yet poverty needs no excuse. (The paradigm-case here is the story—it is apocryphal—of movie-star Marilyn Monroe having felt that were she able to read Dostoevsky her life would have meaning.)

Publication pressure is well known and much resented. It works as the administrations of universities remunerate faculty-members who have published more than their share—often with much disregard for the quality of the publications. I have once asked a dean of a large faculty in one of the ten topmost American universities (by universal consent), what his view of the matter was. In a moment of frankness, that dean said, much as sheer quantities are

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5 Rino Coluccello, *Challenging the Mafia Mystique: Cosa Nostra from Legitimisation to Denunciation*, 2016.
unimpressive, boards of directors have little else to go by, and so it is scarceprly practical to oppose it or replace it with attention to quality by any sane criterion.

If you want to see Academe the way some people on its periphery do, you have to look at it through thick fog, preferably slightly glowing. Boards of directors find quantities impressive because they take it for granted that the quality of academic publications is assuredly very high—at least if publication lists are limited to peer-reviewed journals (known as the learned press). They scarcely ever ask themselves what is high quality and how it is attained; they scarcely ever ask themselves what is peer review and what are the rules for it; it never occurs to them to notice available criticism of the review process (which has interesting, growing (peer-reviewed) literature); but they hope and trust that academics know the right answers to questions of this kind and that they abide by them. Academics are supposed to achieve the highest score at every attempt. Sometimes members of boards of directors are not naïve, but then they know that lay people who are interested to any extent are; and so they adopt the naïve attitude anyhow. (The hypocrite always says, I am no bigot, but I cannot fight the whole world; all my friends and relations are bigots; all my neighbors are; all my peers are. So I cannot help but join them.)

Are academic publications of high quality? Let us replace the question to make it easier to answer: are publications in highly esteemed learned periodicals of high quality? Let us replace this question too, to make still easier to answer: assuming that we have a model of a publication that is admittedly high quality: will a publication that resembles it be of high quality? Consider such a marvelous classic as, say, Adam Smith’s *The Wealth of Nations*: will its current emulation count as high quality? Such books exist. It is most amusing that their authors manage to get them published, I do not know by what virtue. They often are very well written and of reasonably high quality, and they serve readers, some of whom are successful in business and feel uneasy about their ignorance of economics, including the ideas that first appeared in Smith’s classic. So yes, in my opinion, the wording of most publications of most academic disciplines (to exclude philosophy and some history of science) is reasonably adequate. Whatever function they perform, it makes for their successful sale on the open market. Often, the rewrite of an old classic is successful merely as it is more accessible than the original. The paradigm cases are Gottlob Frege’s old logic texts of and Kurt Gödel’s paper ho his proof. Though it is relatively young (1931), it is scarcely readable; many later presentations of it make it accessible. This does not hold for Smith, though, since he was a great writer. Even so, rewriting his ideas in the light of the ideas of his successors is quite a challenge and can be great fun to read.

The pressure to publish is great; the pressure to produce wonder drugs and amazing new gadgets is greater. Ever since the days of Pasteur, who won the admiration and sympathy of his colleagues for the manner he let farmers and patients impose on him, the problem keeps increasing. However tentative and hesitant the attitude of research workers is, people are bound to disregard or dismiss their hesitance as mere humility. The unavoidable public-relations offices of the research institutes and medical centers tend to issue press releases that exaggerate the significance of results of research. They develop thick skins and all sorts of rationalizations by which to fend off exasperated and infuriated complaints from the research workers concerning the inaccuracies of their press releases. The pressure on research workers to produce sensationally practical results is a terrible nuisance, and so is the resultant pressure on them to avoid all error and all blunder and all blind alleys. This you can
see, for instance, in the incredibly apologetic commentaries on radio and television, as well as in the popular press, about the progress of the American space program, especially in reference to blunders. Needless to say, and those who do not trust a priori reasoning can procure evidence, investigators are much less apologetic and secretive about blunders than public-relations officers—to the effect, that many errors committed by those involved in the space-project (or any other project) are concealed from the public whenever possible. The purpose of these efforts at concealment is to avoid unpleasantness, or unnecessary misunderstanding, or scandals, or attempts to prevent the steady flow of public financial support for research. These may be good short-term reasons, not long-term ones (Popper). Their use keeps the public ignorant, and, in ignorance, the public puts pressure on investigators to produce miracles. When its patience is long, it will wait and wait and allow the public-relations officers and journalists to prove that the miracles are in hand or at least round the corner; when the public's patience becomes short, however, it has enough evidence of subversion in the fact that scientists regularly err and occasionally blunder.

2.1

Blaming the public or the journalists or their likes will not improve matters. Blaming never does. The situation wants no protest, much less moral indignation: it wants detached, careful examination. Protest against credulity should help; this is not likely. Protest against the alchemists who kept promising that the philosopher's stone is (almost) at hand, for example, may have helped to create classical science; at least this is a part of the official philosophy of the scientific revolution as the Royal Society saw it, very much in the spirit of its intellectual leaders, Robert Boyle and Isaac Newton. They partook in the search for ways to transmute base metals into gold [by chemical means], yet they did destroy public credulity. Boyle fought the obscurity of the alchemists as well as the philosophy in which that obscurity was deeply rooted. He advocated an alternative philosophy in its stead. He even declared that this was his claim for fame: his restatement of chemistry within the mechanical philosophy. Allow me to explain all this, not so much for the sake of historical nicety—though I find this point of history interesting and deserving wider interest—but for better comprehension of today's public attitude that is still rooted in the modern version of the classical alternative to the philosophy of the alchemists—as expounded by the great lights of the Royal Society of London that the commonwealth of learning endorsed for centuries.

The alchemist philosophy that most medieval and Renaissance thinkers endorsed is simple: the Ancients had all knowledge, and we have none except that which is preserved in ancient books and in oral tradition. The knowledge kept this way is corrupt—due to transcription errors, distortions by all sorts of heretics, and loss of ability to read them with proper comprehension. Knowledge is in still our hand, but it is in closed books; we had better find the keys with which to open them. Herald of modernism Francis Bacon both endorsed and criticized this idea. As one of his chief commentators, James Spedding, admitted reluctantly, his Wisdom of the Ancients was a typical Renaissance attempt to unlock the secrets of ancient myths and find the wisdom in them. (He often declared that before the Fall, people possessed all possible knowledge.) Yet the secret wisdom that Bacon claimed to have discovered in ancient myths is very opposed to the alchemists' philosophy: it was that we

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should find knowledge not by unlocking the works of others but by unlocking the works of Nature Herself through the study of facts of Nature. Studying human output, he said, leads to prejudices, to being ready to squeeze facts into the preconceived notions, to being ready to put Mother Nature in chains. The right method, he says, is to obey Her humbly by recording facts as She presents them to our open mind, and in reward for our bowing to Her, She will reveal her secrets to us. (We should stoop to conquer.) If only we could forget the errors of the past and do proper research we will not go wrong and studies will yield with regularity ample fruits—both enlightening and useful—since Nature never lies.

Here, in brief, is the kernel of a philosophy that is at the basis of much harmful credulity popular among scientists to this very day. The naive Renaissance faith in science was in the infallibility of good researchers. At the time, the population of the modern world was scant, most of it were illiterate, and most of the rest dabbled in experiment hoping to count as researchers; the modern version of the faith in the infallibility of science rests on current public ignorance (of science). As long as public opinion was limited to enlightened opinion, Bacon’s insistence on infallibility was in check, as the public of that time could comprehend scientific controversy. The myth that science as we know it is infallible always goes with ignorance of its working details. Ignorance permits credulity and thus pressure on researchers to produce miracles regularly and without fail.

The amateur fringe-academics are a new breed. They view Academe with bleary eyes, all of Bacon’s nasty attacks on Academe notwithstanding. They maintain the aura of Academe for it, free of charge. (The borderline between the non-scientific and the scientific literatures accommodates popular science that presents science as infallible and science fiction that admits fallibility, but with excuses of all sorts that explain why the output of some scientists is erroneous—and thus allegedly pseudo-scientific.)

As to professional fringe-academics—mainly liaison people like science-correspondences or public relations officers—I do not know whether they fall prey to the same credulity as the fringe-academics. I hope that these people are not as ignorant and hence not as credulous and hence able to minimize the damage that they cause. They feed the credulous with constant streams of vain promises and myths with the excuse that they cater for the sake of science and of higher education. When research workers press fringe-academics to be cautious, they respond by reminding them of their immediate interests. Incredible as it sounds, many research workers tolerate the view of themselves as infallible, as they deem science infallible. They consequently tend to produce over-cautious, clever qualifications that the public sees as a mere part of the scientific ritual but that they use as excuses for their possible mistakes. All this you would do well to ignore. We should take for granted that everything human is fallible: we can never be sure that any human product is error-free. The reason for the common pretense at infallibility that the academic liaison people perpetrate is part of prevailing institutional arrangements, of the social function of journalists, which is to serve the public, especially in a manner that accords with the (short-range) interest of researchers as usually misunderstood.

— The sexual allusions here are inbuilt: (Renaissance) mysticism permeates with sexual metaphors.
2.2

*New York Times* of March 13, 2019:

For prices up to $1.5 million, parents can buy a five-year, full-service package of college admissions consulting from a [law] company...

You may think this has nothing to do with you, since you are not one of the youths whose parents waste abundant sums of money on their education. Not so. They are rich enough to be able to forge the ethos within which we spend our days. What can we do about this, then? An improvement of the situation by enlightening the public is the best tool against parasites. Can there be such an improvement soon enough to help you personally? To my profound regret, I think not. The Baconian faith in scientific infallibility is rooted in a very deep-seated widespread prejudice. The prevalent philosophy is not that researchers are infallible, but that science comprises theories that rest firmly on indubitable empirical evidence; supported by a myriad known facts these theories are allegedly indubitable, or at least very highly probable; they are correct, or correct by and large, or nearly correct. No one knows what basing theories on empirical evidence is: look at the variety of books on the topic—by scientists, philosophers, journalists—and you will not fail to notice how hazy almost all of them are when it comes down to the simple technical question, what does a scientist do in order to be right. The wish to find how one constructs a microscope, how one raises a bacterial culture, and how one constructs a computer, lead to satisfactory responses with reasonable effort. The descriptions have to include sufficient details to enable one to reproduce that microscope, that bacterial culture or that computer. One may find the detailed description hard to understand, of course, but the sufficiently interested will easily find various ways of rendering the prescriptions comprehensible within, say, less than one year’s study. Famously, given sufficient means, even terrorists can produce weapons for mass destruction even in their back yard. This is very different from the success of investors or stock-market speculators. Repeatedly, a private firm offers courses that promise their graduates success in the stock market. By very simple reasoning, one can easily learn that a valid recipe for such a procedure is impossible: were ordinary means sufficient to follow familiar procedures and quickly and easily become very rich, and this will have to create an inflation. The Baconian procedure, or any procedure of producing science by basing theories on facts and verifying predictions based on these theories, is similar to the one that allegedly enables one with assurance to make a lot of money in the stock market: it promises patents and scientific awards and highly paid professorships. It is ludicrous, all learned, sophisticated, logico-mathematical and crypto-philosophical and clever and ingenious studies and investigations and inquiries and disquisitions and analyses and syntheses and symposia and colloquia and monographs and polygraphs and tomes and encyclopedias concerning the rules and methods of induction and verification notwithstanding. Hans Reichenbach and Rudolf Carnap and other great lights of inductive philosophy and inductive logic of yesteryear, once world renowned, assured scientists of success. At least in the long run, they added (say, one out of ten trials? At least not zero out of one hundred). They wrote as if never in all their lives in Academe had they met honest, clever, and industrious investigators who worked all their lives and earned their bread and their colleagues’ respect by the sweat of their brow and yet
made no discovery. All scientific papers are valuable, yet few of them add to the fund of knowledge. What is that fund? Is it a library, one that subscribes to all the learned periodicals although no one reads them? Some papers present novelties; if their authors are lucky, handbooks will sum up the results of their papers in single lines in the right tables of scientific or technological information. Such handbooks are useful. They are available in libraries and in scientific research laboratories and in commoner establishments like motorcar repair shops. This is a tremendous achievement that society must thank Academe for, come what may. The fathers of the scientific revolution would be proud of them; the fringe-academics that perpetrate the myths that the fathers of the scientific revolution have fashioned are too snobbish to notice items like motorcar repair shops, not to mention such wonderful items as youths tinkering with a crumbling jalopy.

Maybe science needs a mythology like any other social system. That mythology need not be stupid or elitist. The myth of induction, so popular in Academe, was once anti-elitist; now it leads to the popular pesterung of investigators for wonderful results daily. It is scarcely possible to overcome the popular view of scientific information as infallible or at least as highly probable: it is current quasi-official philosophy of science.

Mythology need not damage research though it may. Investors in the stock market may believe in systems that assuredly make one rich overnight, and on occasion, however rare, they may become rich overnight. More often than not, they will neither become rich overnight nor relinquish their belief in the system that is supposed to make them rich overnight. This may be credulity, and it may be naïve optimism. It is commoner in the laboratory and the university library than in the stock exchange and the broker’s firm. Already John Maynard Keynes has noted this: most people believe that saving makes one rich, even though most available evidence goes clearly against it. Knowing this may improve your ability to function as an investor. The same goes for the scientist. This is no guarantee, and it does not override the demand that you should know your way about—in the laboratory or in the stock exchange: myths may disrupt, and awareness of this may reduce disruption, but no more than that. Only the outsiders, who know and understands very little of the goings on, use myths in efforts to interpret the facts. When they do this critically, they soon learn to discard the myth and proceed to study the system in other manners; when they do this uncritically, however, they use the myth, get stuck, and after a few attempts they declare the situation a mystery beyond comprehension. Apprentices may study details of the working of their jobs, operationally and systematically, in the hope to relate all this to the myth. They may easily forget all this in due course, due to the pressures of the duties of their calling. They are the initiates; they are the ones who both hold the myth and control the working detail of the situation, they—poor fellows—are the living evidence that the myth describes the working details of science. They become the knowledgeable experts who understand what we, the less fortunate, fail to understand. Admittedly, they cannot explain to simpletons like us how the myth and the working detail cohere, but we are to blame for

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8 Facing research that has led to nothing but frustration, they drew great encouragement from the success of science in general, with no evidence that the success is due to induction.
9 No kidding. See my “The Philosophy of Science Today”, in Stuart Shanker, ed., Routledge History of Philosophy, IX, Philosophy of Science, Logic and Mathematics in the 20th Century, 1996, 235-65. Let me add an explanation for the particularly sorry state of the philosophy of science: appointment committees for its practitioners include science professors who are not researchers; they tend to support appointments of professors for the philosophy of science who sing the praise of science uncritically.
Academic Agonies and How to Avoid Them

that; they are busy doing something else: they explain all this to other experts—and to philosophers of science. Stripped of all the arguments that are learned and scholarly and profound and logical, stripped of all the arguments that experts supply, the myth and the working details still diverge. No one can explain how the myth and the working detail cohere, not even to their own satisfaction. Yet they are confident that they will soon accomplish this feat, since it is possible, since the myth and the working details obviously do cohere, as is all too easy to prove. Most of those who do the work in practical detail agree that the myth and the working details do cohere. Scientists confirm this way philosophers’ blind faith in myths that accompany research and *vice versa*. What for?

The most popular commentator on science in the post-World War II era was Thomas S. Kuhn, who sold over one million copies of his book. He described there the myth of expert science—explicitly and in some detail and approvingly with no reservation. An essential part of his presentation is the idea that the way scientific research proceeds is the most efficient, and that the reason for this experts cannot explain to outsiders. Nevertheless, he rejected the myth of induction that most researchers advocate. He shared with them the claim that academics are unable to explain to outsiders what they do when they perform research, so that outsiders cannot judge their output. Likewise, they are unable to explain to outsiders what they do when they teach, so that they have to lead their students by the nose. Leading students by the nose is the tradition of Academe since its inception; leading the public by their nose about research is a recent tradition. The success of Academe, though not maximal the way Kuhn assures us, is still splendid. It is the fruit of the admirable research traditions that evolved outside Academe.¹⁰ Contrary to this tradition, some can present science scientifically, with no more myth than the usual.

Is not the science of science a social science? What, you will ask in exasperation, what, dear professor, about the liberal arts? The myths you refer to, and the whole hullabaloo about it, covers the natural sciences and technologies, including applied mathematics and including medicine; what, sir, is the case of the liberal arts? Indeed, dear reader, I forgot all about the liberal arts, and more so all about their aim and function. As a mitigating circumstance please allow me to mention—for I do not want you to judge me too harshly, it is not good for either of us—that I am not alone in this neglect. My colleagues from the liberal arts departments in the big universities have forgotten all this too, and my colleagues from the small liberal arts colleges, as well as these colleges themselves—though they may contain the cornerstone of the New Academe and the future salvation of our intellectual world—have been forgotten by the rest of the world; almost. They all are honorable and they all try hard to imitate the scientists, these liberal arts professors of the big universities, and they try hard to have their share of the myth. You should not blame them, as the myth is lucrative and they have research students who seek academic employment just as you do. The professors of the liberal arts add to the myth of scientific infallibility the myth of the cargo-cult: they hope, like their peers, the south-seas-philosophers, that by emulating the successful they may become successful too.¹¹ This way academic philosophers yield to publication-pressure and try to display usefulness: they declare both stock-market manipulators and research laboratory investigators better off when they follow their absurd formulas that, being part-

and-parcel of statistical theory, are very easy to refute.

The only constant criticism of Academe from the periphery, indeed the only debunking descriptions, concern the department of language and literature. They comprise a variety of variations on *Lucky Jim*, a 1954 bestselling novel by Kingsley Amis that exposes the phoniness of some academics in the Faculty of Arts. For Academe as such, except for C. P. Snow, the celebrated author of *The Two Cultures and the Scientific Revolution*, 1959, hardly any writer criticizes it all the way, and no one did so as thoroughly as Francis Bacon did in the early seventeenth century.\(^{12}\) *Literati*, especially novelists, are almost the last breed of intellectuals whose occupation is still somewhat independent of Academe. Partly it is because they criticize the only section of Academe that they know and compete with and occasionally quarrel with; a section whose members try to hide behind a myth.

Mythology is hard to assess without some interaction with fieldwork. It is hard to compare the scientific pretense of English departments with that of departments of other liberal arts and of fine arts. Nor is it easy to say what is worse, pseudo-scientific pretense or contempt for science and for rationality. Anti-scientific conservatives and pseudo-scientific radicals disagree about academic myths. In departments of music, painting, and architecture, the myth of science is possibly equally widespread as in English departments; but those who fall out with these departments do not usually write novels against them. This should do—at least for now—as means to indicate that the myth of science (of induction) is not confined to science faculties and technical colleges.

2.3

The myths of Academe have a halo created by its myopic periphery. In addition to public-relations officers and science-correspondents the periphery consists of academics in the gowns of philosophers and historians of science and of science educators not to mention the philosophers and educators who serve diverse departments of science; it also contains a small, hidden army of non-academic semi-intellectuals and intellectuals who had nearly joined academe or contemplated that option but did not. These are often the kindest and most bright-eyed representatives of Academe: the very carriers of the halo of academic mystique. They seldom attract the limelight; they never speak until they are spoken to, and never in a loud voice, at least not concerning academic affairs. Nevertheless, their advice counts because the public judges them more reliable than public-relations officers of Academe and science correspondents, and for the good reason that they are outsiders who have no axe to grind, who are sincerely appreciative of Academe. Indeed, they are: they hold a romantic view of it, even when choked with envy and jealousy. Remember the high school teachers, research officers in the armed forces, and similar professionals, who have never forgiven Academe for not having hired them. Some of the romanticism of non-academic intellectuals is touching. We have only to consider the case of Johann Wolfgang von Goethe, who valued his pathetic scientific research much higher than his divine poetry. Or the case

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of Chaim Weizmann, the recipient of the Balfour Declaration that gave the Zionist movement its greatest impetus and the first President of Israel, who was one of the most brilliant diplomats of all time and who always regretted his having relinquished his career as a research-chemist that was not distinguished. It is easy to sympathize with such humble romanticism. Consider the case of Lord Balfour. He aspired to be a philosopher. The Fowler brothers poke fun at him in their charming *The Kings English*, quoting not his significant Declaration, but his shallow philosophy. Some romantics, though they are often enough well-off where they are, would nonetheless move into Academe on the condition that they were guaranteed equal success there, or at least some assurance against utter failure; their faith in academic mystique makes them fear that they will fail even when some academics tell them they have no reason to expect trouble. And then, of course, there are the misfits whose romanticism is an escapist dream and who, being intellectuals, take Academe as a default option to dream of, merely as an escape. They too possess public recognition as authorities in Academe in the small circles in which they earn their livelihood or in which they play bridge or sip a glass of beer in the pub around the corner on a hard day’s night.

It is the prerogative of every citizen to be a dreamer or a misfit or both. The damage a citizen causes others this way is negligible and the damage that one causes oneself is strictly one’s own affair. The damage that fringe intellectual cause Academe is negligible too, and Academe even benefits in parts from the widespread academic mystique. This is all in social terms; an individual—particularly an aspiring academic—may greatly suffer from it, and from the disillusionment and bewilderment and ill-success it may bring about, such as your own disillusionment, bewilderment, and ill success. Which is why I am noticing the otherwise insignificant academic mystique. It matters to you; needlessly. When you know how to see it in proper proportion, it will be negligible for you too.

This review of the fringe covered public-relations officers and science journalists and intellectuals—the fringe-academics. There remains a significant group to consider: non-academic researchers and authors and powerful academic administrators. The latter deserve a special discussion; I will take it up in the next section. Of the former, I will say little in this paragraph. Since World War II, the fringe-academics. There remains a significant group to consider: non-academic researchers and authors by offering them jobs (at least part-time, as all medical schools do on a regular basis) and other forms of liaison. Academe tries to swallow them and it perpetually seeks budgets to support such moves. Governments and major industries are the only bodies with which Academe cannot compete and it appeals to them regularly for money. Research institutions in industry and government either develop their own academic liaisons—the sociology of this new kind of institution (it began with the creation of the *Institut Pasteur*, 1887, and the Princeton Center for Advanced Study, 1930) is fascinating, but I am too ignorant of it discuss it in detail.

2.4

Academic philosophy of science and the mystique it involves are the chief causes of bewilderment for young recruits like you; ignorance of philosophy is no exemption. Some young recruits harness themselves to the duties of their apprenticeship, laying the mystique aside for a while, as their parents, professors, advisers, housemothers, and other well-wishers

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13 Astute Norbert Wiener noticed the process in *The Human Use of Human Beings*, viii, 1950!
tell them what they ought to do, as it was always done since the time Academe was instituted and to date. This may render recruits impervious to the mystique: they then abide by their own dreams, or else they are critical of the extant academic mystique, perhaps with the help of some odd adviser, or are so bright as to be able to satisfy the low curriculum requirement unthinkingly and in their spare time, and they do this well enough to win professors’ indulgence due to their brilliance.

I doubt you belong to any of these neat categories that slight bewilderment. You do not even know why you find it hard to integrate. It is the mystique, I tell you; it is the academic mystique that you have imbibed before you ever saw anything like the university campus that is annoying you. If your advisers resemble the ones I had, then they too cannot explain it—because they suffer from the same malady; not with the same symptoms perhaps; or perhaps from the same symptoms too, but you are not yet able to observe them in others, much less in your parents, high school teachers, and university instructors. Give it time.

In a sense, let us admit, academic mystique is a part of a much larger phenomenon, simply because, as it happens, the modern world has chosen Academe—with its consent—as the representation of the magic that goes into all learning, into the mystery of cognition and of knowledge. It is the possessions of the very ignorant and of the greatly learned.14 The mystique discussed here, the one that chiefly fringe-academics propagate, is that of the ignorant, of one who is awe-struck by Academe and who holds in the community the position of one who is trusted to know something about Academe. On this, one may indeed trust the fringe academics: they know that Oxford and Harvard are top universities, much more reputed as centers of learning than our local community college. Do not trust them: the local community college has a great advantage over both Oxford and Harvard; it is where simple folks go to learn for the mere love of learning. If there is any single quality that keeps Academe together—Oxford and Harvard and our local community college—then it is the love of learning. Nothing like it for dispelling the mystique.

3. A View From The Administrative Office: Academic Business

Administrators serve an ungrateful, unappreciative, unfriendly public: in Academe, these are mainly faculty and students, but also the public at large. Administrators generate resentment to themselves the world all over; we call them bureaucrats and other unpleasant names. If they are incompetent, we scorn and accuse them for performing their duties perfunctorily; and if they are competent, we scorn and accuse them for their inhumanity—for being cogs in a machine—and for their governing the public instead of serving it. When they satisfy the public’s expectation, there is no grumble; but this is seldom the case, and then we take their proper service for granted, whereas the moment of its absence looms large. President Kennedy complained once about complaints: nobody ever wrote to him thanking him for the well-being of the economy or the stock market in good days but many wrote to him plaintively and accusatively on bad days. Administrators tend to learn to live with this, and perhaps even to forgive their public for their thanklessness. Academic administrators are in this respect in a particularly tight spot. Their services are seldom required and often resented.

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14 Thus, a most popular originator of sayings about the mystery of the universe is Albert Einstein. This is so partly because similar sayings of Newton are less familiar and less crisp.
even when performed as best as possible. What academic administrators in particular do not wish to learn, is that when their services are not required they should not offer them and let the university go to the dogs. If the university will consequently be on its way to the dogs—and there is no good reason to suppose that; on the contrary, it will rather flourish—then the academic public will request the services and perhaps even be grateful for their being promptly rendered (Parkinson).

The philosophy of public administrators is not that of power seeking and of display of superiority. Even petty bureaucrats seldom confess to this philosophy. When you need a bureaucratic service badly, and when the bureaucrat rubs this fact in, you may think—and all too many do—that this is an exercise in displaying power over the public. This is seldom the case; it is an optical illusion of sorts; petty bureaucrats simply feel tired of the public reluctance to notice the positive contribution of administrators to the life of the community, and their petty behavior towards members of the public who need their services is the only way they know of arguing back. All odds are against them, since when they can argue back, their adversaries are naturally in great need and desperate hurry to get through the red tape as quickly and smoothly as possible; they are in no state of mind to learn the lesson that petty bureaucrats are rightly anxious to convey. This situation is hopeless. Competent administrators are simply too enlightened and too upright—in their own image, of course; strictly, one cannot be upright unless one makes a full-time job of it, unless one can afford to stay aloof from the multitude—and so they cannot resort to the vulgar methods of petty bureaucrats. They mold their public philosophy differently.

High-ranking or competent self-righteous administrators understand the working of the civilized world, or at least the working of that part of the civilized world that they control. They have no time to explain it all to every Tom, Dick, and Harry who passes their way. The matter is rather delicate, you see: without law and order, the civilized world as we know it will collapse, but law and order are neither perfect nor tailor-made to suit everyone. And so one must be patient and willing to help, even though the public grumbles, not only by administering the law by the book, but also by showing some initiative and some understanding of what may be treated as special cases, as situations calling for some compassion, for special concessions that conceivably may occur without thereby throwing the system out of gear. It is not surprising that outsiders cannot appreciate all this subtlety, or even the existence of it. When administrators from other places establish contact with you, they do not know the intricacies of your own organization either; but at least they assume that you know them, and they trust you to do your best in the circumstances, hoping that you will trust them when the need arises. Perhaps the most glaring instance of this is how much even the cleverest academics need administrative representation: they cannot get funds and facilities from government agencies or from donors or from the market; sooner or later, academic administrators must step in; they may be handicapped by the limitation of their intellectual or scientific side of the situation; for this they need the professor involved in the project; but this handicap is amply compensated by administrative competence, by the ability to appreciate the problems that government administrator face and talk to them and smooth things up.

Administrators understand well enough some of the politically significant aspects of a scientific project; and then they are able to use it better than the researchers are. Researchers are seldom helpful, being scatterbrained, inaccessible, and so incomprehensible.
Administrators can talk for them better, or hire some competent public-relations officers to talk for them while caring for administrative commitments.

Professors have neither the time for all this nor the understanding for the necessity of it nor the patience that it requires. Suppose the academic administrator left the university; quite apart from the chaos on campus, there will always be the other administrator, in the Capital, in industry, in the Foundation. Do you suppose that professors will all be better off trying to arrange their own administration as well as to work with the various administrators in other sectors?

3.1

Administrators are practical, down-to-earth people hard to fool, with little desire to revolutionize the world and ample good will to keep it going smoothly and improve its ways in what little manner they can, as long as they can do it without fuss. The only trouble with their philosophy, like with any elite philosophy, is that they know best. When it comes to managing Academe, this trouble is a disaster all round. Once upon a golden age, no matter how universities performed, the performances of administrators were under constant check of the university Senates, namely, the totality of its full professors. Oxford colleges are still chiefly under the control of fellows who administer their colleges on a part-time basis. Administrators there still help of the Senate and its committees. In a paper about Oxford philosophers and their way of life, English philosopher Richard Hare, fellow of an Oxford college, boasted about his activity as a member of a committee in charge of the college buildings. It included climbing on the roof of a building to inspect it for leakage, he reported. This seems to illustrate the ability of academics to control their administrators; it is the very opposite. Ever since I could afford a plumber, I never climb my house to inspect it for leakage because the view is not as grand as Oxford’s and because it never occurred to me that if I hire a worker, then this very act might risk my autonomy and the way I choose to run my life. Oh, I have heard about maids who run tyrannically the households of their mistresses for them; I can hardly imagine a situation in which a member of the college physical plant department, who is naturally employed full-time in the maintenance of buildings, would be able to run the college; I can envisage—indeed I saw a few times—a secretary of an academic department or faculty running it; this is unusual and perverse; initially, the position of the college secretary was essentially the same as that of the departmental secretary, except that the college secretary had higher responsibilities (and so higher rank and pay, as well as larger staff); what has happened meanwhile? How did the administration take over the government and the policy-making of the university?

This question pertains not for a novice like you, perhaps, but for the academic way of life in general. In my youth, the administration—all employees except for academics, as well as for maintenance and lab assistants and their likes—the administration comprised a few people, and as I was working in the administration I knew them all. Today this is almost unthinkable. Today, the average number of administrators, they say, is half of that of the scholars and teachers. I think one-to-one is more likely. This is in accord with Parkinson’s Law (1957). Parkinson himself was a professor (of naval history in Kuala Lumpur), and he was probably impressed by this process of immense, unnecessary growth of academic administration since his student days in Cambridge before World War II.
A silent coup happened since then. The academics turned administrators, such as heads of departments, deans, provosts and their likes supported it without notice. In the golden age of academic self-government, they held part-time jobs. These were desirable as they came with special honorariums and social graces. C. P. Snow describes this in loving detail in his *The Masters* of 1950. He tells of a struggle for a small college headship; participants coveted the honor and the added salary. In addition, some hoped to use the prestige that comes with the job as support for their political party. The wife of one candidate coveted the college-head’s house and his wife’s task of serving the wives of the other fellows tea and cakes on Sunday afternoons. Today, academic jobs are full-time.\(^{15}\) What makes a fellow relinquish an academic career in order to become an administrator? What ambition? How much does an academic expect in return for the lost freedom to choose what to study and to spend time idling in one’s laboratory or poring on a book for the sheer pleasure of it?

It is not ambition, I think, but the desire for an early retirement from academic life. It is the desire rooted in a sense of despair and of defeat or, much more frequently, in sheer cowardice and in fear of defeat.\(^{16}\) In the last stages of the golden age of academic autonomy with no publication-pressure, an old professor, tired of pursuing further research and ready for high recognition for his past researches, would yield to pressure to become rector or provost, knowing that this would be sufficiently close a position to full-time to deprive its occupant of the time and energy needed to conduct vigorous research. A rector or a provost then remained academic, as the job was for a few years, allowing him to return to researches with renewed vigor. Today, departmental chairpersons whose administrative work occupies them to the extent that they can barely cope with their relatively light teaching burden—usually one course or one seminar per week in one semester a year—and with the task of keeping touch with the growing literature.

Whether this is the truth or an excuse for not participating in academic life is immaterial. My impression is that they do speak the truth when they claim that their administrative jobs are full-time—simply because as administrators they are incompetent and because work expands to fill the time allotted to it (*Parkinson’s Law*, 1957). One might claim that all this is reasonable in view of the expansion of Academe and of the administrative burdens in it. Yet the expansion is voluntary, even when administrators impose it. For, they should not be in a position to impose policies on universities. The increase of the administrative burden is useless, not to say harmful. Even when the department expands and the administrative burden increases, even if administering a department is a full-time job, to be a departmental chairpersons as a full-time administrative job is highly inefficient: hiring a professional secretary is much cheaper and better. A friend of mine who was an ambitious researcher was under pressure to chair a department. On my advice, he accepted the position on the condition that the department should recruit an administrative assistant. This is the place of administrators: not to run any organization but to administer its policies. The difference between business-people and academics is simple: only the former know what they want and how to decide—and let helpers execute their decisions.

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\(^{15}\) I served once as a substitute department chair and once as a department chair. This enabled me to observe how very busy chairpersons are, and how needlessly so.

\(^{16}\) Psychologist Alfred Adler said, people often fail out of fear of failure.
3.2

A struggle for power between academics and administrators did take place. Administrators won the battle so thoroughly that the academics no longer expect that administrators with academic backgrounds—deans, rectors and college presidents—will remain loyal to the academy rather than to its administration.17

The reason cannot be the frequently repeated explanation that it is administrators, especially college presidents and trustees who provide funds. For, obviously, the administration is much the more dependent on the faculty then the other way around. As administrators are used to tough thinking and have an ideology of law and order to support it, they win step by step, inch by inch (you do remember, I hope, that they hate revolutions but are always ready to implement some small improvement without fuss), all the way to complete victory over the faculty. They always know who are the good academic and they always support them. Whereas academics have learned to live with academic mystique while trying to minimize its damage, administrators have no mystique—except for the production and sale that they administer. Universities produce teaching hours and diplomas and college degrees; they produce all sorts of high-school teachers and technologists and professors; they produce research reports and scientific papers and scientific periodicals and scientific books; they produce ideas and discoveries and inventions; honorable mentions and honorary doctorates and national awards; and national figures and memberships of national academies and national boards of all sorts and Nobel prize winners; the whole kit and caboodle. Never ask for values, but for definite commodities; and never ask for their value, only for their market value: they should be commodities in demand. If you do ask for the value of a commodity, we can translate the question to that of the cost of hiring a public-relation officer who can tell you the value of the commodity in question. That is all. Nothing more. The headache begins with the widespread information that academics are eccentric; like children, they are. They need special attention and care; you cannot scold them when they step out of line both because they do it every so often and because scolding them is the wrong way to achieve results. One must understand them, be patient with them, but be insistent when matters of importance arise, such as passing research projects through the proper channels.

3.3

There is no need to go further. Giving vent to one’s exasperation (about academic administration) is useless; as a surrogate for action, it is harmful. We may study what efforts can prevent the conflict between administration and faculty to the benefit of both parties, and at what price. For, ultimately, we will all benefit from clarity about what the faculty can pass to the administration. It is what can be sufficiently pigeonholed. It not possible to pigeonhole education, intellectual activity and their likes, as administrators of the more advanced and larger universities wish to—and have partially instituted. I have taught in one such a university, and wanted once to recommend that the university should grant a student a second chance—or rather a third chance, to be precise. I received uninformed about

17 Contrary to this observation of mine, one may claim that both parties have the public interest in mind. Nevertheless, a conflict is there. Administrators want smooth functioning and public reputation whereas the faculty want learning and reputation among peers.
procedure and looked around for ways to do so. Many colleagues told me that this was impossible. In such a huge university of scores of thousands of students, one had to run the records by the use of computers. However justified one’s requirements for special considerations may be, it is impossible to feed the computers with data that have eluded its programmers. I was astonished. I shall not insult you with discussion of the possibility of taking away from the computer all control; I merely wish to report all this as an instance of the (unintended) contempt with which administration can treat academics. This is only an instance, of course; you can find special considerations everywhere, even in that university, and probably the administration’s claim that I have just restated they only use as means for weeding out the less pressing pleas for special considerations.

Incidentally, the student who awaited expulsion without getting the third chance got it after all: the computer office was overworked and so it processed her data too late for her immediate expulsion; she had an additional semester during which she could improve her average grade. Thank heavens for small mercies: even the best-equipped, most competent administrators are not perfect. Notice that this story could not happen in a traditional university since before World War II traditionlly exams took place only before graduation. (This was fortunate for me, as I am particularly bad at exams.)

3.4

When social researchers compare academic systems, standards, and so on, they tend to ignore the difference in background between the medieval, modern, and contemporary systems. The medieval system was a social class (University means whole, and in the Middle Ages it meant also class), and it was a part of the clerical class; it functioned as a training ground for some future clerics, but this was secondary and performed as lecture courses. These were the only form of publication available before the invention of the printing press. This invention could but did not stop the lecture system. Already in 1908, Abraham Flexner’s first book, The American College, strongly critical of many aspects of American higher education, denounced in particular the university lecture as a method of instruction. As famous humanist psychologist Carl Rogers has noted, often a lecture course is an inferior textbook that has failed to find a publisher. A myth once circulated that once famous philosopher Stephen Toulmin began teaching in Oxford, where he read in his lectures galley proofs of his first book with the consequence that his contract did not come up for renewal. Such stories make it hard to comprehend why we do not replace lectures by ones written by an Albert Einstein or an Isaac Asimov, recited by a Morgan Freeman, and distributed on campus by the university bookstore or downloaded from the net at a reasonable cost. Were administrators innovative enough for that, they might alter Academe for the better. I hope that Internet universities will do that. Indeed, the trend has already started. Even Harvard and MIT offer some courses that one can download. Yet the network already has discussions that come to explain why these can only supplement real live lectures, not replace them. Crazy: irreplaceable real live teacher-student contacts require tutorials\(^\text{18}\) and

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\(^\text{18}\) Private tutors depended on their ability to help students pass exams. Adam Smith functioned for a while as a tutor and he returned money to some of his charges. This was far from the customary attitude: “I have satisfied myself that the present state of degradation and contempt into which the greater part of these societies have fallen in almost every part of Europe arises principally, first from the large salaries which in some universities

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Part I: Diagnosis

seminars, not lectures whose audiences often comprise students immersed in their mobile devices, be these laptop computers, tablets or smartphones. The silly claim that live lectures are indispensable comes to prevent the reduction of the burden of scholarship. It is redundant: it will not serve professors, as their salaries do not depend on their output. (It never did.) It will serve the administration that grows beyond expectations in accord with Parkinson’s Law; unlike faculty, administrators do need tasks to justify their appointments.

Jon Marcus of the New England Center for Investigative Reporting says,19

The number of non-academic administrative and professional employees at U.S. colleges and universities has more than doubled in the last 25 years, vastly outpacing the growth in the number of students or faculty, according to an analysis of federal figures.

Compulsory education made us literate, the industrial revolution demanded literacy, and the wonderful GI Bill in the post-World War II United States opened the gates of Academe for many. The administration swelled. Still, the change is staggering. In my youth, the administration of Academe was very limited. Today the estimate is that there is one clerk for every two academics. What do they do? The see to it that students will not register to a course delivered in French unless they understand French, that students will not register to a course in Algebra II unless they have passed successfully exams in Algebra I, and that science students will not register in courses in the Faculty of Arts.

Administrations keep unnecessary records of all sorts of material. In Europe before World War I, a student registered in a university received a personal record book where lecturers signed their names and possibly wrote the grades of students who partook in courses. Now that the population of students is much larger, just recording their grades is an industry. In the United States of America, the sub-system of community colleges suffers much less administration. A community college can upgrade to fit current needs of its students. This will not harm administrators; with luck, it will reduce the recruitment of new administrative personnel to Academe. If Academe will consequently be open to all applicant, then a whole chunk of today’s administration that handles admission will be redundant. They say that the cost of open admission will be exorbitant. This is not serious. State universities are not quite open but they are open to all high-school graduates of their states, and consequently the first semester there is overpopulated. This hurts nobody. It is a filter system much healthier and much more efficient than exams. What puts community colleges at risk of administrative control is the right of some of their former students for transfer to universities.

Good administrators of universities perform an almost impossible task. Without any familiarity with intellectual value, they assess its parallel market value—of the researcher or scholar or artist that the university may wish to hire, as well as of the level of efficiency of a teacher and of a student. When they goof, the result is awful. Too often, they require that professors should grade on a curve, not on the silly supposition that the quality of students is homogenously distributed but as a weapon against the following. When a professor becomes

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19 https://www.huffingtonpost.com/2014/02/06/higher-ed-administrators-growth_n_4738584.html
very popular this creates a burden for them. Most of the popular professors gain their popularity by offering Mickey Mouse courses. Many students like such courses and their easy grades. Such courses reduce reputations of schools. Empirical support for all this comes from math students, who on the average are the most serious: they may flock to formal logic courses because they can pass the exams there with minimal attendance and no preparation. Administrators find this intolerable, God knows why. When I once granted top grade to all the students of a seminar of mine, I had to fight some administrators; I won. When I failed a few students in my course in the school of medicine, I refused to quarrel with the administrators and I refused to yield to them. I resigned.

Sadly but understandably, administrators cannot prevent the emptying the university of its content: they can only try to guard its reputation. They pressure teachers to raise reputation. This is a sure formula for inflation, for raising nominal value, not real value (Korczak).

Universities issue licenses where the law requires university degrees for the practice of medicine, law or accountancy. In some countries, granting licenses is the prerogative of the university and the professional guild combined; in other countries, the government handles licenses. The need to coordinate licensing laws is on the increase. Meanwhile, universities cherish their power in these matters. Yet the academic system will survive only if it will give up its power, leaving all licensing to the state. This will enable the university to cancel all degrees and open its gates to all, demanding neither fees nor proof of qualifications—as it did for centuries. This will be cheaper by far and will offer no attraction for enrollment except for the desire—pure or practical—to learn. This will demand of students to decide what they want the university to offer them. Those who say this cannot be done do not know that the early universities were like that, as were the European Jewish schools before that and as schools over the rest of the world were before modernity took over. Those who say that the result will be lowering the standards are right; except that by liberal norms low standards obeyed are better than high standards circumvented. Freed of lecturing, academics will have time to attend personally to their own and their students’ needs.

They say, the use laboratories prevents free access. This is untested, since university laboratories are relatively new: before the mid-nineteenth century none existed. Also, universities may charge fees only for the use of laboratories. This will allow for the drastic reduction of administrations, thus saving enough to enable cancelation of laboratory fees. As laboratories are tools for investment in all sorts of startups and ventures, grants for laboratories may make them profitable. The claim that laboratories are too expensive for tuition-free education is but an excuse.

4. A View From Within: Academic Muddling Through

Whether we should take the academic periphery and their mystique seriously or not, whether we should take administrators and administration seriously or not, I hope my previous pages has raised in you some misgivings about a point that may be intellectually as well as practically significant: is not the opposition to the tough and clear-cut attitude of the

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20 Economist, 20.7.2019, “Should University be Free”.
academic administration tantamount to academic mystique? If we know what is what, then we can neatly pack and stack it in its proper pigeonholes and if not it is a mystery. How then is it possible to avoid both groping mystique and bureaucratic pigeonholing? For, some academics do avoid both, to some extent at least, as I have been claiming all along in the name of the sense of proportion. They do so during their work-a-day by putting aside whatever they can.

This seems satisfactory at first, but it does not go far enough. The problem was whether knowledge that is the pigeonholing of our information into theoretical categories is not the opposite of mystique that is the clouding of our ignorance. The answer is in the negative. The reason for it is obvious. Whereas knowledge is no mystique, ignorance may but need not be. What idolaters see hazily, what they prefer to cloud in mystique is what the more critical (especially the self-critical) would consider lamentable ignorance. This looks very neat: some are pleased with it (because they are mystified or because bureaucratic attitudes blinker them); others rebel and try to reform Academe rationally. This, alas, is not quite correct: bureaucrats are quite capable of introducing reforms, though admittedly rather gradually and on the quiet; the reforms that academics introduced were more gradual. The difference between the two comprises two factors. Administrators are clearer and more effective; academics have a better idea of what universities are about, namely learning and education as measured by dollars and cents (William James). Academic inefficiency is poor organizational technique plus the paucity of rational thinking and planning.

I have no wish to pretend that traditionally academics used to run Academe more rationally than today. (The reason is that Academe suffered from bigotry as a Church affiliate.) The usual method of running universities until recently was the method of muddling through; this method was more rational than it looks, but not as rational as that of articulating aims and policies and discussing arguments for and against them openly in avoidance of defensiveness. Muddling through we may not know what we want, and how much of it we may reasonably expect to achieve; we may be painfully aware of some shortcomings and severe defects of extant ways and means, and we may make some amends by sheer trial-and-error. At least it suffers less from smugness, conceit, and mystification, not to mention bigotry.

Even nowadays, when up-to-date researches fully articulate much of the academic traditions and bureaucrats zealously guard them, most of the academic hiring and firing, most of the methods of deciding which courses must be taught in a given department, which kind of teacher should be assigned to which kind of job (is an introductory course more suitable to student-teachers than a junior course? Should the more experienced faculty-members or the novice be in charge of it?) and which extant method of student-advising is wise to adopt, what kinds of departments is it advisable to develop (specialized or broadly based), and hundreds of other problems, are tackled by muddling through, by copying adjacent university’s techniques, by letting sleeping dogs lie. Academe is a labyrinth. Most of its experiences and experiments are barely publicized. (The journals that should serve as natural platforms for this are often run by administrators who wish to protect the profession against enemies and present matters superficially and through rose-colored glasses.) Thomas S. Kuhn, the most famous philosopher and historian of science in the twentieth century,

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22 Bernard Shaw, Notes to The Devil's Disciple, Burgoyne, 1901.
condemned some of my observations of the teaching of the history of science in leading universities as not serving the interest of the profession. His defensive view of Academe, I dare say, is not flattering.

4.1

You are right: there are exceptions. Of course. Let me mention one. The Flexner report on medical education in the United States of America of the early twentieth-century was a serious survey. It led to a drastic reform (that Flexner executed), including the closing down of scores of medical schools, the employment of hopefully more competent full-time faculty in medical schools, and more. This reform is a huge exception. Yet it is over a century old, and it gave way to the present method of muddling through, if not to conservatism rooted in excessive mystique and bureaucracy. One might expect past success to encourage further trials, but no: medical education is more conservative than the average. The American Medical Association advocated revamping medical education through its Accelerating Change in Medical Education Consortium. It launched a program in 2013 that involved 37 schools and cost a total of $14.1 million in grants to develop new curricula. The competition for entrance to American medical school today is unbelievably fierce. This seems to me irresistible temptation for corruption and thus a very serious danger.

4.2

So much for one example of an exception of a rationally planned academic reform. There were others, especially the secularization of Academe after the French Revolution (due to secularization), but I will not bore you with history. The common method is that of muddling through—traditional and up-to-date. Size reduces its applicability, with some amazing instances.

Consider experiences in journalism—concerning speed of attaining and disseminating information and journalistic style (including newspaper layout). These are pooled by relatively newly-founded schools of journalism (1899; 1908), some of which train in editing of academic periodicals, in compiling anthologies, in composition of textbooks, introductory and high-powered, and the publication of proceedings of nationally and internationally organized symposia of learned societies, and of other undertakings; the production of diverse sorts of peer-reviewed academic periodicals, legit and vanity.

These activities involve important technicalities on which enormous amounts of practical yet unutilized experiences are available. Editors of academically bent commercial presses are a genuine nuisance; university presses are the worst. As they have collected some experience, they can guide the professors who edit scientific periodicals, anthologies, and proceedings; similarly, they can direct authors of monographs, surveys, and textbooks. With their superior knowledge and experience, and with their excessive administrative powers and extra funds, they win every time, and often with ludicrous or disastrous results: they either have purely commercial interests and wish to hit a wide market with expensive books, or they have in mind purely the interest of the university as understood by its top administrators; accordingly, they wish to publish the impressive and scholarly-looking tomes to sell to no
public at all except perhaps to university libraries. The academic library system is the monkey that eats its own tail. Periodicals are sometimes up to one year behind, and proceedings up to two or three; easily. This means that academic news in print is often three or four years out of date; in our days of fast printing and of much faster internet. The financial aspect of academic publishing is ludicrous. Publishers expect authors to provide camera-ready papers and books, preferably with imprimatur of all sorts. Publishers of learned periodicals have an incredibly high profit margin. This has led to the growth of an immense predatory literature that expects authors to pay for the publication of papers that scarcely anyone will read and that serve only to boost authors’ publications lists.

For another instance, take student registration. Some state universities are legally obliged to admit all applications of resident high-school graduates. This led to a routine there—established by muddling through—to get rid of a portion of freshmen—between 30% and 50%, sometimes—in semester exams. The result is not necessarily disagreeable because these students report in their CV-s that they had “some college education” and thus increase their job opportunities by spending a few months in college and failing their first exams. This waste is beneficial, as the United States of America can afford such luxuries, especially as it suffers from unemployment of high-school graduates. The result for the freshman who will remain in college may be disastrous: a teacher of a class of such students may be careless. The first college year in the United States of America is often intellectually lower than the previous high-school year was. (This is an empirical finding based on a large, varied, and wide sample: the level of literacy proficiency is on the decrease.) Especially since some of the freshman year is devoted to the study of articulation and of composition, many students who hope to embark on academic careers may be doomed to the inarticulateness that they will hardly suffer from during their undergraduate days (because of courses with multiple-choice exams) but they will suffer bitterly from it during their graduate studies that require writing of full-scale dissertations. I have met famous professors with series of scientific reports to their names, who were unable to write monographs.

These then are two obvious, serious problems that many an academic has studied and tackled whether by muddling through or otherwise. Their investigation is not half as rational as it could be, because there is too little pooling of experiences, comparing of notes, and rational exchanges on national and international scales, necessary and obvious as all this is. The reason for this is simple. As long as Academe—the intellectual world, indeed—was small, it could administer itself rather well with minimal attention. When it grew to its present mammoth proportions within a quarter of a century or so, it got so completely out of hand that administrators had to take it over, and so they did—much to the relief of most academics; until they discovered at what cost. (Innovative Flexner was active in the interim period.)

26 Thus, “On the prose scale, the percentage of college graduates with Proficient literacy decreased from 40 percent in 1992 to 31 percent in 2003. For adults who took graduate classes or completed a graduate degree, the percentage with Proficient prose literacy fell 10 percentage points between 1992 and 2003.” National Assessment of Adult Literacy (NAAL) “A First Look at the Literacy of America’s Adults in the 21st Century”. https://nces.ed.gov/NAAL/PDF/2006470.PDF.
The most obvious example of how an increase of scale calls for different techniques is too familiar to discuss here: sex on campus. Once it could be left safely to the discretion of those in charge, but no more. In addition, there are other piquant instances to discuss. Let me mention one odd case. In the past, when a student had a grievance about the outcome of an exam, there was a simple way to handle the matter: there was always a possibility of a repeat exam. These days such students discuss their grievances in the presence of their lawyers.

Perhaps the most comic of these instances is the lack of proper planning of national conventions. Administrators organize these conventions, mainly since they are very large-scale operations by now; and so, it is well-known, the main benefit from attending conventions is from the unorganized part of them: the talks are all too often boring—boredom may be a condition for invitation to address a convention—but walking in the lobby and bumping into interesting colleagues quite unexpectedly is fun that renders the attendance of conventions worth-while. This is rather nice on a small scale, or among people who can handle complex situations. On a large scale, however, this creates new disagreeable customs. Young upstarts are bound to develop the sweeping glance and the ability to stick eyes on prey once eyes meet; the old hand develops the ability never to look in the eyes of anyone except familiar peers. The sight of convention lobby and more so of organized social meetings is grotesque and pathetic. The situation, however, need not be dull; a little planning and rational discussion may bring about immense improvement in the role of conventions in the life of Academe, and a platform for the rational planning of all sorts of programs that are now left largely to administrators and partly to muddling through.

The idea of academic freedom is most conducive to leaving conventions to fumblers, somewhat on the following lines. Those who wish to fumble should have the occasion to do as they please; and the strong-headed should be discouraged, as conventions cannot rest on ideology; otherwise they become partisan and intolerant; and so, it seems, conventions must rest on the lowest common denominator and thus stay ineffective. I disagree; academic parties have the right to organize and have their conventions or sub-conventions. That such parties must organize broadly based conventions in order to lay their hands on funds, leads to shallowness and pretense. (I have in mind particularly the pretense of a school of thought that it is a field of study or an academic subject, such as analytic philosophy or the psychology of learning.) The administration of conventions, which involves governments, big foundations, national organizations and universities (not to mention business interests, mainly university publishers and the tourist industry) must undergo far-reaching alterations one way or another, and academics must have opportunities to design conventions around clear-cut problems of major policies and raise real controversies for the greater glory of Academe; they must find occasions to organize openly partisan conventions too. This requirement bumps into the hardest problem: the fiction that Academe are a-political makes it impossible to handle the inevitable involvement of Academe in politics so conspicuous in the Vietnam War and in the efforts to ostracize all Israeli academies.

In mentioning all this my point is to draw attention to the difference between mystique, bureaucracy, muddling through, and planning—as well as the superiority of muddling through on a small scale and of planning on a large scale. The muddle-heads will say, and they will be right in saying, that things are not as simple and clear-cut as all that: after all, mystique may plague everyone, including administrators, muddlers through and rational planner; bureaucracy is not the exclusive prerogative of the bureaucrat, and so on. All this is
true; and muddling through is admittedly better than mystique or bureaucracy—as it is inferior to large-scale rational debate of proposed plans in the light of experience.

4.3

How much muddling through is going on, and how much of it should go on? I am afraid I do not know. I have mentioned a few of the most important aspects of university life that still display the method of muddling through. My personal predilection is for muddling through, but intellectually I prefer to plan rationally. The reason for this reluctant preference of mine you may find below: all too often muddling through produces copycat conduct, and thus stagnation. Moreover, when stagnation sets, muddlers are stuck; and if their problem is not administrative, no bureaucrat will take the initiative of helping them out. The bureaucrat does plan, but not always to suit problems of the academic. I am particularly eager to discuss the planning of the division of labor between academic and administrator, and I declare my view here and now to all and sundry, especially to those who might be crazy enough, now or at any later date, to conceive of the idea that I might be put in a position where I may have some measure of likelihood, however slim, to execute my conception. For, I have one idea and I intend to stick with it quite stubbornly, regardless of whether my intentions have any practical consequences and whether others would judge it good or bad. I suggest keeping the division of labor straight: the job of administrators, to begin with, is not to plan administrative work for academics, but to administer it, the job of planning—especially the determination of both preferences and policies—should be returned partly to the academics and their chosen representatives (not chosen administrators) and partly to democratically elected representatives of the public interest. Under the guidance of spokespeople of the public interest, all administrators may—indeed, should—plan administrative reforms and overhauls of all sorts as need be. We should appoint an administrator to see to it that the representatives of the public interest do not represent the administration. In particular, no one should impose measures to raise the degree of efficiency of academic research or teaching. Admittedly, political institutions can be very bad (and sometimes they are) but in the West they have seldom stooped so low as to permit administrators to pretend that they represent of public interest (rather than the fallible public view of it); this is the situation only in Academe.27 We are all trying to cope with this, each in their own peculiar ways. Some of us refuse to fill in the many questionnaires that administrators keep issuing; to no avail. In such matters, muddling through will not do: coordinated concerted efforts demand planning.

4.4

The British Museum possesses a letter from Immanuel Kant to a publisher. In it, he apologizes for unexpected delays in submitting a manuscript—due to ill health. It seems somewhat grotesque but is unavoidable that leading people have to follow standard procedures. At times, this becomes silly. It is easier to obtain approval for hiring an additional professors than a secretary, whose salary is significantly smaller, yet the efficiency of the faculty would increase enormously had they had its professors obtain the services of

27 James Burnham, *The Managerial Revolution* (1941) claims that managers have taken over all everywhere. This holds only in the Soviet Union and its likes. In the west this holds in spots
an additional secretary. In some universities, leading intellectuals have to declare that their manuscripts are ready for print before they can get the necessary secretarial help. Worse still, they may receive untutored and untrained graduate students to write letters to administrators about manuscripts. This is due to muddling through. It is still advisable to stick to this method as the least expensive, rather than advocate the concentrated rational study of administrative and technical problems of academic life. At least until problems become urgent, we can let sleeping dogs lie. This will call for action only when administrators, publishers, janitors, or parking attendants control the character and service of Academe,\textsuperscript{28} when rules and regulations and computer programs dictate and control the quality of life there. So, does academic administration threaten the western scholarly tradition? I do not know. I do not know how Kant’s publisher decided whether to accept a book by Kant for publication, when its manuscript was in final form, and what to do if he messed so much with the proofs that they had to be reset. I do not know how much accepted traditions harass writers, what they must tolerate to secure publication in submission to pressure. Information is not easily accessible. Things have changed so rapidly over the last few decades that I, for one, find it hard to grope for some perspective.

The moral of all this for you is obvious: do not trust these pages, not even the information they present: things change fast. It is always useful to check significant information. We cannot always do so. The amount of information that an author of a lab report takes for granted is staggering.\textsuperscript{29} Only mainstream reports are somewhat less unreliable than most information, as these reports are liable to undergo repeated tests and corrections. Nevertheless, as astronomer Sir John Herschel noted early in the nineteenth century, science would be impossible without considering reports of empirical finding\textsuperscript{\textit{bona fide}}. How much of the material here is empirical? At least I hope you deem them\textsuperscript{\textit{bona fide}}.

This is muddling through: people may act with scarcely any understanding of what they do; they may have the wrong idea even of the most general picture of where they are and where they are going. Oddly, to say of a process that it is muddling through is to compliment it as the avoidance of examination of a big picture and the attention to its details. One may not learn it ever, or learn it the hard way. In my student days, when I studied physics, the clear image of classical physics enchanted me; not its being old fashioned, as the clear image included special and general relativity, despite their novelty—as Nils Bohr kept stressing. The muddling through of quantum mechanics disturbed me then, as Bohr’s indulgence in it did. My peers were aware of what troubled me, but they ignored it and persisted with their studies. I dropped out of physics and became a philosopher. Many years later, I returned to what troubled me, and tried to organize my confusion; I wrote a paper—the only paper in physics that I have published—and expanded it into a short book. I tried to interest physicists in it, including some classmates. I failed. Later on, I realized: they were still muddling through. I had undervalued their efforts being\textsuperscript{\textit{bona fide}}. Research is in part muddling through and in part the study of principles; it is always\textsuperscript{\textit{bona fide}}. For years the great idea of my teacher Karl Popper, his demarcation of science from pseudo-science, both

\textsuperscript{28} I cannot often show you that I am not exaggerating, but let us take this as an instance. In a large university at which I once taught, parking attendants penalized instructors for staying in class for an extra five minutes. These extra five minutes may signify, and in many ways.

\textsuperscript{29} James D. Watson,\textit{ The Double Helix}, 1968, is vivid in its reports on the corrections of many received assumptions that were necessary before the sought-after picture could emerge.
thrilled and troubled me. I now know: he overlooked another demarcation: some pseudo-scientists are charlatans; others are bona fide mistaken. I cannot complain, though: this distinction is extra-scientific.

5. A View In Perspective: Academic Traditions

Where should we start? Of the detail and of the general idea, which comes first? Answer: start with a general question, take a general answer to it and modify it by paying attention to relevant details (Democritus; Einstein; Popper). Western tradition illustrates this repeatedly but also offers objections to it: a bird’s-eye view not correct from the start, arch-logician Van Quine quipped, is strictly for the birds. This, he failed to notice, renders the problem insoluble: the claim to have started with a correct bird’s-eye view is dogmatic; the hope to start correctly without dogma by appeal to facts leads to a loss of orientation. Hence, any bird’s-eye view should suffice to begin with, assisted by criticism that should improve it.

5.1

Medieval universities served two roles: as homes for clerical misfits and as schools for budding clerics. From time immemorial, schooling was the prerogative of the priesthood; the ruling classes followed, and then their high-class servants did. Scholarship was the next step. In ancient Greece, it always belonged to marginal members of the leisurely class (scholé is Greek leisure). Jewish tradition boosted scholarship as a form of worship, viewing Jews as a cast of priests (Exodus 19:6). In Europe literacy declined with the decline of Rome. In the renaissance literacy grew slowly. Antonio Manetti’s life of Filippo Brunelleschi, the father of the Renaissance, reports (1480?) that Brunelleschi was literate although he was apprenticed to a silversmith: at that time only intended clerks or physicians acquired literacy; his family had intended this future for him, but, as he was interested in silver work and competent with his hands, they yielded. This explanation shows that at the time in Florence customs concerning literacy changed radically. Literacy became the rule in Europe after the institution of compulsory universal education. The quip of the American Midwest reveals the prevalent attitude to reading: “When all else fails, try reading the instructions manual!” Reading instructions is as old as writing. Study for pleasure, as habit, was a great step forward. The medieval Christian recluses were the spiritual ancestors of the western scholars. In the West, reading fiction is prevalent. Leading twentieth-century author William Somerset Maugham says in his autobiography, reading fiction is the escape of lonely children from their loneliness. This is what leads to scholarship.

Anthropology describes individuals by reference to their roles in a given social environment. By definition, a role is a set of socially determined rights and duties. Individuals are born into most of their roles. They rarely have the option to choose and acquire them; and to make it so, the price of a choice is usually high. There are matters by which we may assess the flexibility of a society: the degree of freedom to choose a role in a given society may serve as a measure of that flexibility. This may be due to the narrow range of options available, or due to the high cost of an option. The less flexible a society is, the less incentive for deviation it offers anyone disposed to deviate—by physical withdrawal (usually into the wilderness), by social withdrawal (usually into the lap of the family or into a monastery of
one sort or another), or by becoming an outlaw. The need for flexibility may find odd expressions. In traditional China and Japan, for example, most roles were firmly fixed for most individuals from their very birth. This gave rise to secret societies, with customary recourse to violence: they had to play tremendous social roles as they came to open blind allies. To give you some feeling of the traditional inflexibility of traditional European society—the full sense of it is hardly attainable, and that is for the good as the sense is terribly crushing—let me mention an instance of a society more flexible by far than any that has ever existed on earth, yet highly inflexible by comparison with ours. Consider then France past the French revolution.

Distinguished novelist Honoré de Balzac ends his Le Père Goriot (1835) with a frighteningly realistic account of a discussion that the old criminal Vautrin holds with the young law student Eugène. Vautrin tries to induct Eugène to life of an outlaw. He shows him that under the most favorable circumstances, his future as lawyer is abysmal. And yet, by any reasonable standard, early nineteenth-century France was a free country.

Anthropologically speaking, life of crime is a set of social roles like any other. (Émile Durkheim) Some alternatives come with high incentive for their choice balanced by high cost of that choice. The balance may fail for some individuals—turning them into social outcasts. To be an outcast is a penalty and a part of a role. The degree of severity of this penalty depends on the degree of inflexibility of the society in question. This is a pompous way of saying that society forces people to behave in a punishable manner. It is terrible. One need not be an anthropologist to know this—and that society may make life tolerable for deviants (and their friends and relations); the way to do this has to be restricted but not illegal. Deviance, and permitted deviant social-roles, sprang into various societies as secret societies, religious orders, secret religious orders, physically isolated institutions like monasteries and like madhouses. Anthropologically speaking, monasteries are one of the ways a society gets rid of its unadjusted members with the least fuss. When one thinks of what the unadjusted did in the early Protestant societies (remember the witches of Salem) one can easily see how relatively cheap monasteries are; the institutions of eccentrics, bohemians, and so on, is cheaper—provided society can afford some measure of civil freedom. Liberal toleration of deviants is limited by forcing them to starve before recognizing them and their contributions. All this follows obvious universal patterns. In Aldous Huxley’s Brave New World, society is very inflexible; it maintained its inflexibility by a highly scientific method of conditioning its members to accept it with pleasure. Nevertheless, that society breeds deviants regularly and it incarcerates them in a very pleasant, isolated monastic enclave.

While monasteries and universities developed learning, the arts that they rejected developed in the bohemian margins of society; it could easily be the other way around. The arts developed in the margins of urban society known as Bohemia from late medieval society to date. Learning, and scientific research, developed in zigzag: it started in the crafts, left them in the mid-seventeenth century for the scientific societies, and joined the university in the nineteenth century. It could all be very different.

Scientific societies never competed with the universities; already in the mid-seventeenth century, they made truce. As the universities were primarily refined monasteries, education and the advancement of learning became their major objectives only when America started
to lead the commonwealth of learning. The Oxford don, the Sorbonne professor, the traditional old world academic, these were not researchers but scholars; not teachers, but excellent conversationalists, secularized, glorified monks of exquisite taste, especially (but not only) in matters of high learning. Academics could of course spend time on research, simply because they were free to choose any eccentricity, especially in the field of learning. Thus, Oxford granted (non-academic) Robert Boyle an honorary doctorate. In 1832, Oxford granted honorary doctorates to two distinguished (non-academic) researchers John Dalton and Michael Faraday. The conversation that evening between the newly created doctors and some top dons was a disaster; complaints about the folly of the action were loud the next day. This happened just as change started to set in: Napoleon had started a new Academe with the *École Polytechnique*; Prussia began a competition with France and rendered a major reform of its universities (1830) and even England chipped in by founding the University of London (founded, its charter declares, for nonconformists, Jews and the poor). The Prussian reform won reaffirmation in the Second Reich as a matter of course. Alas, the hideous Third Reich trampled on it, also as a matter of course. Before that, the industrial revolution forced the universities to equip themselves with modern laboratories. Cambridge opened a laboratory in the early seventies of the nineteenth century. In its inauguration, its head, James Clerk Maxwell, said the students were fortunate that it was poor, since this forced them to construct their own instruments. Oxford refused to construct a laboratory until the twentieth century. Sorbonne joined soon.

General literacy was a most welcome change due to the industrial revolution and to democratization. In 1800, Count Rumford, an American adventurer who lived in Europe, began a movement that soon became most influential: founding institutions of adult education for the poor. The idea of self-education is ancient; its modern variant appeared in radical intellectual writings of the sixteenth and seventeenth centuries, especially in the works of Bacon, Descartes, Locke and Spinoza, whose contempt for the traditional modes of education was boundless. Self-education was the chief slogan of one very famous and important though unoriginal thinker, Dr. Isaac Watts, now remembered for some doggerel hymns that somehow have remained in some Episcopal hymnals, and perhaps also for his succinct advice for educators to offer children programs for seven days of work per week. A poor man’s version of this idea was Sam Smile’s 1859 dreadful *Self Help.* The nearest description I know of life in accord with the philosophy of Watts and of Smile is the bleakest part of the 1909 novel *Martin Eden* of Jack London: the system he describes in realist detail enables one to rise above one’s station, but at the cost of such hard work that it ends up by his losing all interest in life, including interest in scoring any victory. Incredible as it sounds, many leaders of their communities emerged from the lower ranks of society in accord with Sam Smile’s formula that is still seems credible. In the nineteenth century, it was the thing to do. Workers who spent ten or twelve hours a day on the treadmill had time and the desire to attend public lectures. Leading researchers such as Ørsted, Kelvin, Maxwell, Huxley, Helmholtz, Mach, and Oliver Lodge, published some superb essays that they had read to such publics. These institutions could not remain in the slum. Evening schools for workers opened in universities, and in the mid-century the University of London opened an evening college for workers (Birkbeck College). The story of the rise of that college from the

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30 Two messages of that book are true and valuable: learning is a pleasure and the best tool for social mobility. Nevertheless, the idea that hard work is the solution to all ills, especially poverty, although well intended, is obnoxious.
slum is a breathtaking tale. My point here, however, is to describe the rise of the modern universities as institutes of universal high education, as the trend of having the academic world as the chief instrument of universal high education. This was a great, radical novelty. It makes Academe deserve all the compliments in the world. We tend to forget all this due to the tremendous success that compulsory education had in fighting illiteracy.

Partly due to literacy and partly due to new science-based technologies, the nineteenth century saw a tremendous expansion of Academe with no plan and no sensitivity to needs beyond the very minimum. This way technical universities evolved—first in France, and then in the United States of America, and then all over Europe. The difference between traditional universities and technological ones waned in two steps. Increasing demand forced traditional universities to open schools of engineering. As the Soviet Union defeated the United States in the space race by dispatching Sputnik I, American investment in education was copious. The arts benefitted from this too; technological universities began teaching the arts. (The trend gained much support from immensely popular, prestigious, 1959 *The Two Cultures and the Industrial Revolution* of C. P. Snow.)

5.2

Academe has influenced almost all modern lifestyles. A few striking examples: almost all American teachers (especially high-school teachers but not only), almost all special teachers, whether of vocational training, of therapeutic courses and of rehabilitation of all sorts, including physical education, and by now even teachers of the diverse arts, whether of plastic arts or of the performing arts—all these are usually under the aegis of Academe, with teachers who are academically trained and many of whom work in academic institutions or keep in touch with them. This was not so before World War II. Today almost all physicians, surgeons, public-health officers, and medical consultants, highly specialized or not, have academic degrees and diplomas; many of them are adjunct academics who work in university hospitals. Similar changes took place throughout the medical profession: epidemiologists, psychologists (therapists or teachers), psychiatrists, nurses, midwives, they all now undergo academic training, whatever this is. Technicians and engineers in almost all branches of industry, executives in most of the economy, accountants, even many politicians and public administrators—for better or for worse, now unlike a century ago—are in America graduates in their chosen specialties, often the law, before they become apprentices. This is a great change.

England had traditionally two universities, Oxford and Cambridge. Later on London University appeared (1830). New ones (redbrick universities) mushroomed later. Oxford and Cambridge, left most tutoring to beginners, better trained than American student-teachers are today, or even newly appointed British assistant-lecturers. Bertrand Russell’s 1956 *Portraits from Memory* contains incredible and very amusing descriptions of Cambridge at the close of the nineteenth century. The degree of indifference to learning permitted and sometimes exercised there was remarkable. It made the devotion of the true scholars there a

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31 *The Two Cultures* describes a gap between the faculties of arts and of science, the mutual indifference of their members, and the scientific ignorance that artists display. He calls them “natural Luddites”. He concludes with the advice to the British to have their education system emulate the Soviet one.
true labor of love as seldom witnessed. The radical change of Academe after World War I
was almost entirely unplanned. Muddling through is unsuitable for a radical transformation
of a system; miraculously, A spontaneous reform on a large scale, it did not cause a complete
collapse of the system.

The rapid growth of Academe required an easy criterion for selecting new faculty-members.
Publication lists was such a criterion since publications had been then due to intellectual
pursuit. As the criterion took roots, it led to the deterioration of the quality of publications
as means of spreading knowledge, and soon the mystique of publication developed in the
public and publication-pressure in the universities. I have met people who lived before the
age of publication-pressure. Some of them had published nothing.

Publication-pressure may be useful. Yet due to immensely rapid, hardly studied changes we
do not quite know how much of the traditional role of the universities is preserved, should
be preserved, and how. We lost the perspective and we should reconstruct it, for bewildered
future-academics, for the advancement of learning, pure and applied, and for coping with the
bureaucratization of Academe. We also want to reestablish Academe as the natural home of
deviants. Some liberal-arts colleges are exceptions to some extent, but mostly the pressure
on academics to conform is becoming increasingly agonizing, especially since the teaching
methods in the university have not altered radically and they forces academics to conform
more than in the past. In the academy, as elsewhere, the intelligent may find ways of evading
pressures, of replacing filling forms by asking secretaries and others to help, or by being so
important that administrators learn to ignore their neglect of performance of so essential a
part of their duty. This is nothing special and nothing new: every society, however rigid,
permits some measure of deviation. Modern society is particularly flexible, especially due to
size: an academic can always hope to move to another place. Still, Academe is no longer the
home of the deviant; this is hard on many of your teachers, my dear bewildered reader, and
on you too.

Forgive me for treating you statistically, but not knowing you personally, I do not know
what else to do. If we are to treat each other less statistically even when we are not familiar
with each other, then we must create more freedom and laxity; in particular, we must allow
for people who fit no category and nonetheless let them build their homes somewhere
within the bounds of our society. By now, Academe is hopelessly set in some pigeonhole, so
that now it finds it hard to house the abnormal; let me and you escape it and build a new
monastery for ourselves; within Academe, alas.

I was carried away. I had intended to tell you how publication pressure grew. One person
instituted it: Harvard president James Bryant Conant. He made Harvard a top academic
institution since the grading of academic institutions relied largely on the portion of
academics with doctoral degree: he created new Harvard rules: offer no employment in any
academic position to anyone who is not a Ph. D. and apply ruthless publication pressure. A
liberal that he was, he dismissed those who did not cooperate with the notorious House un-
American Committee. Yes, it was during the Cold War; Harvard is one of its casualties.
Yes, you are right: it is no use crying over spilled milk. Still, it is time to make amends. You
ask, what amends? In whose hands? I do not know. This deserves public discussion. For that
let me put in my two bits: let us make Academe as pleasant a place for scholars as possible,
and see to it that whatever the rules for hiring new recruits will be—yes, this is where you
come in—it should be as fair as possible, under some democratic control. Is this possible? I hope so.

6. Student Agonies: Classes, Assignments And Examinations

Students in contemporary universities are fortunate. The degree of freedom and leisure their environment offers them is almost unequaled to any, at least within the early adult age group. Yet many of them are troubled. Even those who lead relatively happy lives suffer unnecessary troubles that they can minimize by planning and that the university can eliminate with small reforms easy to implement but not likely to occur nonetheless.

6.1

The greatest troubles that befall students befall modern society: boredom and anxiety. Even the famous Nazi philosopher Martin Heidegger knew that much. His cure for it is simple: join the army; live dangerously; die on the battlefield! There is an important kernel of truth in all this: dead people suffer neither boredom nor anxiety; even before death comes to the relief, during battle fear is so intense it leaves no room for boredom or anxiety. That Herr Professor Doktor Heidegger knew very little about military life is obvious from the fact that he saw it as all battlefield and no barracks. If you are bored and anxious in a university, think how lucky you are to avoid the murderous boredom and anxieties of barrack-life, not to mention the horrors of the battlefield. That is something to ponder about.

To complete this silly lesson in the essence of existentialist philosophy, I must mention Heidegger’s follower, famous playwright Sartre. Whereas Heidegger diagnosed us as bored and anxiety-ridden, and his recipe for a cure—all is war, Sartre was more humane and more perceptive. He replaced boredom with nausea. This is some improvement, since the excessively bored are nauseated—at least with themselves, if not with the whole world; on top of this, some may be nauseated not out of boredom but out of a loss of a sense of proportion, so that Sartre’s score is higher than that of Heidegger. Even productive and creative people may suffer from severe fits of nausea: artists, composers, writers, who work hard in attempts to achieve perfection, especially if they repeat one piece of work again and again and again, with all sorts of variations intended to capture perfection, they may be so immersed in one work, arrive at the point where returns from improvement are so rapidly diminishing, become so tired, that they lose perspective and get severe attacks of nausea akin to attacks of vertigo, berserk, and other fits of malfunction. You may have had a mild form of that sickness when working hard on an assignment or an examination. The only cure for this is old-fashioned: do something entirely different; get a vacation if necessary. In severe cases, nausea requires psychiatric aid of some sort. Whether Sartre would agree with this or consider it futile since nausea is an essential and indestructible part of the human predicament, I was never able to judge, since his obscurity almost equals that of Heidegger. Maybe he did, and for the following reason.

Sartre added some bright perceptions to the existentialism of Heidegger: it is the idea of the inalienable responsibility that all individuals carry with them whether or not they have a sense of responsibility and whether or not they have the inner strength to carry the burden.
ultimately, no matter how hard it is and how poor the range of alternatives that are open to an individual, ultimately choice is individual; only individuals choose, even if they do that by shifting the burden to others—usually commanders, or bosses, or masters or spouses—in order to deceive themselves that others choose for them. This point is extremely important, and it bears any amount of repetition; even when it is masqueraded as a new philosophy and as a profound idea stated in the most obscure and muddling terms; it is always welcome. the question, however, is not whether you or your designated boss must choose for you; it is always that you choose knowingly or not, wisely or not. can you find help even though others cannot choose for you?

the answer is, obviously, sometimes but not always, someone in the vicinity can and is willing to help you if you ask nicely. sartre insinuated the contrary opinion: he seems to have suggested that one person cannot ever help another in reaching difficult decisions. I am not in the least confident that I am reporting sartre correctly. Be it what sartre had in mind or not, it is obviously false and its falsehood is obviously a source of a ray of hope. if it is sartre’s view that one cannot help another in coming to a decision, then we need not be surprised that he was so muddled. anyhow, obviously, it helps to learn of alternatives that one has not noticed or consequences that one has not noticed of alternatives that one has noticed. It is always advisable to conduct rational debates on what one cares about and on what troubles one—with equals and by luck with the wiser and the more experienced.

6.2

boredom and anxiety are common indeed, and at least among the more intelligent and among intellectuals, nausea is too. Possibly, most people most of the time have lived lives excruciating in their boredom and anxieties; it is hard to judge. what is more depressing than to wait for rain in a dark, empty, and painfully long winter nights? Yet this was common fare in peasant societies and these were relatively stable; they were at least much more stable than the world in which gave birth to heidegger’s brutal, pretentious writings. hence, his view of boredom and anxiety is of a special sort. (heidegger openly idealized peasant societies in the stock reactionary fashion, not caring for consistency.) in modern industrial society, boredom and anxiety differ from those in peasant society. It is the boredom of work on the conveyor-belt as already adam smith noticed and wrote a severe warning against its inhumanity; it is the boredom of a mechanized industrial society that does not train its members in the art of enjoying leisure, as discussed in some details in russell’s pioneering and most important “in praise of idleness” (1932). Both versions of boredom are so often rooted in lack of concern for the human need for food for thought, for challenge (Abraham Maslow). It is rooted in a special application of the doctrine of original sin to learning; an application and a doctrine that most of your teachers have advocated. I do not know them personally, of course, and I suppose that some of them are very good teachers—at least in your own rather untutored eyes. I still think, unfortunately, that most of them take for granted the doctrine that I wish now to present as the basis of your education.

the most obvious phenomenon of teachers’ attitudes towards their routine duties as

32 Henry David Thoreau has famously stated, “The mass of men lead lives of quiet desperation.” (Walden). Bertrand Russell said, most of the time most people were peasants; their lives are boring.
teachers—whatever these are—is their extreme dislike of their duties. Teachers can hardly conceal their reluctance to teach. Its manifestation often begins with impolite admission of their lack of all interest. The complaints among academics concerning their duties of reading assignments and grading examinations and term papers may give the impression that they are true martyrs. Since they seldom benefit from such activities, they must be doing it either because they have no choice or because they think they are doing it for the sake of their students. It is easy to discover that the latter idea is predominant: academic teachers suffer as they do for the sake of their students—as they keep saying.

Professors force students to come to their lectures, to write silly routine essays and answer the same questions that the textbooks answer year in and year out. Students must memorize hundreds of details that are included in their curricula for reasons that they cannot fathom, to repeat obscure statements that their professors read from their notes, to write empty essays on topics that concern nobody, all in the name of learning and of culture. When students protest that they are bored, their professors admonish them for a lack of interest. When students ask for the use of the information they have to memorize, they receive extremely poor answers for which the teachers could never get any credit were they to sit for exams in the stead of their students.

Our teaching system causes much harm: students learn to hate studies or at best to tolerate them as a necessary evil. For my part, I am of the opinion that what is not interesting is intellectually valueless. But to this I shall come later, and I shall explain at length how it is possible to be a poor student yet a good scholar, and how such students who are good scholars can manage to be recognized by their better teachers and to graduate more or less successfully despite all obstacles that conscientious academics put on their way.

6.3

One way to examine the rationality of a view is to see how serious the arguments its advocates present in its favor are. Moses Maimonides, one of the greatest and most rational philosophers of the Middle Ages, said, religious laws are not essential for rational individuals, but since common people need these laws to guide them, everyone is obliged to obey the laws. Therefore, he added, rational people can offer arguments in efforts to support of the laws but not in efforts to criticize them. This is dogmatism. He meant to ameliorate this dogmatism by debating its value for common people. Right or not, normal democracy has superseded all this.

Maimonides was rational when he offered his argument. Benedict Spinoza, his greatest disciple, still held that rational people have no need for laws. As he spoke about legislation, he did better than Maimonides did. It should serve as a tool for education, he said. This is a better ground for legislation than the ancient idea that man to man is wolf, famously defended by his older contemporary Thomas Hobbes. All these ideas are erroneous. Laws are indispensable, said Karl Popper against them, even were we all peace loving; even were man to man an angel33, as he has put it. This deprives all traditional views on laws of their rationality. It is funny: since Einstein improved upon Newton’s theory of gravity, quite a few

philosophers became relativists about truth. Now there is a point to this: Newton’s theory was one the peak of scientific knowledge and when it has lost this status, some assumptions about it had to go. Oddly, many philosophers, especially the post-modernists, declare the truth relative rather than that rationality is. This permits the rationality of the proposal of Maimonides to disappear. A practice that was eminently rational once is possibly no longer rational. Hence, relativizing rationality is obviously preferable to relativizing truth: it is commonsense.

Academics have many arguments in favor of lecturing, assigning essays, and forcing students to memorize and sweat for examination. Some of these arguments are extremely poor; most of them never underwent examination, except by learning psychologists. Concerned people, whether students or professors, whether students-senate or its committees, or any academic institution or sub-institution, operated by faculty-members, administrators, or both; whether bodies concerned with some aspect of the public good or another, such as the society for the prevention of cruelty to children, or the council for better education, or the Ecumenical Council; or governments, federal or state, their legislatures, courts, or administrations—none of these has ever bumped into the idea that possibly all this is a big error, not to say empirically refuted. The only reasonable argument for all the antediluvian practices that Academe clings to tooth-and-nail is that they are traditional. This indicates that they may have been rational once. Probably they were. But then, the claim for rationality of the lecturing system is obsolete; anyway, it is empirically refuted. Every day thousands of opportunities avail themselves to thousands of honest people who would not usually overlook an opportunity to make an easy honest buck, to make a very honest and well deserved, yet very easily earned, buck and a handful of bucks, by the sheer exercise of common sense to the arts and sciences of academic instruction. The most efficient professors give students multiple-choice exams and let graduate-students grade them. Unskilled workers could do that after little training, and they will gladly do it for the minimum wage. The saving thus accrued would be enormous. Large universities have introductory courses in vast duplications to keep classes small—to facilitate contact between teachers and students. Had students spoken with their instructors instead of listening to them lecture, they would all be happier.

It is easier to talk to you about your own troubles and ask how necessary they are: I do assume that you are no glutton for punishment and so would gladly rid yourself of a trouble you see no reason to suffer. Your superiors may find it easier to let you melt in your own sweat and leave things as they are; as long as you do not scream, they will gladly ignore your plight. As long as you are reading my message to you—advocating intellectual pleasure instead of intellectual suffering, as I do—I assume that you have enough sympathy with my cause as to be ready to consider the possibility that some of your mental suffering is avoidable; and then you can try to assess the cost of avoiding it. So do read my views about cost-reduction.

I assume then that you accept the suggestion that possibly you are better off not going to lectures at all expect when you enjoy them or at least expect to enjoy them or can see the benefit they may somehow offer you in some distant future. Come what may, do not retreat now to the doctrine that you must endure the suffering of the boring lectures because obviously they are good for your career or for your soul. There is nothing obvious about that, and your professors who are so quick to say it is obvious are not quick at all to tell you
why or answer questions about their educational views.

6.4

Discipline. Academic discipline. This is what you gain first in any education system, including Academe. When you join an army or enter a factory, the first enemy you encounter is intense boredom and inability to contain it. When you stand still in a military parade and hear a bombastic, long message, you feel an enormous itch; you start an obsessive desire to scratch here and to rub there; you start feeling that your whole life is in jeopardy unless you can scrub one foot with the other, or scratch the middle of your back, or your elbow; you cannot stand still or you will explode. What you suffer from is not an itch but boredom. Your immediate superiors will punished you by all available means, legal and illegal, by mental cruelty, humiliation and abuse, until you learn to tolerate boredom with equanimity. If you do not believe it is boredom, try factories instead and you will discover a similar, though much less openly oppressive regime. If you are still skeptical, look at some street-urchins and beachcombers suffering from boredom: they can scratch themselves and hop around all day long, but they soon find such remedies pointless, and they desperately look for other—sometimes at the risk of health and of freedom. In the classroom, the desire to scratch and hop is the same; we have begun fighting it in elementary school. Yet some of us are not sufficiently bored in elementary and secondary schools, and so these lucky ones become less lucky as they are less prepared for the boredom of university lecture rooms. They are the more likely to arrive at the university for further education rather than for a degree or for training in some craft. The need to learn to tolerate boredom is bad enough—for the training to suffer boredom is the destruction of initiative, of spontaneity, of the life force itself. We should consider it morally and intellectually undesirable. Allowing for it is a disaster. That our civilization has survived it is a miracle. 34

Oriental cultures—and other non-western, not primitive cultures—do suffer boredom with equanimity. This is impressive. They do so as broken individuals, as ones who had had too much pain and deprivation, physical and mental; so they consider total indifference a state superior to other available ones. Many (indigenous) Indian, Chinese and Japanese philosophies view boredom as the nearest to happiness: take the utilitarian scale of pains (negative) and pleasures (positive), set the maximum at zero, and you get a western imitation of Oriental philosophy. Take Oriental students who are not hopelessly steeped in that philosophy and present them with a challenge; you will soon learn that you have opened in their hearts the Pandora’s box of all the fears and anxieties that they have ever experienced, plus the ones their ancestors have inculcated in them for eons in an attempt to make them docile. At least in the Orient the prevalence of this phenomenon is to be expected; not in a state university in the Mid-West of the United States of America. It is shocking to notice how much of this still exists in the Occident. How are we going to develop enough faith in our youths to be able to assist their education without browbeating them into accepting boredom? My hope is pinned on you as well as on similarly bewildered students who have never made it because they have failed to suffer boredom, to tolerate it—as others do as a matter of course, running from one lecture hall to another and cramming for one exam after the other, aimlessly and pointlessly yet indifferently. I put my hope on you especially because

you are crazy enough to aspire to an academic job—as you wish to be a professor or to escape the worse boredom of the barracks, the conveyor-belts, red tape, rush-hour traffic crawl, the rat race. The future of Academe may depend on you. So, keep fighting! Hold the fort!

6.5

From time immemorial, oppression persists for the good of society: society has priority over you: we can do without you but you cannot do without us! Romeo and Juliet must die. They are very nice and captivating, and they have done nothing wrong; Juliet did not even go to the discotheque; but die they must—to maintain the social order. This story is universal. The peculiar to Shakespeare is his objection: after they die in the traditional catharsis, the rules of tragedy force the curtain to fall. He refuses, keeps the curtains up, and forces into the stage the whole of the council of the Montagues and the whole of the council of the Capulets. He forces them to agree that things cannot go on like this. In the modern world social change continues, by legal reform, by easing of custom and by the vagaries of fashion. Most impositions on individuals in the name of society are quashed: society invites your rebellion. Moralists declare repeatedly: the latest permissive move will destroy society. Yet oppression is the offender: it causes instability. Initially, liberalism met with derision as utopian, as impractical. Now that liberal countries are rich and rich countries are liberal, now that illiberal countries cannot progress despite tremendous natural resources, why do most philosophers still deem liberalism failure?

Is there evidence that lectures, exams (other than for licenses), and the like, are good? What does research on education say? Remedial teaching and the teaching of retarded children (for which we owe education incalculable debt) are terrific. Regarding education of normal kids, standard education theory consists of three items: motivation, didactics and curriculum. Motivation theory assumes wickedly that kids do not want to learn and proposes, more wickedly, to trick them to study. Didactics answers the question, how can we go not too slowly (so as not to bore) and not too fast (as to invite errors)? The ideal, the smooth growth of skill, is the faultless education of the nervous wreck. Great reformers like Janusz Korczak and Caleb Gattegno are ignored. So standard education theory is useless for us. Admittedly, educators have useful stock of experience, and more than a trick or two to teach beginners. To qualify as a schoolteacher you undergo training. Academic teachers need no training. At least half of the freshmen and sophomore classes in the average large American university are taught by graduate students who often have less training than schoolteachers, both in education and in the subject matter at hand. This is no accident. The universities streamline their routines in many respects; electronic tools often replace administrators there; can these also replace student-teachers? Yes, of course they can. Some universities do replace teachers with screens, tapes, videos of all sorts; the internet universities and extra-mural departments of leading universities discover that lecturers may be replaced by actors who are much better at reading textbooks aloud than professors and that the contents of the standard textbook can be replaced by the best and most advanced text available. The replacement of lectures with electronic tools should free them to work with students in tutorials, study groups, and more.

What will help us find the truth on this? Can we consult biographies or autobiographies of
scientists, scholars, pillars or industry and politics? A general is more likely than a professor to be a candidate for any political position. Pillars of society who are university graduates often refrain from reference to this; their autobiographies are vague about it, unless they explain why they did poorly. Few celebs—political, industrial, business or show biz—did well in college. They have little to say about the benefit from their education, although they may stutter kind words on the good old days. This is understandable. Military academics do not breed generals; they cannot say what in their training has made them outstanding. How much do they owe to their excellent intrigue mongering? Yet a general is credible talking of the quality of a military academy than a financier is talking of the quality of a university. The exception should be the outstanding professor. Former Princeton University professor United States president Woodrow Wilson is reputed to have said he left Princeton, as he got tired of its politics. Einstein said, exams had caused him harm. There are also exceptions elsewhere: Philosopher Michael Polanyi compared excellent professors that are powerful researchers to their Renaissance predecessors as workshop owners. He followed Einstein’s claim that research is nearer to art than one may surmise from the official doctrine of science as resting on detailed information.

James D. Watson’s 1968 *The Double Helix* reports the history of the discovery of the nucleic acids that was a grand breakthrough. I cannot discuss it here; I recommend it very much, since it is terrific read. It describes two ambitious young researchers very far from conformism. One can declare their discovery too unusual to draw any lesson from it for simpletons like you and me. Still, it shows that the exceptional researcher should stay off the treadmill; and maybe you are it.

Honest biographies of honest failures often contain nostalgic references to the fun of university life as enjoyed by frank, undisturbed reports of free non-intellectuals.35 Fun I am after; but not at the cost of failure.

Perhaps we should consult some average ex-students in diverse occupations. Such studies are hard to conduct: unless very cleverly and carefully contrived, they are more than likely to present staple answers. Some staple answer are predictable with little effort: almost all will report that they find their academic education beneficial. When pressed, they will criticize their education in a predictable manner: average people give average answers. Most psychological and sociological surveys then are hardly of any use. Consequently, social researchers prefer multiple-choice questionnaires. The trouble with these is that much bias sneaks in by the very choice of questions, their wordings, and even their order. This kind of research is so exasperating that one need not be surprised to find some social researchers preferring controlled experiments to surveys. The few experimental colleges that have made lecture-attendance voluntary or abolished lectures deserve close study.

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35 F. Scott Fitzgerald, *This Side of Paradise*, 1920, is a terrific example.
Before leaving the empirical material, let me note: although information provided by outstanding citizens is inapplicable to the rank-and-file, and although the information provided by ordinary citizens is scant and not easily available or too problematic, one class of outstanding citizens is available for possibly enlightening information, namely the academics. After all, as generals benefit from their schooling more than outstanding financiers do, academics may likewise benefit from academic training.

There is a measure of risk involved here, though, as in the study of any unrepresentative sample. The sample of outstanding academics may be puzzling and eccentric. Let me mention an example. Martin Buber narrates that early in his life he tended to draw a romantic picture of a hero of his (Moses Hess, I think), and only through prolonged work he learned to make it less ideal. One might expect Buber’s report on his training to include reference to the critical attitude; but no; he refers to no training, by others or by himself, that helped him grow out of romanticism and to what he passed later as realist. In that improvement, he says, he received help from the music of Johann Sebastian Bach. He does not claim that he can explain this. Perhaps some Bach fans need no explanation of this; perhaps others cannot understand this. In any case, Buber’s story is impressive in its oddity. Stories that are more down-to-earth appear, say, in the autobiographies of Russell, Planck, and Einstein. Russell had nothing favorable to say for his teachers in Cambridge with one exception (Whitehead), though he expresses respect to some Cambridge scholars and his indebtedness to the lively intellectual atmosphere of the Cambridge environment; also, he defended the right of poor academics to remain in universities for the sake of academic freedom. Planck had as teachers two of the very best physicists of his day, Kirchhoff and Helmholtz. One was a very good lecturer, the other very poor. Planck viewed himself as the pupil and follower of the poor lecturer rather than the good one; his inability to impress either of them was a disappointment that no later fame and recognition compensated for. Strange. Einstein’s story is understandable. He hated lectures, did not go to them, and passed the exams on the strength of lecture-notes of classmates. The exams hurt him nevertheless: they spoiled his appetite for physics for two years. For the rest of his life he expressed admiration for the English system of private tutorials.

The sufferings of students in classrooms and in assignments is immediate and real; the promised return is neither immediate nor assured. This invites rebellion.

Do not let all this fool you: every argument, however deadly, however conclusive, has to it many rejoinders. Only, the more deadly or conclusive an argument is, the harder it is to find a good rejoinder to it. The difference is between any rejoinder and a good one. It makes the difference between better and worse exchanges of opinion, arguments, debates, discussions. I suppose you can decide what rejoinders are good, what not; but it is easy to throw dust into people’s eyes because many people lack the courage to dismiss a poor rejoinder. This explains the quick turnover of popular philosophy. Once-famous Paul Feyerabend said, as we may fail to distinguish between good and poor arguments, we should welcome all of them. The popularity of this feeble idea invites explanation. Mine is, cowards find solace in
this, no matter how odd it is. Even were cowardice less common in Academe than elsewhere, it still is the most damaging aspect of rationality. Thus, the answer to all of my criticisms of current education is, our present educational practices work, whereas a reform may destroy it; why, then, rock the boat?

Indeed, our system worked even children were spanked and beaten and flogged and whipped and kept in jail-like schools run by sadistic ignorant masters as described by Charles Dickens and by Alphonse Daudet. When Freud and his followers suggested that traumatizing kids harms them, they met with the same answer: do not rock the boat. He did. Did he and his followers go too far? No: the boat did not sink. Now, we can scarcely avoid experimenting; we can use them better or less well. Take two or three rather large universities, and cancel all compulsory work for two or three years and see what happens. For the life of me, I cannot see how this can damage Academe. The experiment may conceivably damage two or three universities, and this is why my proposal seems unacceptable. My concern here is with students. Possibly, you are doomed to swallow lectures to the end of your student days; at least remember that this is not demonstrably beneficial to you—or to anyone else. We do not know whether it is so, since universities are too cowardly to experiment. This is hard to deny.

A healthier attitude is this: it is easier to cancel some poor methods than to yielding to them since somehow it is deeply significant and miraculously useful and ingeniously designed and cleverly organized for your own enormous and incalculable benefit. Do not blame yourself for the suffering, boredom and futility that it incurs. I will show you that you can avoid the drudgery with impunity. We will come to this. In the meanwhile, you will be able to learn from poor students in your own class. You will, of course, want to know how you can use the poor student’s techniques—and even improve upon them, I hope—without coming any closer to becoming a poor student; while improving your position as a scholar, both in fact and in the eyes of those on whose judgments your future may vexingly depend.

7. Teaching Agonies: Courses And Students

My apology: this volume is much too orderly and to the point; it definitely begins to smell like a typical do-it-yourself tool-kit. Books of this sort are usually boring. This is evident from the few anecdotes that an author includes here and there in order to alleviate the misery of the bored student for a minute or so during which, the writer hopes, readers’ initial desire to read may avoid total collapse. For, dreadful as most do-it-yourself academic literature obviously is, and much as most of it depends on readers’ moment of self-deception being strong enough to make them throw away a small sum for the sake of an idle dream—the fact remains that, fortunately, its writers can never assume that readers will ever be forced to read—especially since teachers hate the do-it-yourself literature (as misleading) and will never force students to invest in it. The writers in question cannot make the material itself interesting. This is so partly because most of them endorse the popular myth that boredom becomes true scholarship. I am becoming increasingly boring myself, though not out of such ideology. It is due to the limitation of my literary talent. If you are suffering from the creeping stodginess of these pages, think for a moment of their poor author. What am I sweating for? Why do I care enough about you to go on pouring so many words trying so hard to entertain you and keep your interest afloat? I guess I am impetuous. Ever since I
remember myself I wanted to say something—long before I had anything to say, and long before I had my idea of how hard it is to say anything well. I remember I felt the need to go in the streets and shout, “Listen to Johann Sebastian Bach! He is so great!” Lucky for myself, I did not; and, unlucky for myself, I could not become a musician of any sort, performer, conductor, composer, or plagiarist; I could not even qualify as a historian of music or a musicologist, I could become an usher in a concert hall or a receptionist in a conservatoire, even an administrator there; but I retained the idea that saying is more important than the message; and this shallow adolescent folly prevented me from an attachment to the margins of the music world. By some deviant route, I became a professor instead. My ideal was that Scheherazade of the frame story of the classical Arabian Nights who had married a sultan who, suspecting his wives of infidelity, got into the habit of beheading them soon after the nuptials; and she kept alive by keeping her husband’s interest in the stories she was telling him. Poor woman; she must have developed an obsessive desire to bore her audience once, but she could not afford that luxury. Do as she pleased she could, but not bore the audience; constantly keeping her audience’s interest alive, she had to make her sister invite her next episode repeatedly.

As Tristram Shandy has said, “in this, Sir, I am of so nice and singular a humor, that if I thought you were able to form the least judgment or probable conjecture to yourself, of what was to come in the next page,—I would tear it out of my book.” Tristram Shandy can afford to bore his reader; he had nothing to lose but his audience, and as a gentleman he was financially independent; Scheherazade could lose the head she carried on her shoulders. Indeed, she had to resort not only to the art of storytelling, but also to contrive a fake-audience—her sister Dunyazade. Poor Dunyazade; she had no interest in stories, she knew her sister’s stories by heart from early childhood in Grandma’s version that was far better; she hated and envied Scheherazade’s superiority as a queen and even as a storyteller; yet she had to play a fifth-wheel in a mismatched company and pretend to be begging her sister to tell one more tale; just one more—for a thousand and one nights! It is about as terrible as having to come with the rest of the departmental staff to a public lecture by some old bore whom the departmental chair was careless enough to invite or not dexterous enough to shake off. I do not know why the wise compilers of The Arabian Nights could not do with Scheherazade alone, why they needed the services of Dunyazade. Maybe they tried to be realistic for a moment and confess that the initial approach to their audiences is problematic, to overcome unfairly, by means that were not perfectly honest. A book with an intriguing, even sexy, title and title-page illustration is not yet successful, but if the book is good the reader will probably forgive author and publisher its misleading title and illustration. A professor has to get audience one way or another—by promising good grades and by threatening with poor grades, if need be; but it gets rather tedious if a professor has to inspect attendance in every lecture and throw every other week a surprise-exam, or use other ploys to keep audience attendance, no matter how reluctantly. It is disheartening, not only for students, but also for lecturers. College-kids barely know their professors; students select

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36 Laurence Sterne, The Life and Opinions of Tristram Shandy, Gentleman, is an unfinished novel in nine volumes, 1759 to 1767. Its digressions render its story marginal. The target of its jokes are the philosophy and the literature of the time. In particular, its free-association style is a deadly critique of John Locke’s theory of learning (echoed in “Funes the Memorious” of Jorge Luis Borges, a story that encapsulates Sterne’s novel in the style characteristic of Borges). The book is unfinished, possibly due to its author’s decision to leave it unfinished. The same, incidentally, holds for Schubert’s unfinished symphony. (The extant outline of its third movement is no evidence.)
sections according to timetable convenience rather than according to their knowledge of who is lecturing how. The poor lecturer; semester after semester the poor lecturer has to face a group of anonymous and bored faces with little chance of acquaintance before they vanish, only to transform to another group. Now lecturers have to pretend ignorance of the engagement of their audiences with their laptops, tuned to the internet for something interesting.

Every one of us has had some chance to talk to some bored audience, to discover their boredom but to be unable to stop talking until the end of the message. If you have experienced that and if you can imagine making a living by doing that, a couple of hours a week, then you may have some idea of the unpleasantness of contemporary university lecturing.

7.1

The *Journal of the Royal Medical Society* of 1960 includes a paper on eighteenth-century researchers. I find in it the following assertion.

In 1744 the Medical Faculty consisted of a Professor of Medicine and a Professor of Anatomy and Botany, but apparently these gentlemen did not deliver lectures on their subjects and it is difficult to find out exactly what duties they did carry out.

The author of these lines, James Wallace, B.Sc., F.R.S., ignores the possibility of professors with no duties, although this was the norm. Even much later, when professors did have the duty to lecture, they could deliver the first and the last lecture and leave the rest to assistants. Research is the last thing that engaged them. No wonder they were engaged in intrigue: they had nothing else to do. (Admittedly, some professors did find something to do: study.)

Traditions change. As soon as the idea won popularity that lecture courses can be up-to-date, math and science professors began to display a sense of duty: lecture as best they could and prepare their lectures repeatedly to improve and update them. God knows why they feel obliged; perhaps because they take it as the obligation that comes with the appointment; or because they recognize the value of education and feel good as a part of the education system. The improvements of their lectures are utterly lost on most students; the punctuality with which they come to deliver their lectures is similar; it is a demonstration of good will that benefits hardly anyone. There is no remuneration for the efforts of academics to teach well or to keep their lectures up-to-date or even to come to lecture regularly. Ironically, the great frustration is the result of it being a labor of love. Professors often dread exams more than students do. Students who receive low grades, fail, or are penalized otherwise, can rectify failures, and they know that professors cannot fail, say, half the class; this provides some assurance of success. Professors know that when they read the exam papers their consciences tell them to fail at least half of the students, as well as their miserable lecturer. This is out of question. Fortunately, professors cannot tell their bosses how to grade lecturers. Yet when you grade yourself and give yourself a poor grade, especially when you
cannot tell anyone about it, you are liable to get a strong fit of nausea.\(^{37}\) The old-fashioned cure for it is vacation. Fortunately, professors get vacations after exams as a matter of course. Before their cases become acute, they can try to relinquish teaching, either in favor of administration or in favor of purely research positions or early retirement. Sometimes they may become sufficiently senior in their departments and gain limitation of their task to graduate teaching that keeps them away from large classes. They may try to find a job in small liberal arts colleges whose teaching is more old-fashioned and less on a conveyor-belt. The situation is thus not desperate, yet it does involve much agony—aggravated by a sense of duty.

Some professors care little about their teaching; they cover as much of the elementary standard text of the course assigned to them as they can do effortlessly, tell as many stories and tales, parables, jokes and anecdotes, as they feel they need as a means for eliciting students’ attendance, assign plain and easy assignments that they can check at a glance, and grade exams generously to avoid disputes; their courses need not be up-to-date, as there is no initiative for it. I do not know who is better, the careless lecturer or one who burns with ambition, works hard at pumping as much material as possible, as up-to-date as possible, into the skulls of unwilling audiences in the name of learning and scholarship.

This discussion is a flop. Professors have troubles teaching but teaching does not kill them—it seldom gives them ulcers. But they sometimes despise themselves for not getting ulcers about the poverty of their performances, and so they try to make their students get ulcers and they try to relegate the worse and tougher teaching assignments to young graduates who do it for much less remuneration yet with much greater effort and trepidation and alacrity. Since I am a professor, let me report that I have experienced what I describe here, but seldom; much less than my peers. So I know: the agonies of professors hardly deserve a section, and even if they did—as I initially thought when I designed this volume—the attempt to put myself into their shoes and feel how it feels already nauseates me; so I cannot do it well and I am looking forward to the next section.

7.2

Diagnosis is nauseating anyhow. It is hard to stick to it for long; it is hard to do so and maintain a sense of proportion; it is hard to diagnose one illness after another and remember that most people are well enough. Physicians learn about this during their apprenticeship: a diagnostian who examines a healthy person has to be on guard to avoid finding something wrong.\(^{38}\) Since there is no perfection, perfect health being no exception, diagnosticians will usually have anchors in reality.\(^{39}\) University lecturing is dreadful. Assuming that you are a student, I suppose you suffer from it at the receiving end, although you may very well have some sort of teaching assignment too. So you know, lecturers may suffer too; mostly they take it well. As a student-teacher, you may have your suffering immediately alleviated to

\(^{37}\) The only record I know of this widespread occurrence is a casual, brief scene in Ingmar Bergman’s movie *Fanny och Alexander* (1982-3). In it, in a moment of truth, a professor reveals his soul to his wife. (The professor in Josef von Sternberg’s 1930 movie *The Blue Angel* is too pathetic for that.)


\(^{39}\) Bernard Shaw, *Doctor's Dilemma*, 1906, says, the interest of doctors leads them to find illnesses.
some extent by one simple observation that I hope you take from me upon trust because, as I keep telling you, I find this section sickening and I am impatient to move to the next one. The observation is that you are left lost in the woods not because they have forgotten you and would not extend you the courtesy of telling you what the university expects of you; rather, it is due to their ignorance: you were told it all. I think this is comforting; I think it is always comforting to know that the fellow whose shoulder is next to yours is not indifferent to you but is lost too. At least Freud said it is comforting to know that you are not a lone mental sufferer.40

Lecturing is of a subject or to an audience. Lecturers of a subject tend to be monomaniacs, to see the world as defective because most people do not care enough about it or—much worse—they ignore one's contributions of the lecturer to it. For them the classroom is their salvation. There they crack the whip, threaten with surprise exams and poor grades, and so on.

Lecturers who lecture to audiences find saying something more important than having something to say. They know that only children will listen to them. The place to find child audiences is elementary school; and so such lecturers become schoolteachers. Students enjoy them. So no complain.

Academe was no place for lecturers; it was a community of eccentrics and scholars. They lectured, but incidentally to their vocation. Lecturing as a vocation, as the labor of love, has little discussion about it. Novels about good lecturers are usually either soapy or heartbreaking but seldom enlightening.41 On research as a vocation, the literature is poorer. The most celebrated text on it, Max Weber’s 1919 “Science as a Vocation”, still ignores lectures, except to mention some of the tasks that obviously do not belong to the lecture-room, chiefly political propaganda. So do the many comments on it. Possibly, commentators see no problem there. They were thus not lecturers proper. Nor were they monomaniacs. Least of all were they the monomaniacs that original thinkers tend to be—out of curiosity or out of the desire to broadcast an idea. Since academics were not ex officio the original thinkers of recent centuries, they lectured partly to dictate books, partly to fill a duty to the society and to the Church that took care of their material needs, and partly as recruitment for the next generation of academics. This was always crude: before becoming a fellow of a college or a professor (or looking for fortune elsewhere), a successful graduate became a tutor or a Privatdozent, left to fish for his own students. Even Adam Smith was such a tutor. In contemporary United States of America lecturing counts almost only during one’s graduate years if one is not bright enough to receive a reasonable non-teaching fellowship and not well-to-do and able to do without it. Possibly non-distinct assistant professors whose colleagues cannot decide whether to extend their contracts or not, they may benefit from reputation as lecturers; that occurs seldom.

Traditional Academe did not recognize any need for good lecturing. The excellent lecturer James Clerk Maxwell, better known for his electromagnetic field equations and other great

40 Sigmund Freud, _The Id and the Ego_, 1923.
41 The exceptions are listed in the proper literature; let me mention only the towering output of Janusz Korczak, especially his 1922 children’s novel _King Matt the First_, and the novel of Anton Makarenko, _The Pedagogical Poem_, 1926-36. See also Daniel Greenberg, _Worlds in Creation_, 1994.
discoveries, had only three students in his last class in Cambridge. This is dreadful, but
typical. In the whole history of early modern Academe, until the end of the eighteenth
century, almost no person stands out as a lecturer, except some who introduce experimental
demonstrations into classes: Vesalius, William Cullen, Joseph Black and Georg Christoph
Lichtenberg. Justus von Liebig of the mid-nineteenth century won reputation because his
university laboratory was open day and night. As W. E. Johnston tells us in his 1861 England
As It Is, the place to hear a good lecture was not a university but an evening lecture for lay
audiences—especially the Royal Institution where Davy began the tradition of entertaining
science lecturers. His lectures were social events like the opera performances to which, nasty
gossip columnists observed, ladies went to exhibit new hats. Tradition developed as Davy’s
successors in that Institution, Faraday and Tyndall, did very well too. It is still alive there.
Tyndall was so successful that he received an invitation to lecture in the United States of
America. He also was a bit of a ham: he planned accidental fires to arouse excitement, for
instance. In universities, things remained traditional and lectures dull. Maybe there is the
tradition in Academe that good academics must pass the test of trial by lectures, and the test
of learning to deliver boring lectures and survive the ordeal. I do not know. Academics
detest talking about teaching. They say this may be the beginning of efforts to impose
pressure on lecturers to teach this way or that, and thus infringe on their academic freedom.
True enough: we must guard the right that academics have to bore.

In large universities, where lecturers are on their own and can do anything they like in their
lecture-course with no fear that anybody will bother to pay any attention unless their grading
is unusual or some scandal develops—in such places lectures are incredibly uniform. (Some
of the exceptional lecture courses are on sale, though.) Teachers who come from different
universities teach similar courses that bear different titles. America has a few small colleges
that center on teaching; they show concern, hold discussions, and attempt coordination. Yet
there is much more variety in the teaching there of elementary material, even though unusual
courses and wild lectures are scarce there too—unless they invest efforts to bring
distinguished visitors, which is expensive.

Traditional Academe did not recognize any need for good lecturing. Yet in some sense, it
does recognize it. The evidence for that is simple: if you are a good lecturer you may find
that peers sabotage your work; if you are not, listen to what they say about those who are.

7.3

Before I conclude this part of my discourse—it is high time—I had better correct one
misconception that I might have created. If I were not so conscientious, I would have long
ago started the next item on my list, but I cannot leave you with the feeling that I ignore the
violations of academic freedom that frequents the large universities. Admittedly, there is not
much public discussion of teaching and of teaching methods. This rigidified the accepted
framework. If you deviate on your own without violating the framework, you may get away
with it; but with the increased conveyor-belt techniques, for any deviation, in any way and
measure, to remain unnoticed becomes ever harder. Your students, for example, will have
been forced to listen to you by their departmental ideologists—who occupy most of the rest
of this tome—and these ideologists think they have definite ideas of what you should be
teaching and how. When students complain—and coercion does lead to complaints,
Academic Agonies and How to Avoid Them

unfortunately wrongly (from poor students who feel the need to justify their failure by complaining) rather than rightly (from bright and interested students)—the departmental ideologist consider justified cross-examining them. Ideologists are either unimaginative fanatics or tired lecturers aspiring to administrative positions; in either case, your ideologist will soon brand you a deviant who experiments at the cost of letting young innocents pay for your errors. Also, there is the cursed set of curriculum committees designed to prevent you from teaching what you are personally interested in; they will even suspect that under the guise of caring for students you wish to introduce a course merely because you personally happen to like it, which is intolerable: it may make students enjoy a lecture, Heaven forbid. Thus, the major traditional rationale for teaching, the perpetuation of certain pure interests and the recruitment of new candidates for the sacred duties of the intellectual love of God, all this is institutionally barred (not very successfully, let us hope.

The tremendous expansion of post-World War II Academe brought to it a special kind of conveyor-belt education system, and one that trickled down from Academe all the way to kindergartens. It was worth it, as weapons in the battle against illiteracy and superstition and ignorance. Eventually, we need to disassociate Academe from any social or political function that is essential for modern society. Academe was a luxury and should remain a luxury. Research is a luxury and it should remain a luxury or perish. Academics should be invited—not forced—to perform research. No more than that. It is possibly too early for this reform. Doyens of Academe will oppose it even when it will be too late. Their major excuse will be that the reform I recommend is unrealistic. I shall argue that it is easy, and throw some tips on grading exams and on other useful if dull items. If your chairperson cannot place you in a job you can do well, maybe you will do better to move to another school. Academe is large, and there is a silver lining to this cloud too: you can always try to move to another school. Once you realize that, you have a good bargain chip. Admittedly, for this you need some market value; not much. This is easy to acquire—by writing one or two noticeable papers. We will come to that in good time. Keep reading. When I bore you, just skim through this volume to find what takes your fancy.

8. Research Agonies: Keeping Abreast, Publication-Pressure, And The Drive For Recognition

I hear you complain. It is all too easy, you say, to advise academic upstarts who are not doing well in their universities to move to other universities: this is easier said than done. How does one move around? How does one enter Academe in the first place? Is the entry methods available repeatedly and indefinitely?

You have a point there. To repeat: entering Academe is as unpredictable as any matter to do with attractive employment. Still, the techniques of moving from one academic institution to another are relatively simple: it is easier for Academe to hire an insider than an outsider, one whom others have found suitable. This is true also for institutions that suffer high rates of attrition and for ones that have many job applicants and no clear filters to reduce the number of applicants to a reasonable size. The system prefers old pros to novices. Hence, become an old pro fast, say, by publishing rapidly. For, you do not want to waste time on a rat race.
8.1

The old pro is one who is *au courant*, up-to-date. Tradition was indifferent to it: what counts traditionally is what the professor knows: what he ignores it you should ignore. The change occurred when science professors wished to be up-to-date. It came with the rise of the prestige of science in Academe, towards the middle of the nineteenth century at the earliest. It is impossible to read all the papers published in your sub-discipline. The old pros stick to their sub-sub-disciplines (knowing more and more about less and less) where they claim expertise. They glance regularly at the leading periodicals there, keep touch with peers and frequent conferences. This does not assure not missing some important item; nothing does, except their scarcity. This is how most experts suffer anxiety.

Recognition of important items may take time. The result may be rapid when the author of the important item (or one who takes a share in the credit for it) is a member of the Establishment or when a leading member bestows it. Otherwise, the time lag takes the average of 20 years, namely, nearly a whole generation. Publication pressure and the requirements from publishable papers offer some guarantee for stability. It can improve, as I will venture to argue in the prescriptive part below.

One may be a novice or a trainee for many years; in scholarship as in politics. The higher you aim, the longer the training-period the system expects you to undergo—like in politics. You get qualified for more and more lower positions but it becomes ever harder on your self-esteem and sense of dignity to accept them. This need not be so. Peers may consider famous professors young for long. They would still gain high salary and power. They tend to publish technical papers and hold influential positions on the national scene: they help friends get better jobs or raises, or persuade editors of learned periodicals publish papers and publishers to print books; leading higher-degree-granting-universities (what a monstrous title) consider their advice seriously and let them help craft hiring policies. Such people are not young, except when aspiring for high positions. Aiming at the top makes an academic young: promising rather than as established. The promise is seldom intellectual, since scholars of this kind tend to be specialists in narrow, technical sub-sub-fields; few consider themselves qualified to comment on a work respectable as promising, not as a work well appraised and cautiously assessed and publicly declared worth its weight in gold. It did not raise public discussion, it did not contribute any distinct idea or conclusion to any other public discussion; it nevertheless looked highly respectable and was tentatively considered this way. (That is to say, people refrained from commenting on it, but they nod their heads approvingly when they hear it mentioned.) The scholar in question had also published a short note or two that were easier to comprehend, that led to some discussion, and that would have established their authors as minor figures of sorts were they candidates for it.

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43 The paradigm case is Planck’s recognition of Einstein who was then unable to attain an academic post.
8.2

How does a person of promise fulfill that promise? When has a person of promise failed to do so? Is there a deadline? With my yen for digression, I see here a temptation for one so great that I may never return to my agenda. So let me forego this digression, especially since it rests on my own impersonal observations (that is to say, I have read documents pertaining to such cases), and so I shall only give you a few brief hints—extremely inadequate and not doing much good to my reputation as a very exacting scholar able to dismiss nonchalance a much acclaimed work and declare it obviously too dull or too unscholarly or both. Of course, my own scholarly reputation is terribly shaky among the real guardians of the high standards of scholarship who know that I am demanding the impossible—both impressive scholarship and the avoidance of dull boring detail. My present sketchy survey that opens a Pandora-box of tough questions is one more confirmation of my poor scholarship, of my preference for fireworks over genuine, detailed, serious, careful work. My fireworks comprise a wholesale dismissal of other’s fireworks as unscholarly and of other’s scholarship as dull. So be it. I cannot but sketch my answer to the questions I have raised here; I may return to them later on somewhere in this volume, but now the following paragraph should do.

Academics are promising as long as they project images of aspirant to a high position. How does one keep a public image and how does one lose it? One loses it when rumor says that one is an aspirant no longer: one has a great future behind one, as a professor of mine used to say of himself. He was; and he succeeded to change his aspirations and make it just in time by changing his field of expertise. This is another story. When one projects an image of being an inventor—telling people about one’s researches, subscribing to The Inventors’ Magazine—with no credentials—it provides gossip with a choice: wait for the fulfillment of the promise, or dismiss it as a dream. I should have used another verb instead of “dismiss”, I decide on a second thought, but I am in too much of a hurry right now, so, allow me to proceed. A third and important alternative is to destroy one’s image as an inventor by registering a minor patent and another minor patent and then declaring having left the field.

8.3

I am back to my agenda. The reason why our most ambitious professor’s work was tentatively respected is not so much that it looked respectable as that it looked like progress-reports of a person working on a Really Great Book. That need for progress-reports is real. Colleagues will say, the person in question must go on publishing to maintain a position. This explains why they barely read these reports, especially since this requires effort: in order to maintain a job one has to add occasional items on one’s publication-list and provide a revised version of it to the departmental chair, the appointment committee, and others.

45 This self-portrait of mine is borrowed from the review of my Towards an Historiography of Science (1963) by the leading philosopher and historian of science Thomas S. Kuhn, who called me both brilliant and a plagiarist (British Journal for the Philosophy of Science, 1966, 17, 256-8). See my Science and Its History, 2008, 121.
46 The opposite is valid too: when Andrew Wiles worked on his monumental proof of Fermat’s last theorem, he was eager to conceal that fact from peers (to evade competition?). To that end he published then small progress reports on other matters.
Part I: Diagnosis

Kindly note: my dislike for publication-pressure and for the servile succumbing to it is no objection to the publication of progress-reports. There is much to say for the proper planning of a study, first as private draft for colleagues and close students, then as a series of papers in a few editions, and only then as a finished product. This is no general recipe, though I suspect most studies would improve were they first condensed into series of very short papers. Nor are all studies capable of such a treatment: there are too many reasons against it, not the least of which is that its author is willing to give the subject only so many years of research-life and no more. On such matters, authors’ decisions are strictly private. One may botch up a project; a possibly splendid work may turn up obscure and confusing and useless for the mere reason that its author was sick of it and left it unfinished; an author may even have felt that readers can fill gaps by themselves, investing little effort reasonably to expect of them. Authors may do themselves severe injustice even by small misjudgments on such matters.\(^{47}\) Still, such a decision is strictly private. The longer a researcher works on a book, with the outcome of more progress-reports, the better the chances that the product is acceptable, perhaps as a masterpiece.

A serious optical illusion dominates this. Often writers think it impossible to make an impressive book by the mere rehash of ideas already present in the learned literature. Not so. At times, the mere rearrangement of old material is sufficient novelty. Non-fiction depends less than fiction on how much of its content readers are already familiar with. And spotting a good piece of fiction is easy: it keeps its readers in suspense their familiarity with its synopsis notwithstanding. Indeed, some writers (Dostoevsky, \textit{Crime and Punishment}, 1866) start with spoilers. Similarly, a writer may easily remake a series of short stories known to many readers to render the collection a novel, and a reviewer may say, the connoisseur will derive a special pleasure from reading it and being able to contrast the original with the finished masterpiece. (Example: Isaac Asimov, \textit{I Robot}, 1950.) Preparatory works of artists, sketches, were normally destroyed or lost until the advent of the connoisseurs; now artists exhibit sketches. Some exhibitions of sketches display various preparatory stages of one or a few masterpieces, some sketch exhibitions display sketches of not-executed works. Picasso is the master of such exhibitions, and fascinating they truly are. Exhibitions of his sketches enrich enjoyment and understanding of his finished masterpieces.

There is no law in this matter; sketches of some artists are much superior to their finished products. This may be because they are good drafters but poor oil painters; or because their private work is bolder than their concessions to public taste; or for other reasons. E. H. Gombrich points out that Constable’s colleagues were familiar with his unfinished oils; they found them quaint. Today they fascinate, considered finished canvases with bold blobs or “flakes” left there as if by intention, resembling impressionist techniques of the later generation.\(^{48}\)

There is no law about why some unfinished masterpieces stir us. Constable’s unfinished oils stir even better than his finished ones; Leonardo’s oils stir as characteristically unfinished.

\(^{47}\) This is why often a thinker publishes one work in diverse versions: contemporaries may want elaborations that posterity may better skip. Yet worry about posterity is unwise. Moreover, posterity may do well enough with the opening of a \textit{magnum opus}. In such cases, it may be a pleasure to read some well-written originals whole. Examples; Newton, “The System of the World”; Smith, \textit{The Wealth of Nations}; Heine, \textit{Religion and Philosophy in Germany}; Darwin, \textit{Autobiography}; Charles Ives, \textit{Essays before a Sonata}. Collingwood, \textit{Autobiography}.  

When you look at an unfinished Leonardo work you can see why he did not finish it; the fellow was so powerful an artisan and such a perfectionist that when he had arrived to that stage after much labor and planning, he knew where he was going to. Being a restless spirit, he could not bring himself to complete a purely mechanical work. You see it and you imagine the finished product effortlessly, if you have some knowledge—very little is necessary—of Renaissance art. How very different all this is from Leonardo’s marvelous horror sketches that are hard to view as paintings since he has not painted any of them. We can imagine such paintings, though. There is even a risk here, the risk that we will distort Leonardo’s horror pictures as we look at them through the eyes of Hieronymus Bosch, or even Salvador Dali, and let all sort of cheap horror paintings and movies influenced us, especially those by artists whom Leonardo has influenced!

There is one important reason for putting sketches into a finished oil and series of progress-reports into a book. The sketches are under-interpreted and misinterpreted, and it is a real pleasure to be corrected by looking at a masterpiece and see how much greater is the artist’s creative power than yours is. Artists interact with audiences, though. If this is not so true of Leonardo, it is very true of Michelangelo, in some of his large-scale works. And what is true of giants may easily be true of lesser mortals. Some of us need reactions for our progress-reports, which indeed provide a better rationale for publishing them than succumbing to publication-pressure.

8.4

To return to our hyper-ambitious professor (you did not think I would forget him, did you?), who publish hard-to-read progress-reports that peers tentatively respect, pending the publication of the resultant Really Great Book. This turned out to be a very poor job of stitching together the previously published material. Perhaps it was the outcome of a rush to meet a deadline; perhaps some events have caused fret and panic. Some of us depend on public criticism so much that we cannot amalgamate previous efforts into one piece without the benefit of such criticism. In such a case, one should be frank and publish a collection of essays, not a book that claims in vain a unity of thesis, approach, or style. Our hyper-ambitious professor publishes drafts, whether in panic or in over-confidence. The world can finally judge it, or, worse, ignore it—much too ruthlessly to my taste, and with the ugliest aspect of scholarship from its earliest days, namely with Schadenfreude, with the glee of watching a downfall. It is pathetic to watch the pack of hyenas and vultures cautiously gathering around the prospective carcass, not daring to strike from inability to judge how much life there still may hide in its hide. I would gladly have come to the defense of our hyper-ambitious professor who is down-and-out just to shoo them off, but probably the corpse had never had much life in to begin with, and then sadly one cannot do much about it. Let the dead bury their dead, as Friedrich Nietzsche said, citing the paragon of Christian love.

8.5

My story has a moral or two. And though I trust you, dear reader, to know them, I shall sate them, not from distrusting you—you have proved yourself faithful as you stick to this text
so that you deserve my unqualified trust—but from inability to resist this temptation. First, one need not publish one’s *magnum opus*; there is good incentive not to publish it: the more *magnum an opus* is becoming, the more risky it becomes to publish it. Publication-blocks provide strong incentives for pressuring oneself to overcome them by advertising intent to publish. However, since publication-block rests on fear of public ridicule, the consequence is contrary to expectation: the pressure one puts on oneself intensifies to no avail. The agonies intensify too, and become unbearable. Then one publishes in despair, or burn one’s manuscript, or learn to bear with the situation and fizzle out into the pain of disappointed retirement.

These are field observations. How typical are they? I do not know. Two nice elderly peers I knew, one suffering terrible agonies and the other—in the very same department—playing it cool, preparing to write a definitive work, cultivating in the meantime excellent relations with the administration, travelling regularly to study documents, publishing regularly small snippets of great scholarship and erudition, and from time to time even reviewing a book about the subject, rhapsodizing about the soil and praising the stem, but regretting that the roots had not yet taken deep enough and condemning the fruit as much too unripe. One way to evade publication-pressure is to befriend administrators; one who has a relatively good—even though rather quiet—reputation, and if one’s administrators like one, then they will say the silliest things in one’s favor.

8.6

What has this to do with academic research, you might want to know. You have the right to it. Well, academics should create—ideas of scientific and scholarly and any other merit. This is crazy, since creativity has no law, no bound, no standards. The pressure to produce with no guidance as to what and how to produce is unwise; alternatively, the pressure to produce along detailed production lines may lead to boredom and self-contempt. Those fortunate enough to be able to produce find it hard to publish and to get credit, because, if their output is original, it fails to conform to existing criteria. It is cranky or ingenious; peers are afraid to judge.  

A writer has to show competence in a field; the question is, which field and how competent; it is open. Here I cannot resist telling you a brief anecdote concerning an anonymous referee for *Isis*, the prestigious organ of the international society for the history of science.

One day, when I was still struggling for recognition, I submitted a paper to *Isis*. This was risky: we expect struggling young academics to submit to lesser journals—unless their work is obviously most exceptional as a recommendation of an august, powerful professor proves, or if they sign as junior authors with such a professor as senior authors. In the field of the

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49 Early in the day, the understandable inability to distinguish between the mad and the genius led to the identification of them and, worse, to the view that the insane are saner than the sane. The ability of the insane to act reasonably while under immense pressure confirms this stupid idea. See Yehuda Fried and Joseph Agassi, *Paranoia: A Study in Diagnosis*, 1976.

50 August powerful professors are too busy to have time to write their own publications; they assign tedious work to their younger colleagues or brighter research students—doctoral or post-doctoral—and sign as senior
history of science, the number of journals is so limited that I have submitted the said paper to a most all of them. My paper’s title is ‘Who Discovered Boyle’s Law?’ The opinion widespread among scholars at the time was that Boyle’s research assistant discovered this law (the pressure of a volume of air is proportional to its density). This opinion accords with Bacon’s view of science: assistants often see what their bosses ignore, due to preconceived notions that block vision. Boyle was a Baconian up to a point—not all the way, since he was a skeptic—and he endorsed Bacon’s recommendation that amateurs should make observations even if they do not know how to use them for theorizing. Boyle is thus supposed to have composed tables of pressures and volumes of given quantities of air, which conform to the law, but failed to notice it until his assistant did. Boyle says openly that he considered the law prior to his experiments, and he claims originality for it. I found it permissible to quote crucial passages from his book where he reports all this. The referee of Isis conceded that I had proven my point satisfactorily, but criticized me for not having used manuscript sources. Now referees are volunteers and so, as referees they are beyond reproach: if their reports are substandard, then their editors should ignore them or else they are to blame for taking poor reports seriously.

8.7

I will return to all this later; here I raise some difficulties and bring up to the surface some confusions so that you can articulate them and thereby clarify them. If you have arguments for and against pressure, that is all right. If you find my discussion remote from our present topic and a symptom of the author’s propensity to digress, I hope you have enjoyed the stories. If you worry about my casualness, and advise me to do myself some good by reorganizing the structure of this section, then let me assure you that you need not worry about me. As long as you enjoy yourself as a reader, I am pleased. As to my own position, a very long publication list has defended me against all sorts of malice. Unfortunately, my public image pains some highly-strung hyper-ambitious peers as well as some embittered failures; I cannot help this.

I still find it hard to publish some of what my audiences enjoy. I do not complain, as I violate received standards of scholarship. I did not complain when my struggle for recognition meant efforts to secure a job. If you break the rules, you have to expect the guardians of the established order to be less than enchanted by your performance. It is wonderful that one can so easily survive their censure, get established, and even allow oneself to befriend many of them. To repeat, I am speaking from personal experience; what is sad is that they manage to prevent worthy battles from starting.

After all, it is the motive behind these pages that may hopefully make them signify. You, my prospective reader, have a fight on your hands, and I am trying to help you find a suitable

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51 My “Who Discovered Boyle’s Law?” was resubmitted a quite few times, each time incorporating more responses to arguments from the rejection slips. It was initially three typed pages of my doctoral dissertation. Its published version—in another journal—is over sixty printed pages long. It has made a difference: it stopped the series of publications on its question.

52 For more details see “Revising the Referee System” in my Science and Society, 1981, 156-163.
arenas for it, to help you overcome misleading intuitions you might have and misleading advice peers may offer you in good faith, to encourage you to fight and to act clean when you fight, with no ill feelings and no resentment—within reason, of course. Remember: your peers have the right to stay resentful even for no reason. Do not resent this and do not try too hard to win their friendliness! This will come in due course.

9. Social and Organizational Agonies: Colleagues and Administrators; Chores

I hope to make this section as brief and to the point as I can: I itch to leave this part, which is diagnostic, and skate as quickly as I can through the causal or etiological part, so as to come to my advice which, I hope, might help you in your choice of so tangled a career as one in Academe. I would have preferred to dish out my suggestions without all these frightfully roundabout and digressive discussions and philosophizing and dissecting and historicizing and anecdotage and trifling and frivoling. I would offer you my suggestions and hope for the best since I make no claim, here or elsewhere in these pages, that my suggestions are harmless at worst and useful at best. For all I know none of them is. My hope is that they are highly testable so that you can test them and if possible improve upon them. I claim that some of my suggestions are better than yours are, because I have been around a little and have read a little and thought a little about your questions. My own test of my proposals to you is this: I wish someone had told me what I am telling you when I was a beginner like you. Even in case a suggestions of mine is no better than yours, your contrasting the two may lead you to newer and better ones; your mere consideration of some other person’s proposals may help you create some sense of distance from your desires, especially the pressing ones.

Perhaps here I can start with a suggestion straight away. It is seriously damaging to the proper composition of this volume, but the volume, after all, should serve you, so you should not suffer for its sake. Besides, there is no need to strain your patience too much, since you can always go straight to my suggestions. When you do so without my consent, you do so at your own risk. By all means, do. For my part, I shall prepare you when I deem it necessary. Let me offer a suggestion for which you need no preparation.

9.1

My suggestion is this: avoid as much as possible all administrative and technical work. I suggest that you feel an urge to organize things your own way. I suggest that although you are probably right, although it is most likely that you have some administrative suggestions that would improve matters, you should not try them out. Not yet, at least. You should avoid meddling in administration as much as you can before you establish yourself as an academic proper—unless you intend to become an academic administrator soon rather than a member of the faculty, in which case I wish you good luck. Otherwise, postpone all administrative and technical work, in the department, in the college, in the Parent-Teachers Association (sorry: it has a different name in college than in high school; I am ignorant of it), and everywhere else. Do use all drastic means at your disposal.

As much as possible. How much, exactly, is possible? Consider this. You receive forms in
the mail, you glance at them, and you throw them in the wastebasket rather than fill them out. Right? Wrong! You should not have glanced at them in the first place. You may think I am joking; you may think I am exaggerating; so perhaps I should not have offered this piece of advice at once; but then you would have misread the previous paragraph. So I hope you believe me when I put my hand on my heart and solemnly declare, I am dead earnest and promise to explain my radical proposal in full detail and at once. I have to explain two points. So give me time. I have to explain the damage done by glancing at your forms and the safety of avoiding glancing at them. The latter is easier, so let me start there.

Administrators, especially in a reasonably well-managed organization, administrators of colleges that are operating on more or less the same scheme for at least one decade, should be able to handle deviants and emergencies of all sorts, and with relative ease. This is true of competent administration in general and of academic administrators in particular. They are better educated, they still have a bunch of eccentrics on their hands, and they still handle, willy-nilly, education and ideas rather than marketable tangible products like nuts and bolts and perishable goods. Trust them to be able to handle eccentrics who dare throw forms to the trashcan without even glancing at them.

The number of friends and acquaintances of mine who incur on themselves unnecessary agony from not appreciating this fact staggers me. Academics will not believe you that administrators know all about safety-margins. Academic administrators are particularly good at concealing that fact and at crying aloud that their deadlines are absolute; the more they cry the less they are to be believed—as usual in human affairs (“the lady doth protest too much, methinks”). Deadlines for submitting grades, records, proposals, budget-estimates, publications, they all have broad safety-margins, as everyone in the administrative office could tell distressed professors world-renown for their wisdom, if they only consulted the right secretaries in the administrative labyrinth.

Hence, if the form that has arrived in today’s mail is important and you have to fill and return it before a significant, real deadline, the proper administrative officers will find a way to get you doing so in good time. You will get personal letters with signs of urgency smeared over both envelope and the cover letter long before the matter is urgent, your phone will ring in your office and at your home, messengers will meet you at the door of your classroom and at the door of your office on the beginning of your office hour or just before a departmental or a faculty or senate meeting. If you have a Facebook or Twitter account, they will reach you there too. Meanwhile, enjoy your peace and use it well in the sacred act of self-improvement.

Administrators and colleagues do not have to inform you of matters beneficial for your work. Traditionally, the job of the administration was to help academics run a university. This is ancient history. Today they run it themselves and that is the way they want it. The job of colleagues, too, never was to help you; it always was to help themselves in the struggle intended to ensure the survival of the fittest. Even when the administration has to inform you, they will easily find a way of seemingly doing so, namely of drawing your attention to it so discretely that only their files contain traces of it, not your memory. Those who do want something know that they have to plan getting it; to plan it well, they need time, and they need friendliness and good will, so that they have to make alliances. As it turns out, these alliances are breeding grounds for intrigue. For, usually, peers who volunteer to do routine
administrative jobs insist on benefitting from it. Sad.

9.2

You may want to get some administrative experience. You do need administrative experience. You will not gain any administrative experience from being conscientious and from volunteering. This will only encourage everyone to dump dull work on you, which will make for more waste of time on administration, and so on in a frenzy until someone will blow a fuse. This is how the leisure class, as wise Thorsten Veblen has called the academics, manage to belong to larger and larger administrative units, immerse themselves in administration, and get ulcers in the process.

If you escape administration, it will be your colleagues who will first try to put you on the right track—like the tame she-elephant who lures the wild he-elephant into a trap; like the Aesopian fox who, having lost his tail, started a campaign for a new fashion of short tails. You may be surprised to see how infantile your colleagues may be when it comes to work and administration; you will not believe that on top of being so childishly brow-beaten by administrators they childishl brow-beat each other. Funny: they need no excuse for their escape from self-improvement.

I tend to regret having written the last paragraph, and I sincerely wish I could delete it as an exaggeration or at least as insignificant; but I do not think I shall be honest with you if I do. My regret is that I find myself conveying a very misleading impression. Some of the people whose composite portrait I have tried to convey in the previous paragraph are people whom I greatly respect as intellectuals and even as worldly wise, whose company as colleagues and as good friends I do enjoy. Surely, the little misconceptions they have of the administration, the pressure that they may put on me and on you, is utterly negligible as compared with the true companionship they have offered me and other younger colleagues that has made a lasting difference.

I am running the risk I have mentioned in my preface, of looking as if I see the world as sick merely from my concentration on diseases. This is barely avoidable. Let me, then, return to my wish to be of help to you, to relate to diseases only as in preventive medicine: in the hope of saving you some possible future discomfort.

The more you ignore the anxious advice of your concerned colleagues, the more you are deaf to pleas of theirs that they press on you in your own very best interest, the more you will be able to enjoy their company as relaxed friendly intellectuals who derive pleasure from learning and from intellectual debates, oblivious of the whole world of strife, even of trouble in the very ivory tower of theirs. Moreover, you will have time to listen to students and to try to be of some help to them. For, the favors our elders and betters bestow on us we owe to the next generation. This is priceless—even when we fail completely: action in good will is never to regret. Never.
9.3

The greatest service of scholars to the community, to repeat, is their own pursuit of their own best interests for the sake of their own souls. The best way to pursue scholarly interests is to pretend that you are in a true ivory tower, to relax and forget all pressures except those internal to your scholarly pursuit. You can meet your own chair to hold a conversation about a recent paper in the learned literature forgetting rank and all; this will make your chair very glad: intellectuals who function as administrators long to return to their initial role and play colleagues again, at least for a sneak leisurely moment. You can meet a leading authority in your field for a conversation between equals, frankly and openly, without attempting to conceal your ignorance but without playing humble either, forgetting that your interlocutor is an established authority and you are a struggling upstart. For, leading authorities too enjoy intellectual activities rather than play authorities, even though being an intellectual authority is a little less of a burden being an administrative authority, be it departmental chair or a dean or a university president. Academic life is mostly great fun; this volume, however, is about something else: it is about academic agonies and how to avoid them. We have not finished the list—not by a long chalk. I do not intend to, but I cannot end this part of this work without a glance at one of the most notorious academic pursuits—I was going to say ‘pastime’, but I do not like undue frivolity; even I know when one must be duly serious: I am speaking of academic intrigue.

9.4

Academe started as sinecure, as having no community to cater for. As leisure: etymologically scholarship is leisure. Quite a number of countries have more than a thousand universities each. The variety of professors there is tremendous. I knew full professors who came to school twice a week for one lecture course and one seminar, and only one week out of two. This looks very little, yet one could do less. Leading scholar Sir James Frazer (1854-1941), professor in Cambridge University, did not like giving lectures; he stayed most of his time there in a library. In the old universities, where the faculty in each department was one professor and an assistant. At times, there were two assistants, and they competed for his chair when he retired. The professor had to deliver the opening and closing lectures, but could leave the rest to the assistant. Unlike today’s academics, they did not have to keep abreast: they already knew all that there was to know. They had all the time in the world and, celibate, they often did not know how to spend it. They invested much time and effort in intrigues. Some of them developed hobbies too; most used intrigue for this.

Today academics complain about hard work. This is not serious. We all need a better view of academic jobs. This requires a better view of the administration of the Ivory Tower and of the ways and means for increasing its efficiency. This requires a better view of the place of the Ivory Tower in the modern community at large. This is a complicated matter, especially since it is hard to admit that the admission policy of famous universities is discriminatory, the compulsory lecture courses redundant, and the students often need courses in elementary skills, mainly of reading and writing. All this would change radically were all universities open to all individuals with no exception and with government loan guarantees and with extra fees for the use of laboratories or whatever else is costly to run and with no exams. True, modern society needs exams, beginning with tests for minimal qualifications
and tests for drivers and teachers and lawyers and physicians and accountants. There is no reason why Academe should be in charge of the granting of such licenses; parliaments should decide on the best way to handle them for the benefit of the public.

I have little expectation that any authority will take me seriously. I do not expect you to believe me either. I hope you will test my advice to you. You need a job right now; and I cannot help you get it; you also need some advice right now on avoiding some academic agonies; you cannot wait for Academe to improve. So remember: the best way for you to improve your chances at the acquisition of an academic job, if there is any, is by improving your academic qualifications and publication-list.


Wait a minute. Please take your time and do not rush me. No; you must slow down reading this page. Put this volume aside for a little while, recline in your armchair and just relax a bit. Please, won’t you? Put the volume aside altogether and return to it only when you have the time and presence of mind. You do not have to finish reading this work tonight, do you? If you are tired, put on the television—or just go to bed; this book will wait; the world will wait; take your time! Be nice to yourself!

Some times, however seldom, I wish I were a poet. If I were a poet, I could employ some imagery to slow you down; enchanting imagery, that is. I would evoke a moon shining so bright from its ashen surface, so white, that you will not know whether it was the odd, serene gayety or the serene mask of death; I would make the moon light a pale quiet blue sky with a few bright stars and a black deep infinite background of utter void of darkness; I would make the moonlight silently throw long shadows over a pale gray earth with mere glimpses of color. If I were a good poet, my words would transfix you for a still moment that has the taste of eternity.

Or I might remind you of remote and distant lands of great adventures and hopes and expectations; and of joys and of mischief; and frustrations and regrets; of childhood dreams, and of adolescent infatuation, strong and simple, and honest and sincere and so painfully deeply felt yet so ironically ephemeral and forgettable—at least in its intensity. And this might charm you too, and make you wish to read more slowly, and care less about where the story goes and what is the moral of the story, and wish to enjoy it here and now, and take it in in small bits, like sipping some old tasty wine, rare and unique, an experience to be prolonged and drawn as long as possible.

What is so wonderful about poetry is its ability to present reality as if it were dreams, pleasant or painful as the poet may choose, its illusion so strong that something like it is rarely achieved by any other art; even motion pictures can seldom aspire to it, and even the most intense drama often achieves it only by stealing charm from poetry. When Mercutio\(^{53}\) sings the ode to Queen Mab—the mistress of dreams—and the way she comes to steal young hearts and old in moonlit evenings, Romeo and Juliet are both forgotten; the play

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\(^{53}\) Mercutio dies early in the story to intensify it; his ode makes him a darling to make his death signify.
stops dead; the drama matters not; everything stands still. Poetry may give us any impression the poet is concerned with; the intensity of love; or the beauty of love; sorrow; frustration; resignation; a sense of beauty at the first sight of spring; or of a picture; anything. The feeling may be as shallow as adolescence infatuation or as deep and complex as the mixed feelings of an old revolutionary who at heart feels nostalgic towards a world he is so dedicated to destroy (T. S. Eliot, *The Journey of the Magi*, 1927). What makes the poem great is that for a while it forces the whole world to stand still.

In a sense, Beauty is like that in all of Her appearances. When you awaken from the Funeral March of *Sinfonia eroica* back into reality, hearing the coughs of members of the audience clearing their throats in the short intermission between movements and noticing the orchestra and the conductor and the walls and ceiling and lights of the concert hall; when you tear away from a Rembrandt original and manage to look around you again and see the museum, the people strolling up and down the assortment of pictures, the guard standing bored next to a statue stealthily leaning on its base so as to relieve the pain of aching feet—then you realize that for a moment of beauty all these had vanished for you like magic. When Donatello dropped from his hands the eggs he was bringing home upon first seeing Brunelleschi’s crucifix, he did so simply because when he saw it he was transfixed and forgot everything around him except the work of art. Yet this kind of experience is more essential to poetry than in the other arts: if it does not happen to the reader of a poem, then the said poem is merely doggerel; but it need not happen to a good statue, to a good symphony. It can happen in the cinema all too often, especially to a tired spectator, who gets easily absorbed into the force of illusion, and the whole audiences and the whole theatre with its ushers and usherettes, and the red lights on its exits, and the noise of popcorn munchers, all disappear for a while. This is not necessarily beauty; it may indeed end up in a dream and a slumber. Not so in poetry. You may go to hear a poetry recital and from being tired fall asleep there too; yet if the poetry was great and not too badly recited, the experience will be different: you will wake up in a shock, not from the land of sense-illusions and camera tricks, but from the feeling that while asleep you were carried by some goblins to the land of magic and charm and wizardry and back to this world.

Why this is so I do not know. Perhaps it is because the only justification of poetry is that it is speech in high concentration, and art in big doses may be the hallmark of beauty. This is why any concentrated speech may sound poetic, even the spontaneous cooing of young couples.

Is beauty really art in concentration? What is art in concentration? I do not know what art is, what beauty is, and how objective it is, or how universal its criteria really are. Still, the experience of beauty is real; it comes on diverse levels, from the mildly pleasant to the intense immersion into a corner of the world of its own, to the total oblivion of the rest of the world. Many people have never experienced the highest level of beauty; some people with a great deal of interest in and concern for the arts have not either, though some lower-level aesthetic experiences do have great importance in their lives. Especially art critics and art historians of scholarly and pedantic dispositions. Some people, even artists, are tone-deaf: music means nothing to them except that it is noise; they know how much some of their friends and relations like it, in the way that non-addicts in general know about addiction. Others are deaf to poetry; even some prose writers of some prominence may be deaf to poetry. And so on. Obviously, one can even be a musician, gain very little aesthetic pleasure.
from one’s music, and yet have some sense of beauty and in a way enjoy music. I do not like to litter my discourse with examples, but my last point does sound strange enough to merit an instance. Benvenuto Cellini seems to be telling in his autobiography—though quite possibly my reading of it is erroneous, and it is a question of reading this great Renaissance sculptor rather than of quoting chapter and verse—he seems to be telling that, since he learned to play the flute under the enormous pressure put on him by his father, whose dearest wish was to see him become a great musician, he hated the flute in particular and music in general for the rest of his life. He was a reasonably good player and when the flute was a useful instrument in any of his varied pursuits, he not only used it well but also, he confessed as if the fact surprised him, he even enjoyed it. Let me close this digression of mine by reporting that there exist musicians like Cellini who are professional, who make a living of it, and who are reasonably content: from time to time they enjoy music.

10.1

Music of the spheres, the beauty of an intellectual exercise rather than an artistic one, is something the taste for which is seldom cultivated and all too often trampled on; regretfully, too few people have it. It is not so much a matter of intellectual ability as a particular sensitivity, a special faculty. You cannot see the beauty of transfinite induction without knowing a semester or two of abstract set theory, or the excitement of the Keynesian revolution without familiarity with late nineteenth-century economic theory and admiration of it. But if you can see the beauty of intellectual ideas then you may be excited by any great intellectual exercise, Euclidean geometry or high school algebra; the idea of liberal economics, or a discussion of the various theories of justice in Plato; Darwinism. How prepared you are to understand Plato’s Symposium, or Macaulay’s Bacon, or Mendel’s original papers, or Fraenkel’s Abstract Set Theory, is quite a different question from, can you enjoy these works as some enjoy Shakespeare and Tolstoy or others enjoy Bach and Beethoven. Leading twentieth-century hermeneutist Hans Georg Gadamer admitted that he was more interested in Aristotle’s physics than in Einstein’s; extremely popular twentieth-century social philosopher Herbert Marcuse has denied that enjoying science may compare with enjoying the arts. How unimaginative!

Jewish tradition considers the study of the Law a major ritual obligation. Much as I dislike most Jewish rituals and the devotion with which Orthodox Jews observe them, since early adolescence I enjoyed the charm of the delight with which traditional Jews perform the ritual obligation of study (of the Law). I found it strange, since the scholasticism and legalism of the content of that study was alien to me. Contrary to my expectation, I found impressive the fervor and delight and eagerness connected with such studies. Amongst Gentiles, I am afraid, the phenomenon is somewhat less apparent, but it is evident there too. Not only can one argue from the phenomena, one can also claim that were it not so, publication-pressure and all that would never have taken root as they have. Were no pressure admissible, much of the force behind intrigues would vanish—like a nightmare—and with it much of the intrigue system would vanish too. The regrettable rarity of intellectual pleasures in Academe is perhaps manifest in the surprise with which reasonably educated people meet intellectual pleasure, intellectual delight, and the eagerness to return to studies; this greatly contrasts with the traditional Jewish disposition to take such pleasure for granted. Bertrand Russell tells the story of his having gone with a friend to visit Alfred North Whitehead, the mathematician
who was his teacher but later joined him as a coauthor of the epoch-making *Principia Mathematica*. When Russell and his friend visited Whitehead, they found him in his garden, working on some mathematics. He did not notice them and they avoided disturbing him. After half an hour of standing there unnoticed, they left, Russell says, awe-stricken. Later in life, Russell himself changed his attitude. He once met a Balkan diplomat in conditions less conducive to learning: Russell himself wanted to discuss politics, in the hope to elicit from the diplomat some important information; the scene was a battlefield—bullets whistled all round, horses bolted, and I know not what—yet the diplomat obstinately went on discoursing with Russell about philosophy. This time his emotion was not of awe, but of a tenderer sort. The difference was not because the diplomat had a lesser academic standing than the mathematician—Russell never was a stuffed shirt—but because Russell himself had learned the personal value of learning: between the two episodes Russell spent some time in jail where he was greatly relieved of the burdens of his environment by a special dispensation he had to read and write there. This sounds corny, but it is true; and again I can only say I am sorry I am not a poet, so I could write like Kepler of the sweet music of the spheres and Spinoza of the intellectual love of God. The obvious question is, how come people whose job is to listen to the music of the spheres, to play it, to teach it, how come they can bring themselves to spend precious time on other things, like academic administration and academic intrigues, important as these may be. It is like being able to live in palaces furnished exquisitely and most comfortably yet spend most of one’s life in the slummiest part of one’s hometown; to have quite a decent, educated wife and prefer to her a vulgar mistress (Guy de Maupassant, *Bel Ami*, 1885). People who do that are perverts; or perhaps saints (Gustave Flaubert, *The Temptation of Saint Anthony*, 1845) —I do not know much about saints. Mostly, academics are neither—not even the deviants among them. Why do they not prefer the palaces of the art and the sciences to the squalor of academic quarreling, conniving, scheming, plotting, contriving, spying, gossiping, slandering, and spreading misunderstanding and mistrust? I have no idea.

10.2

This explains quite a few facts. It explains why academic intrigues equal only political intrigues—this in spite of the intellectual importance of academics in general and the political worthlessness of their intrigues in particular. Intrigues, Popper has observed, seldom succeed—so seldom, indeed, that when they succeed, their success looks miraculous. Yet desperate people will plot because they are desperate. Politicians will plot because of illusions about power, because of obsessions about power, because it is the done-thing to plot in the corridors of power, and because of boredom there. Boredom explains a lot: when boredom is painful enough even crap shooting may look exciting. Academics plot, it seems, largely because their teaching and their studies bore them—as do research and publications and committees in charge of planning of new curricula and of new indoors or outdoors intramural or extra-mural activities—if the word “activities” is not too much of a euphemism in this context.

10.3

Academics may also plot out of some sense of duty. This is both an explanation and an
observation of sorts.

The need for a new explanation is the admission of a failing of an old one, so let me make the admission openly. Whether or not most academics plot out of boredom, some do not. You can find a person most qualified to enjoy works of Euler, as qualified to render ideas of Cauchy exciting as Artur Schnabel brought out the fire of Beethoven’s piano sonatas; and yet such a gifted person would spread intricately-contrived slander too, and intrigue as interlarded as Belgian lace, like any other academic and perhaps more so. Perhaps more so because that gifted person is clearer and more intense than the average academic is, perhaps because one cannot live in beauty all day all week long and one finds the faculty club more congenial to communicating dirt on peers than intellectual beauty of some of their output. I do not know. Plot and intrigue they will, and indigantly; in the name of scholarship and in the name of the profession, to warn others and to avert scandal. Notoriously, malice and self-righteousness are siblings. If you think this is a paradox, or that I am being funny, you thereby show that you do not have the basic training in verbal pyrotechnics; you are very nice.

The fundamentals, the very ABC, of verbal pyrotechnics is the ability to replace quickly and regularly any word, descriptive phrase, and any other semantic unit, by its synonym that has the opposite social or moral or aesthetic overtone or nuance—if the original expression was laudatory, the equivalent replacing it should be pejorative, and vice versa. I recommend to all my students to take crucial passages or arguments from books or essays and translate them in that fashion to examine the claims of such passages or arguments for rationality: a necessary condition for the passage or argument to count as rational is that it can take well the strain of such translation. Slanders goes on all the time, quite consciously and voluntarily; but no one labels this activity as slander, especially when the content of the slander is true, or half-true, or even seemingly true.

Just to make it clear that I am not joking, let me confess I found it sometimes hard not to join such battles. An interested party enlisted me once, particularly because I am a sort of expert on plagiarism, and because the colleague under attack had made liberal use of some manuscript work of an investigator killed in a plane accident and that the colleague received from the deceased researcher’s naïve widow. I did my research on this case, and concluded that the colleague’s behavior was barely within the law against plagiarism, and that though one could perhaps prove in court after long struggle and cross-examination the improbability of some of our colleague’s claims for originality, the matter would not permit itself presentation in a clear-cut fashion. It was with effort and bad conscience that I have not fully participated in the campaign; I think that had my colleague found it politic to make fuss rather than lie low till the storm blew over, he might just as well have sued me for some utterances I had made in the faculty club, and in front of sufficiently many witnesses within the faculty.

We all slander and contrive, and we all are guilty of similar felonies, which resemble the violations of speed-limit laws and similar traffic regulations in that one is seldom penalized for them and almost never in retrospect. Why, then, is academic malice so very different from small malice in general? Or is it?

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54 Thomas S. Kuhn accused me repeatedly and rightly of ignoring the interest of the profession.
There seems to be an optical illusion here. Young students who have certain reverence for Academe are more shocked to see their professors as a bunch of old fogies, and not too pleasant ones at that; instead of concluding that professors are not very different from some characters in some nineteenth-century novels whose boredom and anxieties were their chief enemies, students may see professors as monsters. It is hard to forgive a professor’s inability to fit your own father-image, much harder than to forgive your own father. You just realize that your father is of a common or garden variety of humans, and you search for a substitute; for reasons above your comprehension you just happened at that time to be on your way to college; wonderful! So you chose a father substitute, you made your choice carefully, and then, what a heartbreak! What a disappointment! You must blame your prof. for that! In the name of all that is sacred to Academe!

Some of us are stubborn, and go on looking, wondering from one class to another, from one country to another, even. Finally, we graduate: we do not quite need a father-substitute; we do not quite mind the failure of our elders and betters to fill such positions. Most of us, however, despair after one effort or two; become embittered and try much too early in the day to make the best of a bad job; become cynical; not very interested in our work; we follow the pattern and inherit our predecessors’ positions with incredible precision. It is a fascinating problem, and quite universal. Children fight their parents, only to emulate them. “And see children upon thy children and peace on Israel”, said the Psalmist (128:6). Children upon thy children, my father interpreted this verse to me on one of his good days, show how much thy children resemble thee, past quarrels notwithstanding, and thus the significance of these past quarrels simply evaporates and the grounds for peace are laid down. On one of his bad days he said, when you see your children quarrel with theirs, you sense the sweetness of revenge. This has nothing much to do with Freud, Oedipus and all that; at least not necessarily so. Proof: your academic father-substitute may easily be a woman. Traditional Chinese mothers-in-law treat daughters-in-law in harshness exemplary to many a western father or professor; and the more a daughter-in-law suffers the more she in turn takes revenge on her daughter-in-law when her day comes; empathy, whether through suffering or admiration, eludes this pattern. If it were merely a psychological phenomenon, an occasional kind-hearted mother-in-law could break the chain. Kind they sometimes are, naturally, but stop the chain they simply cannot, or rather could not as long as the traditional Chinese social system prevailed. You may think traditional Chinese mothers-in-law and daughters-in-law have little to do with disgruntled full professors and disappointed young aspirants; you can think again.

10.4

The roots of academic intrigue lie very deep. To stop it from poisoning life in Academe and destroying all that makes Academe attractive is almost impossible. The most important non-intellectual assignment for you still is to prevent it as much as possible. The best way to do this is to divert the mind to activities more worthy and exciting and enjoyable; study is the best. In addition to this piece of advice, I may advise you reluctantly to indulge in some efforts at institutional reform. It is highly complex and tedious: putting too much effort into it is bound to be too expensive and highly frustrating. Meanwhile, the less familiar with local intrigue you are, the better. And no: intrigues against you are no exception: decidedly: the less you know about intrigue that involves you, the better. You may think it wise to prepare
for it. Definitely not. Proof: as this is a full-time job, better suffer the worst penalty for ignoring intrigues—especially since intrigue-mongers usually have the upper hand when conflicting with you. Your best defense against them is overlooking them. If you know about an intrigue against you, behave as if you know nothing about it and suspect less.

I have some evidence to support this, from my own intrigue-ridden academic career. The intrigues I suffered most were such that no amount of preparation could improve my position. It was intrigue that has put a wedge between my admired teacher and me; I saw it coming and I could do nothing to prevent it. I also lost to intrigue the best offer for an academic job that was meant for me and the grants that I was encouraged to apply for (all of them except the one that was kept hidden until it was too late for the intrigue-mongers to sabotage), and my wife lost her possibility of a decent academic career as a penalty for having chosen the wrong spouse, her research and teaching qualifications notwithstanding. I hope that this last case belongs to the sexist past. As intrigue-mongers are usually cowards, they aim to penalize graduate students who opt for the wrong advisers. I always managed to rescue my students from unfair disqualifications, and this success too had nothing to do with preparations of any sort. In a sense, the hounding of my graduates is a boon for me, as it functioned as a filter that permitted only determined, brave students to approach me with a request for help. These are the students whom I covet. Every cloud has a silver lining.
PART II: ETIOLOGY

1. The Tyranny of The Pointless Details. Or, Some of my Best Friends are Pseudo-Scholars

We have come down to business; so pull up your sleeves and settle down comfortably. We are in for some vaguely systematic study, so if you find here something open to criticism or otherwise thought-provoking, jot down a note about it in your note-book or on your writing-pad—it is always advisable to have pencil and paper ready during engagement in serious work (as all those who are mathematically trained know very well)—and push on: you should return to it later.

1.1

First, let us examine—as a possible cause of a serious intellectual malady—the widespread philosophical repudiation of sweeping generalizations as dangerous in their very appeal.\(^1\) It is the philosophy that advocates detailed dry scholarly serious attention to boring detail. This idea renders the most delightful activity, which is study, into a depressing, repulsive, nerve-wrecking chore. This is not in the least to declare all social malady, even all ills of Academe, to have the same cause, of course; but it is to contradict some very popular social doctrine that entail non-specific nosology or any other.

“Nosology” is the Greek for theory of disease. Its non-specific versions share one characteristic: each ascribes one cause to all ills. In almost all cultures, the dominant nosological view is non-specific; it is usually some doctrine of imbalance, of lack of harmony between different parts or functions of the body. In the West, the influence of Greek medicine made non-specific nosology the widely accepted fashion. Hippocrates and Galen and all that.\(^2\) The eighteenth century saw the last firework of non-specific nosology with a number of detailed theories of imbalance following each other in quick succession. In a sense even Louis Pasteur, “the” father of modern medicine, advocated a non-specific nosology: though he knew that different kinds of bugs cause different kinds of illness, and this way he deviated from non-specific nosology somewhat; yet his germ-theory of disease,

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\(^1\) This very popular expression is confusing. On the face of it, this is the recommendation to report observations and avoid all conjecture. This is how commentators praised empirical researchers. This includes the avoidance of the claim that what one observes is a general fact. Thus, Robert Hooke wrote. “On Saturday morning, April 21, 1667, I first saw a Comet.” This is charming but unusual. When Boyle described the pressure cooker (that he had invented) he went into many irrelevant details that the reader got lost in the details. The reason was that only general facts are scientific, and their assertions are conjectures. These are less likely to err the more qualified they are. Yet we do not know what qualifications are relevant to what observation. When a generalized observation is refuted, then we know ow to restate them in qualification, as Newton said we should do. Thus, the advice to avoid sweeping generalizations may be the advice to report observations naively, and it may mean the advice to state a generalization but avoid explaining them. Boyle said, if you must, you may do so briefly at the end of a paper. The end of the paper of James Watson and Francis Crick on their discovery of DNA says accordingly, “It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material”—the understatement of the century.

\(^2\) Yehuda Fried and JA, Psychiatry as Medicine, 1983, Ch. 1.
his view that the cause of all illnesses is external (usually of parasites of one sort or another) is rather non-specific. (In his view, the body is usually in a sufficient balance to take care of itself, unless an outside factor interferes with that balance. This is how Claude Bernard understood Pasteur. He said, this theory is insufficient since it does not help differentiate between the case in which the body overcomes the invader and the case where there is a struggle between them. Pasteur had to acknowledge this as in response to Bernard he recognized the body’s poor constitution’s contribution to illness.) Pasteur’s germ theory was the last non-specific nosology in the Western medical tradition. Even though Robert Koch and John Hughlings Jackson refuted his doctrine at once, it won and maintained popularity because it was non-specific and because it engendered a powerful, fruitful scientific research program. (One of the last followers of the Pasteur research tradition was Saul Adler, FRS, who saved my life when I was an infant and struck by a tropical disease.)

It is hard to imagine a new non-specific nosology arising in this day and age, when so much is known of great varieties of parasites, of congenital (inborn) diseases, auto-immunization (immunization against one’s own organs, leading to a kind of civil-war) and allergies (over-immunization, a kind of a McCarthy-style hysteria in the body’s defense system), and other ills of over-defensiveness (like pneumonia, where the lungs are flooded with water in defense against infection risking the possibility of patients choking to death), and simple deterioration of organs from over-work (the liver, the kidney, and perhaps even the brain). Yet this may be merely the absence of a good theory of health, the lack of imagination and powers of synthesizing diverse elements into one idea. The history of thought should make us wary of arguments from our own lack of imagination and restore our faith in human resourcefulness or in our hope that it will keep growing.

This is of general importance: sheer dogmatism and intellectual cowardice stand behind the opposition to a bold and brilliant synthesis—not that dogmatism and cowardice are essentially different: they usually intertwine—and then, after the synthesis has gained currency, they may favor it for the very same reason. (Gertrude Stein went so far as to say, the establishment recognizes a new idea only in order to block recognition of a newer one. This is dazzling but not always true.) Two aspects to proper methodology defy popular attitudes to novelty. First, popular prejudice today opposes adherence to any doctrine that is vulnerable to criticism. Second, intellectual cowardice is seldom noted, and hardly ever as a defect. The exceptions are cases where, due to very special circumstances, intellectual cowardice leads to dogmatism and to other qualities that happen to be objectionable regardless of the question of intellectual courage altogether. Let me expand a little.

Popular prejudice tends to oppose any brilliant synthesis, especially those that commentators have already rejected and condemned off-hand. Even those who have originated an idea and advocated it prior to its having been found empirically wanting, tend to belittle it after it was refuted. This is a tenaciously unhistorical, condescending philosophy. Dismally, there is something admirable and bold in it: a theory that is objectionable today is objectively objectionable; it is objectionable regardless of knowledge or ignorance of the objections to it: proper objections are as timeless as truth and falsity are. Take the theory that all swans are white; the truth that some swans are black refutes it, independently of our knowledge or ignorance of the facts. Whether anyone had ever observed any black swan or not, the objectivity of the existence of black swans and of its conflict with the theory that all swans are white makes that hypothesis as false now as it ever was. Nevertheless, to censure those
who declared all swans white on this ground is to censure them for not having travelled to Australia in search of black swans: it is unfair, condescending, and unhistorical. Hence, objection or criticism are not the same as hostility or censure: we may criticize objects of our admiration and still admire them. This became clear when Einstein’s deviations form Newton became standard (Popper). Einstein explained his (correct, for all we know) view that Newton is the greatest scientist of all times.

All this deserves much study and elaboration; it offers cures to endless academic agonies of a great variety. Leading sociologist Max Weber said, a researcher who poses a hypothesis should feel the risk of being struck by lightning in case it is false. How much nicer was the declaration of Heinrich Heine that he would always retain his right to admit error! Popular prejudice considers censurable the advocacy of an objectionable theory. Consequently, serious people who consider a given theory true may find very disturbing any objection to it. They may think that this amounts to censuring them. The critics may hold the popular prejudice and indeed censure openly the advocates of the theory that they criticize. Balanced people may then simply dislike the injustice of the censure; in that case, they may say that the critics grossly exaggerate their criticism because their censure is exaggerated and because they confusedly identify criticism with censure. They may claim that the censure is just but that it aims the wrong target. Imbalanced people may open a venomous counter-offensive out of the pain of feeling both the justice and the injustice of the critics’ comment, and of their inability to sort these out—perhaps in ambivalence.

Strangely enough, many who adhere to the popular prejudice in question are well aware of this kind of trouble. They even consider this kind of trouble inevitable and therefore condemn the origination of any brilliant synthesis as the cause of much trouble to avoid—even by suppression: they are ready to suppress controversial papers. Edward Jenner’s great work on inoculation was rejected by the Royal Society as too controversial (indeed it was argumentative in character)—for his own good, of course.

Consider the table of chemical elements of John Newland (1864), his laws of octaves, and the table of Dmitri Mendelev (1869). Why do we ascribe the table to the latter rather than to the former? The staple answer is, the former is inaccurate. So is the latter, although it is more accurate than the former. There are earlier versions of the table of elements—of the seventeenth and eighteenth centuries; the latest table is much more recent. Indeed, before the discovery of the neutron (1933) the table had no proper theoretical basis. (Since then, an element is characterize by both its atomic number that is the number of its protons in every atom of it, and its atomic weight that is the number of its protons plus neutrons in it.) Under the influence of Einstein’s methodology, a time-series of such tables shows how the criticism of an earlier version led to the later one. There is no room in this methodological view for taking criticism personally—as censure or as anything else personal but gratitude, for the contribution to the advancement of science.

Alas! The most eloquent fact about facts is that facts are silent, or, if you prefer, they tell different people different stories. Herbert Butterfield, the famous Cambridge historian, said, “History is a whore and a harlot”: historical records offer support and comfort to all sorts of viewpoint by their various details. Obviously, a fact may suggest often enough a theory in a manner rather objective in the sense that it is intersubjective (Kant) namely, that various observers will interpret the fact in a rather uniform manner. Now this objectivity or quasi-
objectivity is not unique, and at time, however rarely, two quasi-objective readings are satisfactory. Strange! Some take this as a great defect and others as a great opportunity. Because of this absence of uniqueness we cannot speak of induction in any precise sense, yet we may still speak loosely of induction of sorts; the logic of it, however, is not that it settles controversy but, on the contrary, that it stimulates controversy. Inductivist thinkers like the great physicist Max Born replace the old adage, science allows for no controversy, with the adage, scientific controversies are short-lived. This may be misleading since scientific researchers may harbor metaphysical disagreements for centuries. (The metaphysical dispute between followers of Descartes and followers of Newton that began in the late seventeenth century was alive and very influential in research until the early twentieth century, when Einstein rendered both parties obsolete.)

The ability of a controversy to survive for centuries displeased inductivist thinkers like Born, since controversy blocks the ability of science to impose. It is valuable for the progress of science, though: controversy is the best way to raise curiosity. What distinguishes the broadminded from the rest—the narrow-minded, the uninterested, the unimaginative, the cocksure, the dogmatist, the coward, the parochial and all the rest of them—is obvious: in different frameworks, the same fact hints at very different theories. Facts may occasionally speak unequivocally against some brilliant synthesis; the curious may then feel the need for new ideas. This, briefly, is Popper’s philosophy of science, and a brilliant synthesis it is, thought provoking and useful, although in need of slight alterations. As facts cannot suggest a framework, they cannot suggest a theory: at a rare moment, a framework plus a fact may just do that. Therefore, when we invent a new brilliant synthesis we can start a new exploration of the facts. This is a paradigm-shift (Kuhn): facts alone will not do this for us.

1.2

Syntheses concerning social ills, then—you did not think I forgot the point from which I have digressed thus far only twice, did you? If you did, then you should learn to trust me just a little more; social ills may rest on brilliant ideas and some of these were progressive in their day. We have now in the offing a theory of socio-nosology that is less non-specific than any non-specific nosology proper. Yet popular prejudice supports, especially in the United States, some version or another of a very important and interesting social philosophy that entails a very important non-specific socio-nosology. This characteristic enables that doctrine to stand in the face of tons and tons of criticisms published annually against it. I am speaking of Marxism.

Oddly, lip-service is paid to Marxism in the East and to anti-Marxism in the West, but that in the East, where experiments in Marxism failed systematically and miserably, the people who can still think now think better, whereas in the West Marxism clouds many a judgment. The other day a fleeting event shocked for a moment many honest thoughtful citizens all over the free world. Subsequently to rumors about peace-talks in Vietnam, the stock exchange rating plunge for a few hours. That was all. The event was transitory; in itself, it had no social, political, economic, or financial significance of any magnitude; nobody was worried about it. What honest and thoughtful citizens were seriously worried about at the time was the event not as a social factor but as a symptom of a very serious illness. Now diagnoses that most people accept are often extremely poor, but the symptom just reported
underwent proper diagnosis, regardless as to how microscopic that diagnosis was. It should indeed have let all alarm-bells loose. The bare fact, that the price of stock fell in the New York Stock Exchange very slightly for a few hours, and was presumed to be the result of rumors that the Vietnam War was approaching its end. The slightness of the symptom is easily explicable by the weakness of the rumors. Let us admit this explanation. Now the diagnosis was that the Vietnam War and its perpetuation were contributors to economic boom that is thus waging war chiefly out of economic interest and neither out of political interest nor out of ideological considerations.

Possibly, the rumor is true. Rumors of peace may cause a momentary panic in any stock exchange independently of the manifest fact that peace offers better economic opportunity than war. Those who trade on the stock exchange ignore or oppose Marxism, yet they reflect their customers who may very well be susceptible to Marxist ideology; they may have thus panicked as unreasonably as gamblers with stocks often do. It is hard to impute consistent Marxism—to American brokers, or to their customers, or to American intellectuals, or to anybody else; the fact remains: a tinge of Marxism has caused a momentary panic in the stock exchange.

Marxist ideology claims that the root of all social causes is economic, so that all social ills are to blame on the malfunctioning of the economic system. It is an anti-intellectual philosophy, though it draws part of its strength from its being a brilliant synthesis that is an intellectual quality par excellence. It also draws its strength from its being a kind of objectivist theory in its seemingly total disregard of morality, especially of popular morality that is possibly (as Marx had stressed) mass-hypocrisy and a vulgar lip service of conformists. The allegation that popular morality is often popular hypocrisy is well known; the adolescent and the disgruntled much exaggerate it; they are subsequently more susceptible to Marxism than others are. This, again, is paradoxical: Marxism is recommendable for its a-moralism, which is a kind of anti-hypocrisy and thus a morality proper; just as it enjoys the praise of possessing the intellectual quality of objectivism, in spite of its being anti-intellectual (Raymond Aron, The Opium of the Intellectuals, 1962).

Do not let paradox fool you: when it is merely a paradox because it clashes with popular or private prejudice or because of a clever verbal formulation, paradox may be an asset; otherwise it is to be ignored: as in the case of Marxism: endorse a proper paradox and you have rejected logic, rationality, the very ability to think for yourself.

1.3

Apart from paradox, the stress on cynicism and hypocrisy is very much of an adolescent exaggeration: cynicism and hypocrisy are qualities very hard to adhere to, unless one is either a genuine scoundrel or a very superficial person down to the deepest levels of one’s personality. Modern mythology often describes cynics who become ideologically fired with noble feelings when it comes down to the essence of their humanity and who then atone magnificently for all their past cynicism and hypocrisy (The Mouthpiece; Casablanca; Stalag 17; Ride The High Country). Such mythology is very romantic and seldom true (historical novels of André Malraux); the truth is there, all right, but it is seldom romantic.
In his largely autobiographical novel *Of Human Bondage*, William Somerset Maugham tells a moving and thought-provoking story. The hero is a young English art student lost in a middling art school in Paris. The only two great lights around are phony, though he does not even suspect this. The one is a drunkard who pretends to be an art-critic to make poor art-students pay for his wine while he drinks and chatters. The other is an allegedly high-class successful painter who, for a handsome salary, comes to the art school on a rare occasion to drop a comment or a piece of technical advice to a budding painter to give a touch of class to the school. The young English student has his difficulties; he has his self-doubts; but he hangs on stubbornly. Another student in a similar though much worse predicament loses faith and commits suicide. The English student is greatly shaken by this and decides that he must seriously examine his own situation and either make serious a commitment to art or quit immediately. For this, he needs an impartial assessment of his potential as a painter. He goes to his two great lights, and, to his surprise, he gets the very same reaction from both. First, the appointed adviser dishes run-of-the-mill homilies. The English student makes it clear that he is in earnest. The adviser consequently tries to get rid of him as a pest. He insists. The adviser drops his phony mask, presents himself as a failure, and recommends to the English student to get out while the going is good. The advice over, the adviser promptly returns to his normal poise as if the session that just terminated has never happened. The English student understands and leaves.

This way Maugham offers a profound insight into the run-of-the-mill hypocrite and cynic. They are weak, but sincerely and fearfully wish to remain harmless; they prefer to drop their mask for a very brief while and be useful, rather than do harm, but only reluctantly: in their weakness, they prefer to remain inconsequential.

There is the disregard for weakness and the bent to remain inconsequential. It is a tribute to the exuberance of youth. My own youthful infatuation with Marxism, truth to tell, rested less on my ability to examine it than in my inability to assess the weakness of my philosophy teachers with whom I wished to discuss matters of consequence. They did not find my youthful flirt with Marxism shocking; I suppose their appraisal of it as transitory was correct; otherwise, they would have made an effort to prevent my rash, adolescent manner.

1.4

Some of my best friends and colleagues are like this: nice, inconsequential scholars, but able to rise to an occasion and stand by the side of a colleague or a student when the system lashes to them more hardship than their fair share and more than they can take. (Hence, often enough the apparent indifference of you elders and betters to your agonies is a kind of a compliment: they deem you able to survive them.) Moreover, their very weakness rests not on cynicism or hypocrisy as on a theory of scholarship and research that is dogmatic and cowardly. Even the cynics among them are often less cynical in significant matters than they would care to admit. Most of them, however, hold a poor rationale for their pseudo-scholarship or they lack interest in research. Whatever their rationale is, it plays an enormous role in their lives. Attack it, and they feel as deeply hurt as they could possibly be in impersonal matters like this: it is very much like attacking violently the doctrines of Marxism in front of an honest dedicated Marxist of long standing.
Any significant study of scholarship and research should help distinguish between the
genuine and the fake. Current studies fail on this as they declare all punctilious research real.
This is often false. This dismissal may upset some, namely, those who wish to suppress the
doubt that they harbor deep down in their hearts: we all meet with occasions to question the
theory that genuine science and genuine scholarship rest on abundance of detail. It is our old
acquaintance, inductivism. The possibility that science does not rest on facts sounds
somewhat irrational and frightening.

Let me take the claim for the rationality of inductivism first, and discuss later the fear that it
is false. The first item, rationality, is the standard topic of discussion in the philosophy of
science; the second item, fear, philosophes prefer to overlook, perhaps due to the fear to
recognize fear.

1.5

People somewhat familiar with philosophy who hear the claim that science does not rest on
detailed facts may hear the claim that science rests (not on facts but) on intuition or a priori
reasoning or inspiration or whatever else it is that one may find within oneself to rely on.
The tradition of Western philosophy includes disturbing memories of bitter disappointments
in every kind of reliance. Since intuition is disappointing but science is successful, the
argument goes, of necessity science rests not on intuition. Hence, it rests on experience. The
insistence that science does not rest on experience either, obviously clashes with the fact that
intuition is often disappointing. The insistence on both intuition and evidence being at times
disappoint, seems in conflict with the acknowledgement that science is a success. It looks
impossible.¹

The fact that some serious thinkers took both intuition and information seriously, raises the
question, what did they do when the two clashed? Worse, the possibility of such a clash
prevents using either as foundation. People who face this option usually conclude from it
that science is a failure. Yet no one denies the success of science-based technology. This is
why this success of science-based technology is often considered dangerous for the spirit,
irrelevant to anything spiritual, irrelevant to serious questions. This is obscurantism, yet the
disappointment in science did bring to it some scientifically minded people. Even answers to
simple questions such as, is matter atomic or continuous, they say, can no more be expected
to come from science that has disappointed us repeatedly by repeatedly switching between
alternatives.

You cannot dismiss all this. Among competent philosophers, the situation is more complex
but it amounts to the same. First, basing science on intuition has no advocates these days.
Second, although the majority opinion is that science rests on evidence, it is not unanimous.
Most dissenters hold that scientific theories are only tools: they are mathematical formulas
accepted by mere convention; they are sets of drawers in which empirical information is
neatly classified. They are the conventionalists or the instrumentalists. Their theory is one
that the hostile to science gladly endorse. This then is an odd, counter-intended alliance

¹ Some commentators on Einstein’s view of method says, he relied on information since he did not rely on
intuition; others says, he relied on intuition since he did not rely on information.
part II: etiology

between science and irrationalism. It prevents any sense of proportion and invites utter
freedom whether to take any deviant information sufficiently seriously as to replace the
system by another or to add a new drawer for it ad hoc. Here is a famous ad hoc, verbal
innovation that took place in the second half of the twentieth century (Kuhn): call the
system a paradigm and a change of a system a paradigm-shift and you have a new
philosophy. To this verbal innovation raises the question, since paradigm shifts are ad hoc,
who declares it? Answer: the scientific leadership. Question: who are these? Answer: those
who declare a paradigm shift. Question: how can they do so? Answer: they fire any professor
who does not obey them. Farewell to academic freedom!

The common to inductivism (the theory that science rests on experience) and
conventionalism (the theory that science rests on mathematics) is that both reject the Kuhn-
style tyranny of the administration (tacitly but firmly); rather, they sanctify the tyranny of the
pointless detail. They justify science by justifying a specific form of pseudo-scholarship. This
move appeals to scholars in the arts: they too can pile up details galore. No wonder then that
some of my best friends are pseudo-scholars.

Science needs no justification; it has no foundation whatsoever, rational or empirical; and yet
science is an important intellectual achievement with its own traditions and conventions.
Usually, when I present such a view to my students they require that I justify it.2 They do not
demand this of other traditions. This makes some sense nonetheless, since they consider
only the scientific tradition rational. This is why such great rationalist lights as economist
Frank Knight and physicist Erwin Schrödinger have declared that science has an irrational
component.

People who consider the justification or the grounding of a scientific theory important—
regardless of whether they deem the value of scientific activity intellectual or technological—
such people are required, by their own lights, to provide a justification or a grounding for
their very demand for it. That you cannot justify justificationism without begging the
question was known in antiquity, and preserved in the works of Sextus Empiricus, one of the
minor ancient skeptics. His well-known texts influenced David Hume, who shook Western
philosophy. I do not know how many times it has to surprise us before it will stay firmly in
public memory. For now, repeatedly, justificationism requires its own justification and we
rediscover that it cannot fulfill this requirement without circularity. By contrast, evidently,
non-justificationism does not suffer from this obligation, yet justificationists require of its
adherents to justify their position: they repeatedly require that the non-justificationists
should do what they are not obliged to do, while they themselves have to do it and are not
able to: they cannot deliver the same goods that they require from non-justificationists. The
irony of the situation is just too unusual, and it may suffer some further glance—preferably
ironical (William Bartley). What one can and should require from the non
-justificationists can call their view a new theory of justification (Russell). So let us take it
seriously.

When I tell my students that science cannot justify, by an appeal to experience or otherwise,

2 Famous Benedictine, Distinguished University Professor Stanley L. Jaki, criticized me for my having offered
no grounds for my rejection of all grounds.
they look at me most incredulously. They can scarcely believe that I do more than try to stimulate them, and perhaps merely try to pull their philosophically unsure legs. Do you think, they say, that when I slam the breaks of my car I have no right to expect it to come to a sudden halt? They are serious.

How revealing. It is in a very poor psychological taste, and so very unimaginative. They might just as well ask, do you think that when I slam the breaks of my car I have just as much right to expect that I shall next find myself on the moon? Still better, they may ask, do not expect to be here until the bell rings rather than find yourself on the moon within one minute? They do not. They are not bothered by my presence in the classroom (since they do expect the bell to ring on time and free them of my company); the possibility that they may disappear from mother-earth any moment has not occurred to them, partly because most of my students are ignorant of even elementary physics (even Galileo and Newton knew enough to discuss this very possibility); but the fallibility of their breaks does bother them, and with ample justification: analyze their question and you will see at once that they believe that the laws of inertia and of friction and of impact and of pain due to impact are all unfailing, but their cars’ breaks are failing. Inasmuch as experience justified our expectations, and it surely does in more than one important sense, experience justified just what their question indicates, yet they put their question in the manner that imply that experience reassures them that they may trust the breaks of their cars! Is that serious? Surely not.

Experience says, we have far too many avoidable road accidents; it says, some of these are due to failure of breaks. It is less the assurance that breaks are reliable than the wish to have them more reliable that stands behind the incredulous criticism from the use of breaks of the view that science offers no guarantee. Advertisements of all sorts repeatedly assure us that science guarantees what they recommend. What is this guarantee? It is no good saying it is all sham. We know that in advanced countries there are laws requiring truth in advertising and that these laws are at times applied; not sufficiently, we grumble, thereby agreeing that there is (or should be) some substance to the claim for science-based guarantees. What then is this guarantee? This is the problem of induction as applied to advertising.

Except that it is misapplied. That science guarantees is not in question; what philosophers question is the guarantee for it, the guarantee for the guarantee. We know that insurance companies insure, and we know that at times we are insured and deserve compensation yet the insurer fails to insure; at times it may even go bankrupt. A feeling prevailed the West early in the twentieth century that science had gone bankrupt.

The requirement in the United States to have good dual breaks in all cars on the road was legislated much later than in Europe. The American motorcar industry required it in order to compete with the European industry. This is insufficient. The manufacturing of motorcars should be subject to stricter safety regulations; they should make cars as safe as elevators, planes, and other potentially dangerous instruments. The industry will gladly put on all cars dual and even triple and quadruple breaks—their cost is negligible—if this would boost sales; but experience shows them that the less the public thinks about such matters is the better for their business. Think! It may hurt for a short while, but you will be surprised how little is the pain and how great the relief from the fears and ambivalences and confusions. Confusion hurts at least as much, only the confused is too confused to notice the fact and reconsider his preference of confusion over clear thinking.
Can one admit all this commonsense discussion and still deny that science is a guarantee? I do not know, but please note that the safety of our instrument involves competition, that it is the market mechanism, no less, that has increased the life expectation of citizens of the modern world. Hence, for science to provide any guarantee, it needs a guarantee not only that what physical science has to tell us about breaks is real but also, and no less so, that current scientific-technological system is stable, which includes the need for relatively stable free markets. Impressive.

It seems experience shows that at times a confused system is better than a thinking system—even for scientifically led societies (Asimov, *Foundation Trilogy*, 1942-53). Fortunately, on this point experience is misleading. A. P. Usher, the Harvard historian of technology, has shown (1929) that certain bottlenecks develop in technology by short-term preference. For instance, mechanical looms of simple kinds have the woven material placed vertically or horizontally. There are short-term preferences for a vertical loom that obscures the long-term advantage of the horizontal loom. That the same is obvious in economics, even in market research, hardly needs evidence. Except that the motor-industry is doing too well to have exploratory drives; and all too often the incentives for competition are insufficient.

So we all drive cars that are still unnecessarily risky (Ralph Nader, *Unsafe at Any Speed*, 1965), and instead of asking technology and legislation and social and economic planning to improve matters we rely on science not in concrete terms but in general—we rely on science as a faith-surrogate, and the name for that faith-surrogate is induction.

Proof: laws regulate not only truth-in-advertising but also tests. Laws regarding tests ought to be specific. The specifications of tests often have serious loopholes. These allow for disasters and disasters are incentives for the improvement of laws. The choice we have is between justification and efforts at improvement. The rational preference is for improvement. Except that there is no guarantee for improvement. We can only try. For this legislation may create great incentives (Daubert standard).

A famous philosophical adage says, “ought implies can”. It means, do not demand the impossible. This seems obvious, since in discussion of it philosophers ignore the fact that traditional western education conflicts with it: educators require the impossible in the hope to obtain the maximum. This hope has an obvious empirical refutation: demanding the maximum is putting pressure that causes much agony and creates antagonism. The adage in question is liberal, and liberalism obtains more by mobilizing the good will of the citizen. In particular, educators kill the love of learning systematically by demanding the impossible. The adage does not go far enough. To comply with it one has to alter all commands by replace in them “do” with “try to do”. Which change is sensible. It is still better to replace “do” with “try to do but do not overdo your effort; always remember that your assets are limited” (Moshé Feldenkrais). This does not ensure improvement but we do not know better. The obstacle to it is the preference of so many people for justification over improvement: it is their faith in science. Although better than voodoo, faith in science is still unscientific, and in the same way.
If science does anything regarding faith, it is in the negative direction. For thousands of years people had an unquestioning faith that the sun will rise tomorrow; whatever else may happen, this old faithful is sure to rise tomorrow on the clock. Indeed, it was, and still is, one of the most relied on clocks we have. And then came science that murdered Apollo or Sol or whatever else you can call the old faithful, and fears arose; and then came the very highest of all high priests of science, Pierre Simon Marquis de Laplace, and proved that we may rely on the sun to rise tomorrow, not so much because the sun is faithful as because experience is. The chance that the sun will rise tomorrow is not absolute certainty, but as close to it as matters. Experience informs us about 3000 years of sunrise (Laplace knew very well that it did so long before, but he was speaking of quasi-reports); for \(365 \times 3000\) days or so it did, and so the chance that it will do so tomorrow is \(3000 \times 365\) divided by \(3000 \times 365 + 1\), which number is closer to 1 than a thousand dollars is to a thousand dollars and one penny. Dear Laplace; he tried hard but failed. His inductive reasoning was questionable and his conclusion meager. The ideas on which he based his conclusions were developed largely by one of his immediate predecessors, an English mathematician by the name of Thomas Bayes, who preferred to leave them unpublished as long as he could, perhaps because he hesitated about his ideas. Laplace misapplied Bayes’ rule, as do all the philosophers who follow it to these days: the rule is mathematically valid, but only under conditions that do not hold for the forecast about tomorrow’s sunrise. Moreover, it is little comfort to know that the sun will rise tomorrow: will it rise next week? Next year? Laplace tackled this question too, more successfully he thought, but we do not share his appraisal. He used Newtonian mechanics—that rests on experience, of course—to prove the stability of the solar system. He assumed quite arbitrarily that nowhere in the universe is there an object sufficiently large and directed sufficiently towards the solar system so that when it arrives here it will throw everything apart. Laplace made other simplifying assumptions that by now is also passé. Moreover, Laplace was sure that Newton’s mechanics is exactly in accord with the facts; we know that it is not. Also, meanwhile the devilish thought has occurred to some scientists that the source of the sun’s enormous energy is nuclear in origin; from this it follows that there is a definite chance, no matter how small, that the sun will explode tomorrow, and this chance has hardly changed in the last three millennia, or will change in the next three, although it will one day diminish since if the sun does not explode it will one day implode or cool off and darken.

Of all these possibilities, each looks remote, except the one of outside interference that we have no means of properly measuring or estimating. Famous astronomer Fred Hoyle has adumbrated this fear in his science fiction novel *The Black Cloud*. The Black Cloud is a foreign intruder. The cloud turns out, however, to be intelligent and possess other human qualities. At the end of the novel, the cloud saves humanity from the catastrophe that its presence as a foreign intruder might easily cause. This novel is most revealing of current scientific atmosphere, of the snobbery of the scientific society and its claim to be near ideal but for the unscientific politicians, in its faith in induction and its powers. Strangely, the Black Cloud’s own psychology is quite interesting, and for those still familiar with the Old Testament it will resemble an old acquaintance; perhaps he is quite intentionally Jehovah of old, the way he appeared before philosophy and scholasticism mellowed His character and magnified His strength into omnipotent. Scratch the inductivist and you will find the True Believer.
To return to the point, we do have expectations, concerning cars, voyages to the moon, and more. The existence of such expectation is a fact; we repeatedly act on them. Are they rational? The answer to this question depends on our theory of rationality. Can we prove them (rational = provable)? Certainly not: we all have disappointed expectations. Can we prove them likely (rational = probable)? Not even that; even our very survival does not prove that we are wiser than our childhood and adolescence friends who did not live to match their wits with us today. Can we prove them more reasonable than their precursors (rationality = improvement)? Perhaps; at least we have eschewed many errors of our predecessors. Are we sure that rational = provably improved? I think not.

What about justification of beliefs? Is one’s rationality a justification of one’s beliefs? That depends on our theory of justification. Why do we have to justify our convictions? Because, you may say, we act on them. Are we socially and legally justified in acting always on our convictions? Certainly not; for instance, we must not condemn people except in courts, whatever our personal conviction about them may be. Are we morally, at least, justified in acting on our convictions? Sometimes yes, of course; sometimes we are even bound to do so. But often not: we are morally bound to give people the benefit of doubt, even to give the opposite opinion the chance; we are morally bound to undergo experiences we know will not solve problems just so as to prove our sincerity and let others join us; this is the theme of many a popular movie—but philosophers do not go to the cinema, except in order to escape from philosophy. Questions and problems abound, and the theory of induction is of no avail: we must take each on its own merit and examine it as best we can. This is by far not enough. Yet, sadly, it is all we have.

I see that you disagree. You suggest that faith in scientific theory is better justified than faith in superstition. You are right: superstition is pointless and often silly. Philosophers do not why do we prefer Einstein to superstition; they ask, why do I choose to believe Einstein? This is hilarious: most of those who ask this question hardly know what Einstein has said: one cannot know what he said without more command of mathematics than most philosophers possess. Obviously, if you cannot know what he said, you cannot believe that it is true. Admittedly, it is less belief and more the disposition to do so: you are rightly more disposed to believe a certified physician than a witch doctor. Why? Because certified physicians are less prone to err, and their errors are less likely to be due to gross ignorance and negligence. If you are going to be an academic in the medical branch of Academe, you should know this: the better the education of physicians, the better they function. No assurance of avoidance of all error is reasonable. Most of the physicians who treat us have acquired the defects of the medical schools that they have frequented: they suffer from the tyranny of details.

1.7

The theory of induction, the theory that demand submission to the tyranny of minor, pointless details, is the opposite of the theory of the critical attitude. The details of scholarship and the minute experiments reported in the vast and ever-growing literature may indeed be of great intellectual significance. Sometimes they are, though ever so much less than inductivists claim. Moreover, the details to which individuals may devote a great part of their lives may be insignificant yet highly satisfying, be these studies of birds, butterflies,
mushrooms or postage stamps. In old university libraries, you can find copies of old books with most enchanting and highly scholarly detailed marginal notes, some of these got published later, some not. The authors of these notes may have had interest only in the details they were commenting on, or they wrote their notes for mere mnemonic reasons; this does not matter. In these days of publication pressure, a number of publication of such notes appear. Yet they are obviously compilations that are outcomes of sheer labor of love, and a very moving one at that. The love for the detail, then, is as pure and touching as any other preference. It is the tyranny of the detail that I am here warning you against. Details may signify and you may want them even if not. Otherwise, try to ignore them; forget them pronto.

Details compiled voluntarily show some consistency of taste—defying any generalization, perhaps, but noticeable nonetheless—as in any painting by Uccello or Breughel or Bosch or even (if you are imaginative enough) by Malevich or Braque or Jackson Pollock. Details compiled under the tyranny of pretentious academic—scientific or scholarly—discipline is unpalatable; especially to students cramming for exams; they comprise the paradigm of pseudo-scholarship. (The cramming of details for university exams sickened young Albert Einstein to the extent that he left science for a year or two.)

The tyranny of the detail derives from the theory that science gains its authority from the submission to the detail. The techniques of the tyranny of the detail is the suppression of the bold ideas by the requirement that their authors document them profusely, by the requirement that one should not critically discuss bold ideas, with reference to facts, new or old, or with other means; rather, facts should have priority. Admittedly, most of the details present in most introductory texts are very significant; their significance is not obvious, however, because details come too early: prior to the debates that have led to them. What a shame! This omission makes exciting study terribly boring and oppressive.

Philosophers of science are familiar with the argument known as the paradox of the ravens or the Hempel paradox. He overlooked the scientific convention that considers only generalizations and ignores singular facts unless generalized; he could thus take for granted that “all ravens are black” gains its authority from the observation of instance of it—from the specific blackness of specific ravens—as if it contains no conventional element. He then argued that all observations other than ones of non-black ravens strengthen “all ravens are black” since it conveys the same information as “all non-blacks are non-ravens” that has many more instances—such as a white shoe. Rather than conclude that instances to a generalization do not strengthen it—whatever strengthening is—he admitted the odd conclusion of his argument. Everything, he concluded, is relevant to everything. This is indigestible; it invites discussion of the strengthening a statement.

Inductivism was once a great unifying synthesis—a few centuries ago, that is. It was the dream of a brave new scientific world, the dream of Sir Francis Bacon as he expressed it in his (unfinished?) posthumous New Atlantis (1627). It was partly a myth partly a theory of

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3 To please the inductivists my Science and Its History, 2008, documents this claim with heaps of details from the history of the natural sciences.

science proper and thus appealed to both the medieval and the modern in the middle period of great transition. The way to knowledge is simple and easy; it is not worth it to stick to dogma in the fact of facts. Worship Mother Nature by paying attention to Her smallest features rather than put her in the chains of your preconceived opinion, said Bacon, and She will voluntarily show you Her charms; you will achieve thus more than you could ever dream of achieving by enslaving Her.  

*The New Atlantis* is the home of a research institute—Solomon’s House—which is a purely secular research institute (though its members pray to God to help them in their research); the daily routine there are collecting facts and deducing from them theories and applying them in all sorts of manners. It is not surprising, then, that in the New Atlantis the investigators have a high social status: while Bacon stays there on his visit, the president of Solomon’s House comes to town, and in a procession. The story indicates the nature of the procession: Bacon’s host has to book seats in advance for them to be able to watch the procession. Bacon even meets the president who tells him all about the college. Among other things, he tells him that the inventions of the members of the college fall into three categories: some are in the public domain; some are dangerous and the college divulges them only to the government that keeps them as state secrets; and some are too dangerous even for that.

The case of J. Robert Oppenheimer shows how daring Bacon’s vision of inductive science and its place in society is even for our own day and age of technocracy. (Oppenheimer suffered penalty because he refused to help the state search for the hydrogen bomb.) Amazingly, Bacon developed his daring vision soon after the Inquisition burnt Giordano Bruno at the stake for his idea of the infinity of the universe and shortly before it tried Galileo for his display of intellectual independence! These events symbolize the power of the Baconian synthesis. Here is on the one hand the last attempt to keep natural science under control and on the other hand the demand to start afresh and appeal only to solid facts of nature, however minute yet utterly reliable. We should not fail to appreciate inductivism as it has helped implement this change. At least, most western thinkers had faith in it for over two centuries.

1.8

The great modern synthesis was the great idea that researchers must bow to the smallest factual detail and prefer it to any bold synthesis for fear of dogmatism. It was bold and progressive at first but became cowardly and reactionary after science won its freedom and after inductivism underwent total destruction due to ample valid criticism. Another great synthesis appeared later: Marx’s determinist theory that denies that an idea may lie at the root of any social problem. Also false, it was also bold and progressive to become highly reactionary. It is nowadays a major obstacle to progress as its diagnosis of all the causes of academic maladies as material, whereas most of them are (not material but) intellectual, including the long persistence of the Baconian synthesis, justified by its past success but unjustified upon further critical scrutiny. Some of my best colleagues believe in both these

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5 The sexual metaphor is Kabbalist, popular at the time and alludes to the mediaeval tales of courtly love: stoop to conquer. See my *The Very Idea of Modern Science*, 2013.
syntheses, the Baconian and the Marxian. They are thus doubly rather cowardly and somewhat backward; that they can still be serious academics and even make positive contribution to the stock of human knowledge is the miracle of the irrepressible spirit of inquiry: scientists are opportunists, said Einstein.

I hope you liked the previous paragraph. I wish you had read it twice. I even recommend that you now go over the whole of this section again, and see it in its relation to the last paragraph. Then, allow me to further recommend, look around and try to see how much it helps make sense of what is going on in the commonwealth of learning around you. I hope it proves somewhat helpful. You may also find the present paragraph rather distasteful in that it does not suffer from excess humility. Perhaps; but never mind: the question is not how commendable or condemnable you may judge my character on the evidence provided in these pages; rather it is, how much you can improve your diagnostic abilities—with or without the aid of these pages. They do not contain the whole of my etiology, but a major ingredient in it; if this is not much helpful, perhaps you should look for help in some other direction. Conceited as I may be, I shall not take it personally and I shall not resent it: I only hope your switch, if you do decide to switch, stems from the independence of your spirit. This, after all, is what matters most—for you but also for your environment.

1.9

Everybody speaks approvingly of academic freedom. So we should. The question is, how much the support for academic freedom squares with social determinism and with the preaching for slavery to (experimental and scholarly) details in the name of science. There are other threats to academic freedom. Thus far, I have hardly mentioned the damage that nuclear armament has caused the cherished academic freedom.

I confess I am of two minds here. My dislike for hot air makes me wish to protest against all those who speak on academic freedom with confidence, pretending to know what it is. Yet this is not the worst about it. Suffice it that when we see one we know it: cases of infringement of academic freedom are scarce, as they should be, yet departments heads—who often generate or support such cases—are experts in hiding them: nothing is easier than to convince a victim of academic freedom to settle for a quiet compromise, and it is always possible to grant such a victim leave with pay for a semester or two before appointment is terminated. (I have myself settled for such a compromise. It is quite tolerable if you have an alternative job around the corner, but a bitter decision problem otherwise.)

Clearly, the problem is usually not very pressing. If anyone feels strongly about it, one can study it. Yet one case is significant and can hardly stand postponement: the freedom to act politically as an academic. I will not discuss it here.

2. Boredom as Pseudo-Scholarship

The worst of this part is over. I intend to keep the remaining sections of this part as brief as I possibly can. I am itching to come to the prescriptive part of this book.
Part II: Etiology

Intellectual excitement, the listening to the music of the spheres, to repeat, is a rare phenomenon. So are many other of the higher things in life, such as artistic pleasures, or friendship, not to mention true love. Cohabitation, come to think of it, as the attempt at genuine partnerships between two individuals, is almost unknown before the twentieth-century and outside the western or westernized culture. All culture is delicate; it needs cultivation. How, then, is it possible?

The answer must lie in the differentiation of kinds of education and training; one kind of training may be beneficial, another harmful. Moreover, the beneficial training may rest on false views and vice versa, just to complicate things hopelessly. Still worse, one kind of view may ensure ill success in the strange manner of overshooting its target; this is a prevalent error.

One of the characteristics of medieval romance is its emphasis on love—to the point that the word “romance” has changed its meaning to signify any love-story from a more specific kind of love, a short affair between two people not married to each other. And yet, as all students of medieval romance repeatedly emphasize, the achievement of one’s loftiest ideals was self-defeating; a woman who offers her charms to a man thereby demeans herself, and so the perfect love is unconsumed to the last—even impossible to consume, deliciously hopeless from its very start (Sir Lancelot’s to Queen Guinevere); the perfect object of love is quite usually an unattainable princess in the impenetrable castle; still better, she should be (and often is) an image seen from far away (as Beatrice appeared to Dante Alighieri, as she served the inspiration for his Vita Nuova, 1295) if not a fairy proper, a sheer mirage (King Arthur’s half-sister Morgan le Fay, the Lady of the Lake, who is but the morning mist on the lake, a mirage). An interesting expression of such ethereal love in modern literature is Vladimir Nabokov’s Pale Fire of 1962, where a homosexual explains under what condition he may feel attraction for a woman: it is possible only in cases that cannot possibly involve its consummation. It is enlightening that this idea, that Freud explained as an expression of ambivalence, appeared this way in fiction—independently implicitly in Anthony Hope’s 1894 The Dolly Dialogues and his 1894 The Prisoner of Zenda, and explicitly in Edmond Rostand’s 1897 Cyrano de Bergerac. Freud was right on this: the escapist character of romance is in its being an attempt to ignore ambivalence. The pressure of ambivalence produces effort, and the increase of effort leads to further increase of effort. The sum-total of the exploit is lack of satisfaction resolving itself in sheer frustrated tiredness. Indeed, the medieval romance soon becomes a real bore. Even Heinrich Zimmer, who, in his beautiful The King and the Corpse (1956) succeeds to bring the Arthurian romance back to life, partly with the aid of drastic abbreviation and sensitive selection, partly with the aid of contemporary psychological (Jungian) interpretation of symbolism, partly by the use of his own considerable talent, even Zimmer admits that much: “To be driven everlastingly around the world on adventures that never end,” he says, “is finally a monotony as narrow and confining as the magic circle under the flowering thorn. Ulysses wearies at last of all the monsters he has conquered, the difficulties mastered, the Circes and Calypso who at whose side he has slept his soul away ... and he longs for the less eventful ... things of everyday ... his house, his aging wife.” Not so: it is in escape from his house and his aging wife that the adventurer looks for romance in the first place. Perhaps Ulysses was forced into adventure; Peer Gynt was not; and he returns to his aging Solveig at the end of this pompous, symbolic, and typically nineteenth century drama of Ibsen, in a kind of resignation of the tired; he has learnt his moral, feeling forlorn nonetheless—like Gilgamesh.
Zimmer’s idea of what satisfies in legends of this kind seems convincing. Readers vacillate with the hero, wishing to avoid the adventurous pursuit of the charms of fairies and to escape from our boring, dull, and aging spouses. In a legend, says Zimmer, the hero somehow transforms an everyday character, everyday social functions, maturing an everyday person through some legendary adventure. As the reader identifies with the hero—they are both males, obviously—he gains symbolic gratification through a mock-transformation of his own self. (This may help him accept his present dull life, or perhaps even help him transform.)

Strange: legends do speak of character and of social role, but they stress love, yet Zimmer centers only on character and social function, not on any emotion. Sadly, the reason is rather obvious: the male hero and the male reader can do something to transform their own person, individual or social, in truth or in mere fantasy; but they do not know how to transform their aging wives, how to unite Penelope or Solveig with Calypso or with the Lady of the Lake. Why not? Why are all devoid of all transformation even when, like Queen Guinevere, they may partake in an adventure?

Here comes my startling point that may have some significance. At the bottom of the idealized view that is false in its over-ambition there is a false view that is the very opposite. Thus, the adventure is not merely an escape from ambivalence; it is also a poetic-symbolic expression of it and thus it is even an enhancement of it—of the ambivalence—in the pretense of resolving it. This is a universal truth; already Freud has adumbrated it: escape from ambivalence is at the same time an expression of it in its very being quite characteristically and inherently escapist. Colin Wilson, The Outsider of 1956 discusses this escapism in excruciatingly detail. Great art historian E. H. Gombrich observes in his learned Meditations on a Hobby Horse of 1963: plans germinate in dreams. Not all dreams crystallize into plans, however, and not all plans succeed. Moreover, some dreams come with inbuilt safety devices against their ever coming any close to becoming plans: these are the true escape dreams; and exaggeration is the very simplest of such safety devices (superheroes).

The very simplest mode of exaggeration is polarization, the describing of things in black and in white terms, even the very same thing—the object of ambivalence—in polarity. Sex, as the prime object of ambivalence, has for its ambivalent symbol the dull, aging wife; also the scintillating fairy: in our society that discriminates women against its own ethos, women are objects of unbounded admiration and thereby of suppressed contempt. The asexuality of the coveted fairy is identical with the viewing of the wife as contemptible, at the same time, as it is impossible ever to plan to marry the fairy.⁶

The philosophical counterpart to all this came historically out in a pathetic story of the life of a great and very compassionate philosopher, John Stuart Mill. He had a severe attack of depression in his early manhood. The attack precipitated as he faced the question, shall I be happy if I ever achieve my loftiest goals? For, his answer was, decidedly not. He emerged from the depression months later when he read a moving autobiography in which the hero narrates the death of his father and his own subsequent undertaking the role of the head of the family at a tender age. When Mill read this, he wept; there and then, he discovered his ability for compassion, and knew that he was on his way to recovery. Mill’s story is open to a

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⁶ Mermaids are different: they are born out of the yearning of all-male crews, not of out of ambivalence.
psychoanalytic interpretation: his aims were imparted to him by an exacting father; father killing relates to both his illness and its cure. All this is true, yet to rest the matter there is to miss an opportunity for contemplation.

Mill showed admirable traits: boldness, ruthless honesty with himself, and monumental frankness with his reader. The hallmark of wisdom is to stop now and then and ask whether what is subject to pursuit is worth the effort of the pursuit. Yet, all the same, there is an error in Mill’s wording: if I achieve my loftiest goals, shall I be happy? This question all knight-errands should have asked themselves—with the result that they would have stopped their adventures and their quests and all. For most of us it is a very difficult question, since our loftiest goals, inasmuch as we are aware of them, are not pertinent to our happiness directly: most people enjoy the game at least as much as they would enjoy its happy ending that they can envisage only dimly. This, indeed, is Mill’s conclusion that kept his depression at bay: it is not so much the goal as its pursuit.

I protest: this adage is true if and only if the end is worth the pursuit. Mill was obsessed with ends: unless he found assurance that they merit pursuit, he could not enjoy them. He could not enjoy anything ephemeral. He enjoyed music; in his depression, he had to destroy his pleasure in it. He reasoned thus. Since the number of available tones is finite, and since the number of combinations of them in any melody is also finite, the number of possible melodies is finite and knowable; sooner or later they would wear off. This is highly questionable, but that does not matter overmuch: we can replace music with chess, since Mill’s reasoning is valid for it. Why does it matter that in principle the pleasure of playing chess is limited? Meanwhile you can enjoy the new melodies and the new chess strategies and gambits that come your way. Not so to poor John Stuart Mill in his depression; ends and means were worlds apart for him, and happiness he first related only to ends and then only to means! He was in error both times.

Happiness, Mill concluded, is not the end of any activity; it is a woeful by-product—like the pleasant hum of a properly functioning engine. Apply this for an exciting moment and you can see the fundamental error of the quest of the knight-errands: the mere achievement of getting together was for them an end, whether at home or in the far castle. It was for them not a mode of living, not incorporated in happy and robust daily life; it was for them something too lofty to be real.

We are now prepared to study the love of learning, to criticize the lofty standards imposed on students and scholars alike which spoil the fun of the activity; and if I am any near to being right, I should be able to point out to you the ambivalence concerning learning and the hatred for normal healthy learning implicit in the high standards that condemn normal healthy learning as qualitatively and quantitatively much too inferior, and that the vain promise of the resolution of the ambivalence towards it by replacing the pleasures of learning by quests, by endless boring excruciatingly dull ordeals and trials and exams which inherently lead nowhere near the goal—these are but neuroses: of bookworms and of minute experimenters.

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2.1

Let me admit: quite possibly, at times dull boring studies with no redeeming value may be quite unavoidable: intellectual life too is no utopia. My advice to you still stands: avoid them when you can. Avoid any instance of them unless it comes as a clearly limited task, and as one that circumstances forcefully impose on you!

Bores appear in all sub-societies. Bores need not concern us, least of all academic bores whose company is much less of a burden on their company than the talkative bores one meets in the proverbial clubs and pubs and stadiums. Admittedly, from time to time one has to listen to lectures delivered by bores, especially as a student. Ordinary academic bores are usually shy and kindly individuals, who are always glad to relieve you of any burden related to their own company. No, I am not speaking of these ordinary academic bores, but of ideological academic bores. They are the crusaders of boredom; they allege repeatedly that boredom is an essential ingredient in learning. It is definitely not.

Consider boring entertainment. Boring literature and poetry and movies exist too, and in abundance. What is surprising is that the high romance itself resolves itself in sheer boredom. This boredom, you remember, unlike the boredom of a novel written by the untalented or by the unimaginative, avails itself of some more interesting explanation. Similarly, it is not the untalented or the unimaginative or the unproductive academic bore that is intriguing us here, but the ideological academic bore, who is a pest and a puzzle combined.

The neurotic symptoms of the ideological academic bore are substantially different from the reaction patterns, neurotic or otherwise, of the ordinary academic bore. The differential diagnosis is extremely simple: put in the hands of bores books or articles that are obviously exciting and that pertain in some measure to their own fields of study, and see how they react. The ordinary academic bores react in some ordinary fashion. They may say, just at the moment they are too busy to read the material you recommend. In such cases they may or may not express neurotic anxiety at this limitation; they may or may not put the reference in question on their reading-lists for a propitious moment, or even purchase the texts in question and put them on their special reading shelves—we all have such shelves, of which use and abuse I shall speak later. Ordinary academic bores may even read exciting books, or at least attempt to read them, and find them uninteresting or mildly interesting but not very exciting. If they find exciting texts, then obviously they are not unredeemable bores. Feed them regularly with such exciting literature and they may blossom.

Ideological academic bores react very differently. They will brush off a suggestion that a text is of value. They will do so impatiently and even unjustly. If they cannot do so, either because the texts come with recommendations of prominent persons or of many colleagues, then they will be rather obsessive about acquiring and reading them at the first opportunity. The first opportunity may come only years later, but not for any other reason than that our ideological academic bores are genuinely busy with innumerable commitments—all of them a trifle dull, of course. It is known that ideological academic bores who work overtime will still increase the load of their dull work because they want the pressure they undertake when the agree to read the exciting text in question. One way or another, ideological academic bores will find the time to read. Sometimes they will simply have to do it out of ideological
commitment: for example, they will undertake to review some dozen books a year—a full-time job for an ordinary academic with some sense of fun—only to discover the books in question to be substantially relevant to one of the books they have undertaken to review.

When ideological academic bores read exciting texts they explode with indignation. That is the hallmark of ideological academic bores: they fear and hate (intellectual) excitement.

The specific arguments of ideological academic bores against an exciting work are uninteresting: one can usually grant the validity of the claims that bores amass yet fail to see how they establish their alleged corollary, their condemnations of interesting texts; one may fail to see the reasons for the fury of ideological academic bores. Sometimes, bores offer obviously unfair criticism; sometimes, however rarely, an exciting work conforms to exceptionally high scholarly standards, and yet our angry bores will employ even much higher scholarly standards than they usually employ merely in order to be able to condemn the exciting text as unscholarly.

Ideological academic bores fear intellectual excitement; they often declare it unfair that intellectual excitement should be available to readers who have not put their necks to the yoke; it allures as a real prize, but they are ambivalent about it; they therefore set very high standards in the pursuit of the noblest and greatest intellectual excitement of them all. They develop the theory that true scholarship is very boring and yet worth undertaking since the results of genuine scholarship are most exciting and truly wonderful. An instance of such philosophy, and the most important one at least in the scientific fields, is one that I have referred to in the previous section, namely the philosophy of Sir Francis Bacon, in which both boredom of the means and excitement of the ends are separate and separately prominent. No methodologist has ever contrasted ends and means in the pursuit of knowledge so much as the leading, great pseudo-scholar, Sir Francis Bacon.8

2.2

The theory of the inevitable boredom of learning is most obvious and most pernicious in those trends of modern education that develop techniques of alleviating boredom. The very idea behind these techniques is the salutary recognition of the existence of boredom in classrooms and of the psychological fact that boredom is painful; this combined with the defeatist opinion that boredom is unavoidable; we can only sugarcoat it. Dr. Maria Montessori could never imagine that learning is a game, and a most enjoyable one at that. What she noticed was that pupils would not avoid games in classroom, and play them under the table when forbidden, unless we put on them enormous, damaging pressure. She preferred to permit games openly and interlace study and games—never unify them. Even Russell failed in his educational experiment to attempt to do this, though he realized, at least, that sugarcoating a bitter peel is not good enough, since one has to learn that throughout life we have to swallow bitter pills with no one to sugarcoat them. Does education, especially the intellectual part of it, have to be a bitter pill? Is scholarship and beauty and other refinements of life, also not the very sugarcoating of life itself?

The teacher training institutions render it easier for teachers and educators to bore than to excite. This is open to improvement. Nevertheless, it remains impossible to meet the challenge of turning each and every meeting of a class into an intellectual experience. Yet failure to achieve utter success is very distant from utter failure. The view of modern educationists is that of education as necessarily almost utter failure (since kids are so unable to concentrate!), they say. This is so obviously false that I have to use the prevalence of Bacon’s methodology and similar ideas as well as some psychology to explain the facts: only few educationists recognize boredom as an obstacle while opposing the educational techniques of sugarcoating (as not good enough).

Without the ideology of boredom, without boredom as pseudo-scholarship, much can be studied in different lights; we may reduce the hours of instruction so as to make it more possible to make each instruction period successful; we may try to reduce all compulsory education and tuition (alas, not compulsory school-attendance) as much as possible and explain to our students why we cannot reduce them any further. (This alone may render the unexciting exciting—just as experiments in industrial psychology may succeed as workers may have their boredom temporarily alleviated and consequently their productivity increased.)

Boredom is most painful on the conveyor-belt (Metropolis; A Nous la Liberté; Modern Times). This led to the development of a new field of pure and applied research, towards the improvement of the quality of working life. Despite dark forecasts, it has done wonders in the hands of people who took it seriously. In Sweden it terminated the conveyor-belt altogether. It took time before some researchers in this new field noticed that what Thomas S. Kuhn has christened normal science is the boring standard textbook accepted on the authority of the scientific community and the boring research that it approves of. It becomes obvious then that contrary to Kuhn’s counsel, the authoritative view of science invites upgrading too: boring research is intellectually pointless (although it may be valuable educationally or technologically). In view of all this, it is amazing how little thinking has gone into the study of the quality of working life in the education system in general and in Academe in particular. Dullness abounds there, and not so long ago the favorable view of it was almost universal. Things have changed now: the movement for the improvement of the quality of working life has shown empirically and repeatedly that at least in the developed (capital-intensive) industries of most developed countries dullness reduces productivity and that the reduction of dullness by adding background-music and entertainment is insufficient. The movement demanded improvements such as the rendering of jobs less specialized and more challenging. Under the influence of that movement, work became more interesting across the board in a few countries. The total result is still rather disappointing, to be sure, and far too many skilled workers—to say nothing of the unskilled—are still needlessly bored. Yet, as automata took over successfully much dull work, you would expect workers to have more leisure. Not so. Bertrand Russell observed that this requires much shorter worktime and that this requires education for leisure. This may boost the do-it-yourself industry that workers may find interesting enough. By contrast, do-it-yourself intellectual

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9 The results of experiments that took place at Western Electric’s factory at Hawthorne, Chicago, in the late 1920s and early 1930s comprise the famous Hawthorne effect, still under dispute.
work requires no support from industry. It is the very familiar, well-established amateur research—scholarly or scientific.

Non-mathematicians hate mathematics, non-historians hate history. This hatred cannot be natural: it must be the result of prolonged inculcation, obviously by the education system. High-school teachers often are disgruntled people who failed to enter Academe or to master their trades well enough to enter some non-academic brain market. Some teachers enjoy teaching to the extent of doing so in spite of the low salary and social status incurred; they are the exciting teachers. Naturally, exciting mathematics teachers tend to teach budding mathematicians and dislike other pupils as distraction. Exciting history teacher tends to teach budding historians and dislike other pupils as distraction. Such teachers teach non-specialists. Why do they have to teach mathematics to non-mathematicians? It is dull, it pains them, it may jeopardize their careers before it even started; they will forget it all anyway; they will never have an occasion to use it; they only learn to hate it, to be blocked against it. Why do we torture them so?

My protest is not against the torture. I have already agreed that some torture is necessary in industry and I must admit at least the possibility that now and then it is also necessary in education. My protest is at the inefficiency of it all, at the thoughtlessness of it all. Ask industrial managers and industrial psychologists about the boredom inflicted on employees and about ways and means to minimize it, and you will get tolerably reasonable replies, though seldom very good ones. Ask teachers and educationists of any kind the same question, and you will not fail to notice the abject poverty of their reply; they will even confess that they find the question hard to answer because the true answer seems to them obvious. It is admittedly hard to answer a question when received opinion takes for granted the answer that seldom undergoes any critical scrutiny whatsoever. My protest is against taking for granted a silly answer to a question that invites teachers and educationists of any kind to deliberate on it.

One vexing task that boring editors impose on writers is excessive documentation. Much of the documentation that regularly occupies lengthy erudite footnotes is entirely redundant; scholarly readers have no need for it and others will not even notice it. Advanced students will naturally prefer selective bibliographies. Regrettably, however, most bibliographies are neither comprehensive nor selective. They are thus useless. Vague references to well-known works are often more helpful than exact references, since a well-known work is published in many editions and it is a real burden for those who wish to use them to find the edition that the writer has used: if the writer refers to a page-number, critical readers can only use it if they have before them the same edition as the writer or else an electronic one, in which case there is need not to precise references but to key words.

The only reason for the excess of references is that their function is not clear. Their function is to serve the critical reader or the reader who wishes to pursue the matter further in any other way. They function, alternatively, as proof that the writer has done the duty and looked up enough dusty books and periodicals to justify a contribution to human knowledge. I have tried a few times to follow this idea but editors blocked me. Perhaps no one will read the
contribution to human knowledge that they edit but …

Yes. Of course, you are right. Readers who can use the internet need much less references as there they can find them with ease and more usefully. When will the conventions of reference change to accommodate for the internet?

This requires a clarification of the need references. Junior and senior scholars need them for different reasons; they should follow different conventions. References to evidence for texts that readers may question are different again. So is reference to texts that authors praise and hope to draw the attention of readers. All this invites international authorities to examine and cater for it and render it more efficient. This demands the examination and reform of the publication pressure that imposes inefficiency on the commonwealth of learning.

2.4

Concerning intellectual excitement, the philosophy of science that Sir Karl Popper has developed and that I employ repeatedly in the present volume is the opposite of that of Sir Francis Bacon. For Bacon, ends and means are worlds apart and the excitement is the ends alone. Criticism is utterly a lowly work, like the cleaning grounds. Scientific routine work is the patient collection of innumerable seemingly pointless minute data but the end is the true theory of the nature of things, says Bacon.

Popper still presents the truth as the end of science, but as remote, vaguely envisaged, perhaps never attainable. Each step of scientific development, he added, is a step towards the end, a new exciting theory or a new exciting general fact (a refutation). If it is valuable, it is exciting.

Ideological academic bores suffer inner conflicts: they fear and desire intellectual excitement. To resolve it they pretend that it is either chimerical or attainable only at the very end of a long, arduous trail of trials, deeds, and travails. This is self-defeating. Innumerable educational institutions, from elementary schools to institutes governing the publication of research results, they all inculcate and reinforce ambivalence towards the pleasures of the music of the spheres by imposing boredom in the name of high standards. To beat the system, try to enjoy studies: study only the enjoyable. This will benefit you and help you contribute to the advancement of learning. Yes, I too can offer an ideology and a slogan, not only the academic bore. Let those who wish to be bored get bored to their hearts’ content. You and I, let us try to have fun and enjoy our studies; every measly bit of it—like real gluttons.

3. Pseudo-Scholarship as Cowardice

I do not know where you could find a less prejudiced person in eighteenth and nineteenth

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12 John Locke, the most prominent Baconian, compares criticism to the work of clearing the ground prior to building on it—the under-worker's task. He took this metaphor from Robert Boyle, incidentally, whose research assistant he used to be while he was a student.
Part II: Etiology

century Europe than Immanuel Kant, and look at his view of women.\textsuperscript{13} Appalling. Intellectual women he found repellent; his ideal of femininity was soft, emotional, homemaker. Consequently, his ideal masculinity knew almost no emotion: the sense of respect is what he found behind moral conviction, behind friendship, behind anything common to all; never compassion. Penelope and Solveig suffer enough, but their mates suffer as much: neither knew reasonable daily-life-without-boredom. Pity.

3.1

Strange as this may sound to you, in this section, as elsewhere, I intend to discuss neither the phony academic, nor the coward. This is not my style. Try the following. Say in public, on any public occasion, that universities should be raise the level of its vigilance against charlatans, impostors, frauds, humbugs, windbags, buffoons, phonies, pseudo-scholars or pseudo-scientists. You will win applause. For my part, as a rule I find the rather obvious phony on campus innocuous, usually civil—even friendly—and often entertaining. (They cause harm only when they are administratively ambitious; high administrative aspirations push their owners to needless adventures, especially the demand for the reform of Academe by tightening rules against phonies. These may cause more harm than they prevent.\textsuperscript{14}) Similarly, it is all too easy to urge all educators to stress the importance of courage, civil and intellectual alike, to boost it and to promote it. When we praise the brave, we declare their courage beyond the call of duty. When educators violate this declaration, their more vociferous colleagues, administrators, and politicians commend their zeal. The terrible thing about hypocrisy is not its low level of morality, but its total lack of intelligence (Bernard Shaw, \textit{The Devil's Disciple}, 1897).\textsuperscript{15}

I have no intention to condemn cowardice. In the days when public opinion criticizes as brutal even the official condemnation of exceptional cowardice on the battlefield, it is out of all proportion to condemn the cowardice behind the phony streak of some ordinary scholars. Nor does the cowardice of these scholars impedes their scholarship—on the contrary, it may spur them to burn more midnight oil—usually to no avail, but not always so. Nor are all pseudo-scholars cowards; some of them are surprisingly brave by any standard (\textit{The Great Impostor}).

I hope this suffices as warning to you. Please, do not get exasperated with me. As I have said in the opening of this volume, it is very hard to write a medical text without giving the impression that the whole world is sick, a text on psychopathology without insinuating that the whole world is crazy. I do not wish to generalize except on the relatively widespread damage due to certain bugs in the system. What bugs students most is just that cowardice

\textsuperscript{15} Shaw’s analysis of hypocrisy is penetrating. It conflicts with a vast anti-Marxist literature: wrongdoers are frank when they see no harm in frankness; hypocrisy masks blunder and folly, not ill will. (In my adolescence I became a Marxist because I looked for fiendish schemes behind the hypocrisy of the British administration in Palestine, and Marxism claimed to have exposed such schemes.)
that not only makes esteemed professors try a bit harder but, alas, also one that makes them force their students to try ever harder.

My concern here is not with cowardice, much less with the yellow streak; it is with the cowardice that we inculcate through our educational system under the guise of something commendable. There is no prohibition against cowardice, and one who finds the price to pay for it is not too high, there is nothing amiss in that cowardice. If one feels that the price is too high—and reading these pages may easily show that it is—one might try to become less cowardly, and even seek advice on this matter. Anyway, it is not your business. Your business, and it is your welfare that I have at heart, is to recognize the symptoms of cowardice and the means by which even some of your best professors may transmit it to you: I wish to immunize you against the training to be a coward: there is no need for it. In other words, I am mainly concerned with academic mental hygiene. I wish to help you master your choice, not to perform it for you. Please do not forget that I recommend the avoidance of all heroism, particularly intellectual. At least as a default option, it is objectionable.

3.2

Preaching heroism has done incalculable damage. Not only has it blinded us to the heroism of the unromantic hero such as the fighters against poverty and illness whose battlefields were old libraries, laboratories in basements or in attics, and their likes, or slum areas, political arenas, and their likes. This, in any case, is a small sacrifice, since real heroes are quite ready to forego the recognition that is due to them. The real damage of the preaching of heroism is that it is irrational. I remember very well how impressed I was, when in a discussion with a brave German on this topic, he mentioned his close relative who had been a dedicated anti-Nazi, yet sufficiently poisoned by its philosophical ancestry (namely romanticism) to do what his enemies most dearly wished him to do: rather than care for his safety and do his best to sabotage the enemy who was too strong to attack openly, my friend’s relative organized a street-demonstration and this way he enabled the beasts to murder their critics there and then in cold blood, as my friend had forewarned him. Once the leadership of the anti-Nazis sacrificed itself so heroically, the rest of the nation followed sheepishly. For, as Karl Popper has pointed out, nothing helped the Nazis so much as the division of humanity into natural leaders and natural followers, a division made by Plato and Aristotle and repeated by all the reactionaries from Hegel to Rudyard Kipling; nowhere was this division as popular as in pre-Nazi Germany. This popularity is what secured the position of the Nazis from 1934 onward. If one in ten German soldiers would have dared sabotage the operations at hand without undergoing obvious risk, millions of lives might have been saved; the repeated occurrence of such acts of bad faith, in itself, might have spread sufficient suspicion and distrust to cause the collapse of the regime itself (The Devil’s General). The German philosopher Karl Jaspers has come out with a group-confession of guilt—after the war—saying that more Germans should have demonstrated in the streets against the Nazis, since if more of them were heroes, they might have prevented the holocaust. Funny, he did not even notice that if more Germans were willing to demonstrate, demonstrations would require much less heroism. Even brutes like the Nazis could not murder millions of
Germans in the early thirties.\textsuperscript{16}

The passage from Karl Jaspers that I have just referred to has been brought to my attention by Sir Karl Popper in one of the many private discussions I had with him on the topic of civil courage. Though for much of my view on the topic I am indebted to him, both in general and in detail, my application of these to academic standards runs in rebellion against his views and practices. Of course, he had the full right to apply his incredibly high standard to his own work. This was his own choice and no one had the right to comment on it except at his invitation. Some colleagues have expressed their disappointment at the fact that he had advertised many years ago a book that became available to the public decades later; this, of course, may well be a consequence of his exceptionally high standards; but then this, too, was his own affair. It is when he pushed his own standards a bit too hard on his close associates, such as I used to be, that the result was the formation of a close circle of devotees, to which I used to belong, with all the ill effects of schools, which form closed societies.

It is because of the ill effects of such semi-public high standards that I wish to discuss them. Unfortunately, the system imposes standards on students and young colleagues—rather irrationally and high-handedly. This calls for criticism and for analysis, intellectual and psychological but mainly social. All too often, heroically maintained high standards are standards of caution or prudence. Here, in our context, “caution” or “prudence” are merely synonyms of “cowardice”: we say of an action that it was cautious when we endorse it and cowardly when we oppose it. As I do not oppose and sometimes even recommend cowardly actions, perhaps I should be using the word “caution.” Yet I do feel that methodical or systematic caution is not to encourage although yes to tolerate.

We all wish to be more appreciative of great thinkers and artists among our contemporaries than our predecessors were of theirs. This is often very hard because great minds often bring into question our very standards of judgment, our very criteria of significance of thoughts and of works of art. Many thinkers and artists and public figures offer ideas that challenge our standards; few of these ideas turn out to be significant. At times, some of the others are cranks and phonies. It is hard to expose a clever phony, as Bernard Shaw has wisely observed. Therefore, he said, we are justified in exercising great caution when approaching the unusual works. If ever caution was justified, it is in such cases. The only objection I have to those who exercise it is their failure to recognize that their caution all too often prevents them from recognizing contemporary geniuses as they wish to.

3.3

Michael Faraday was a bold thinker whose bold ideas rendered quite obsolete many traditional debates—such as those in the search for forces acting at a distance in efforts to explain Ørsted’s and Ampère’s electrodynamic discoveries, or as the search for an aether. These debates continued for decades after his death, and quite uselessly.\textsuperscript{17} 

\textit{Faraday as a Discoverer} is the leading book on Faraday—by John Tyndall, his closest friend


\textsuperscript{17} See my \textit{Faraday as a Natural Philosopher}, 1971, Ch. 3.
and only pupil. He wrote it shortly after Faraday’s death, and in an attempt to establish its hero’s greatness as an experimenter and to excuse his quaint ideas about fields of force as sheer personal idiosyncrasy rooted in his ignorance of mathematics. In his preface to the German edition of that work, the great—if not the greatest—German electrician of the period, Hermann von Helmholtz, repeated Tyndall’s suggestion; but since meanwhile Faraday’s ideas had gained some currency (especially thanks to Maxwell; Tyndall refers to Maxwell’s papers and stresses that they satisfy a high standard of mathematical rigor), and since even Helmholtz himself had made some contribution in that direction, his attitude was more tempered than Tyndall’s: he did not entirely and finally reject Faraday’s speculations about fields of force, but was ready to wait and see where the cat would jump. About a decade and a half later, he was invited to London to deliver a lecture in memory of Faraday, and there he claimed—in a thinly veiled language, to be sure—that he had always been a follower of Faraday (as far as conservation of energy was concerned). Helmholtz was a very great thinker, but I, for one, would have found it hard to become a friend of his. Still, I should not exaggerate: his conduct seems faultless when compared with that of American historian of science L. Pearce Williams, whose *Michael Faraday: A Biography*, 1965, presents Faraday as the grand old man of physics of his day.\(^\text{18}\)

You may ask whether the caution of Faraday’s contemporaries and immediate heirs led to the formation of a Faraday school. It did not. Faraday’s ideas were suppressed and early in his life he felt the suppression was possibly just because he followed Bacon’s philosophy—in its traditional version that declares all speculations harmful. Later on, he modified it to suggest that only some measure of suppression of speculation is just. One of his boldest ideas was that electricity can interact with gravitation. This idea is so bold that Einstein came to it independently only in the twentieth century. He first used it in his general relativity (the bending of light-rays) and more centrally in his very last theory. Despite great success and tremendous recognition, he too was isolated. Of the leaders of physical science of his time, only Schrödinger took up his ideas at the time—and Schrödinger was isolated too. Who says rank-and-file scientists are not cowards? You can explain much of their attitudes, actions, inactions, one way or another, and even their having put a quarantine on people like Einstein and Schrödinger are explicable—with much truth—as rooted in certain ideological convictions; nonetheless cowardly this quarantine still was. (This is Kuhn’s view.)

Towards the end of his career, Faraday had his experiments on electro-gravity published despite their showing no result. From the experimental viewpoint, they were rather poor. He published them partly to adorn a highly speculative, most interesting idea, to render a speculation kosher. Until that time, it was the custom to clothe speculative publications with thin experimental garb. Faraday’s last paper on the topic, however, was rejected by Stokes—a famous young scientist then—on the ground that the experimental part of the paper did not meet received high standards. The editors of Stokes’ correspondence felt a bit uneasy about his daring to reject a paper by Faraday but they, too, insisted that Stokes judgment is right: Faraday had failed to meet accepted standards. This is untrue: the expectation was that speculative papers should include experimental material, but that material did not have to meet high standards. Caution leads sometimes to the evasion of issues by means of the application of exceptionally high standards. Stokes was rather somewhat of a dogmatist than

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somewhat of a coward. Personally, I prefer to view this suggestion as false: after all Stokes was quite an important man of science, and when issues were imposed on him and when he could not dismiss them as being rather unscholarly presented, he was quite able and willing to face them. He could show courage when it was expected of him. Hence, when Stokes displayed cowardice, it was ideological.

3.4

Before elaborating on all this, let me wind up the story of the non-existence of a Faraday school. To begin with, there is almost no reference to fields of force in the literature for about two or three decades after Faraday had introduced them (1840). For instance, Faraday’s close friend, August de la Rive, in his three-volume *Treatise on Electricity* that was translated into English soon after it had appeared in French, contains many references to Faraday, all highly laudatory, but almost always to his experiments. Of the two references or so to fields, the first is with the pretense that Faraday had introduced the idea of fields as a purely mnemonic device. (The so-called right-hand rule concerning the direction of flow of electric currents and the directions of the electric and magnetic forces it generates, is a standard example: both Ampère and Lenz had devised mnemonic rules for it.)¹⁹ When Maxwell published his early, celebrated papers on Faraday’s lines of force, he was still convinced that Faraday’s fields might be reconciled with older ideas through a model of the aether. Before that, Faraday had delivered for many years a series of Christmas Lectures for children in London that were very successful and so at the time of Maxwell a new generation of physicist existed in London who were used to the idea of fields as a matter of course—not knowing that they were so very revolutionary. Thus, the idea of fields became current in the English literature, and it slowly spread into the continent under the influence of Helmholtz, Hertz, Boltzmann, and Poincaré. Maxwell himself got used to the idea that fields of force are so very revolutionary only towards the end of his brief life, and the same is true of Hertz. It took the young Einstein to argue: fields of force impose a deviation from Newtonian mechanics (as Faraday had claimed). For years, Einstein was supposed to have developed his ideas with the crucial aid of the experiment of Michelson and Morley. Yet, as Gerald Holton has shown, he had not known of that experiment. (He did not escape its indirect influence.)²⁰

This rather sketchy summary will do for now, I hope. Before Einstein’s success in replacing Newton’s mechanics, most physicists did not take seriously fields of force. This is an example of how easy it is to defend cowardice by reference to high standards: after Einstein, it took less courage to consider fields of force seriously than before, because Einstein had met the highest standards, because he has executed a task that his predecessors deemed impossible. We see, thus, that high standards may be a mark of inability to undertake challenging and risky tasks—risky, since prior to Einstein the importance of fields of force was much more in question. The imposition of high standards on oneself, however, is less of a cowardice; it is rather the submission to the cowardly atmosphere around one than the endorsement of it. It may be a bit unfair to refer to the case of Galileo here, because at his


time the Inquisition demanded civic courage for any display of intellectual courage. Yet, with due caution we may consider his case too in the light of, but not following, Arthur Koestler’s bold though not very scholarly *The Sleepwalkers*. Galileo was a Copernican long before he would speak up publicly in defense of his conviction, for fear of ridicule and of persecution. He says as much in a letter to Kepler of 1597; his stupendous astronomical discoveries came in 1610 and his own publications in favor of Copernicus came soon after. After having made these discoveries, he felt he had met sufficiently high standards to warrant serious publication. The Jesuit astronomers of the Roman College supported him. Roberto Cardinal Bellarmine, his great admirer-opponent, the most reactionary, most powerful Cardinal, the ideologist of Rome then, and the individual responsible for the execution of Giordano Bruno, took him very seriously to threaten him with the same fate. Later on, a new Pope who was a friend of Galileo invited him to express his opinions freely. He later betrayed him, in order to rescue the Church from ridicule: he felt he had no choice. As Galileo was a faithful Catholic, he had no choice either; he was ready to admit defeat—personal, not intellectual—but only after having a proper debate with the inquisitors. It appears in a published version of the letter in which they asked the Pope for permission to allow Galileo to argue with them. He then exhibited exemplary civic and intellectual courage. This is a different story.\textsuperscript{21}

### 3.5

The situation concerning courage or its absence and concerning high standards, is still more complex, and is very well worth noticing in somewhat further detail—if you can bear with me a little longer. What I have said thus far admittedly covers, even amply, diverse cases of pseudo-scholarship. The inability to take Popper’s critical philosophy of science seriously and the preference over it for going on writing papers on the justification of induction in the traditional inductivist and positivist modes is an example. As is Stokes’ application—or rather misapplication—of high standards for the rejection of Faraday’s very last paper (yes; it is still unpublished. Excerpts from it, however, are in Williams’ life of him and in his published diaries.) I have not yet sufficiently discussed the act of succumbing to exceptionally high standards under pressure from a cowardly environment and from fear of ridicule of one’s (cowardly) colleagues.\textsuperscript{22} So let me take up one psychological point a bit further. I have nothing significant to say about academics who impose on themselves high standards: it is the right of every individual to endorse any standard, even to the effect that it will consequently prevent the publication of one's most brilliant ideas. Unfortunately, however, such individuals often happen to be poor educators. While not censuring them in any way whatsoever, and while expressly refraining from dissuading you from choosing to be their student, I feel I should give you some warning against possible ill effects of such a choice, to help you prevent the damage they may cause you.

There is a relatively new theory of a somewhat Freudian stock but not orthodox Freudian that is rapidly gaining currency these days. I do not quite know it history; though I suppose it

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\textsuperscript{22} This sounds like an exaggeration. So let me note that the Israeli Noble laureate Dan Shechtman had to suffer ridicule before he won the coveted price. Afterwards he described his peers as a pack of wolves.
is very interesting, I do not wish to investigate it right now. It is a theory of emotional
growth through differentiation. It assumes that many emotional distinctions, as well as their
associated verbal distinctions, develop during adolescence and early adult life in a highly
complex process of experiences plus verbal instruction needed to describe them. According
to that theory, certain emotional retardation—often but not always viewed as neurotic—may
lead to a lack of verbal distinctions, to the use of two words as synonyms, and *vice versa* the
lack of articulation inhibits emotional growth. Emotional growth, thus, is an involved
educational process.

For individuals with no growth of, say, civil courage, the word ‘civil courage’ has little or no
emotional content; you cannot say of then that they do or that they do not possess civil
courage; the term, as philosophers say, does not apply to them: you cannot say that they are
a borderline case between the brave and the coward, which is psychologically quite a
different animal. Possibly, then, people with zero degree of courage respond to a challenge
with neither courage nor cowardice, whereas people with no concept of courage at all will
either totally fail to see the challenge or, while meeting the challenge they develop an attitude
towards it—thus becoming brave or cowardly or in-between. Most important for our
discourse, this reaction will often much depend on both the significance and magnitude of
the challenge— unlike the settled middle-of-the-roader. If the challenge is both important
and of manageable dimension, it is more likely that people with no concept of courage will
develop their own courage. In addition, they may become cowards. Developing cowardice,
please note carefully, may be a most unfortunate mishap, since even a brave person may
reasonably respond in a cowardly fashion if the challenge is not significant yet demanding.

3.6

Empirical observation suggests that publication pressure generates publication blocks. These
torment surprisingly many academics. One explanation for this is that mental blocks pass
easily from professor to student; they are contagious. Their transmission mechanism is
simple: blocked professors prevent students from trying to publish or submit dissertations.
Of course, they do so in the attempt to raise their standards and with the result of depriving
them of the opportunity to develop intellectual courage and of instilling in them obscure
fears of rejection slips, of hostile reactions to manuscripts, and of other similarly harmless
results. The professors who so impede students’ progress take it for granted that they are in
the right. They are often devoted to their students and show great interest in their works,
presumably with no personal motive and merely for the greater glory of learning. This is
questionable. All that you can say in favor of high-standard professors is that they are likely
to have ill effects only on students who have no intellectual courage to begin with or not
enough inner resources to break away. This argument is faulty. Good students survive bad
schooling, true enough, and poor students may be unable to make use of good schooling; so
why reform our education anyhow? In truth, most students are neither so good as to be
invulnerable to bad schooling nor so bad as to be impervious to good schooling. If you
decide to join a school where publication blocks are inbuilt and some high-standard
professors sustain them, I do not wish to dissuade you, but I hope that this warning should
help you to immunize yourself from the disease. Let me report this: many of my papers
received negative results when in manuscript and praise when printed in prestigious
periodicals. When you seek advice of peers, try to choose those who have enough
imagination to read a manuscript as a printed paper, who have a sense of proportion.

3.7

Not all who suffer publication blocks catch them from their teachers; but since some teachers are contagious this way, I had to warn you. To show you how one can develop cowardice through high standards without catching it from one’s teachers, however, let me take a different case of cowardice; not publication blocks, but something much worse: professors’ inability to defend their students against injustice within Academe.

Even in the case of such failure, we should not rush to condemn. Even a very brave professor may notice a case of injustice towards a student and yet do nothing about it. For instance, if the student is not officially under your care; if the student is a poor scholar who would do better outside an academic framework and who will, in all likelihood, leave college one way or another; if the injustice done to the student is not so very clear-cut that one can easily demonstrate it, or if it an injustice backed by a faulty standard that a considerable section of the university endorses; and if, on top of all this, fighting the injustice in question may lead to an enormous upheaval, say, because it has been committed by a very powerful yet sensitive colleague;—under such circumstances, I say, it is most reasonable to overlook the injustice. After all, the world is full of injustice, and we cannot fight efficiently all ills around us. It is almost inevitable then that professors who decide to forego some battles will soon come to question their own courage. If they are old fighters, self-doubt will not harm them and it may even lead them to some deeper self-examination that cannot but be all to the good. However, if they are neither cowards nor fighters—say, new appointees, young and inexperienced and unable as yet to shake off vestiges of academic mystique—it might indeed develop the cowards in them. More specifically, they may develop the cowardly technique of always examining students’ credentials and looking for fault in them prior to engaging in battles against what they consider unjust. Moreover, searching for faults in students’ credentials may invariably lead to finding them: students with very good credentials are immune to injustice since the unjust is usually a coward. Finding always faults in students’ credentials thus becomes a habit and slowly develops through suppressed guilt-feelings into an obsession. Misfortune alone may make young and inexperienced academics cowards who will slowly develop into stern guardians of high academic standards, even into national figures in the field of science education. It is easy in Academe to become absent-mindedly a coward par excellence and a top-notch pest to boot.

Let us not condemn such people. Their sincerity, their concern and suffering, the correctness of their standards, we need not question all these for one moment. It is easy to dismiss the insincere as to dismiss those who have no scholarly standards whatsoever and who, being phonies, pretend to possess whatever standard you represent. Phonies—whether intellectual or emotional—are both rare and rather innocuous; and attacking a phony of any kind whatsoever is cheap and useless. Following the ancient Talmudic scholars, I argue that the most correct standards turn vicious when applied stiffly. The very high degree of sincere concern, by hiding self-doubts, turn pernicious; that the very disinterested attitude of a defender of the standards, by becoming zealous and self-righteous, turns into self-perpetuation of much of the ills of the system. I would be ashamed to write this paragraph, as after all, it contains only the intended moral of most of Henry James’s stories and novels;
but I am applying it to a case he (understandably) left out: Academe. My view is this. A happy-go-lucky academic who is somewhat of a phony is better than a tormented zealot whose standards are the purest. We must tolerate zealots; we may also note that they may produce bright ideas and display fine scholarship. What I am advocating here, as a kind of ideal, however, is the flexible, empathic intellect of the scholar. Kant, one of the most famous academics ever, was dogged following of his principles. He showed great courage this way and raised the standards of thinking. He was so strict as to declare wrong all lying, even to a killer. The best response to this is Bertrand Russell's report: he once lied to foxhunters to save a fox and felt no compunction.

3.8

My suggestion in favor of flippancy frightens me a bit, as I have seen flippancy leading to disquieting results. I shall describe what I have seen, since it shows both that my idea is not so very new, and that it offers no guarantee of success. In certain centers of higher learning reputed for exceptionally high standards, one might well expect to find not so many geniuses who can be on top of their profession without much effort and who, knowing this, do not work hard but rather have fun. Such creatures are rare, and they land in obscure places at least as often as in the most celebrated institutes. Rather, in such institutes, hard work is standard. People there may work hard from a neurotic insecure need of admiration by all their colleagues everywhere as great scholars. They may work hard conscientiously. They may work hard because their administrators bully them to make regular sacrifices for the sake of their own reputation as scholars and teachers, for their reputations as fellows of their institutes, the reputations of their institutes (the so-called star-system). With so much hard work around you may expect some of it to be visible. Not at all. It takes place in great secrecy. Fellows there are on exhibition in the Faculty Club, where they pretend to sit leisurely and stir lazily a conservation on topics that they know apparently from the way they kill time; they pretend to be interested in frivolities, to have read the latest bestseller because they read for fun any old novel almost any hour of almost any day. They fill their huge armchairs to show you how much they are relaxed and enjoying themselves, stiff in their pretended relaxed posture, investing supreme efforts not to glance at their watches or at the grandfather-clock in the corner, not to look around to see which V.I.P. is noticing how relaxed and care-free they are. Breaking up a light conversation after coffee in a faculty-club of a distinguished institute of high learning is as hard as it is for penguins to start fishing. The penguins crowd around a hole in the ice, but afraid of the hostile water they refrain from starting fishing. They slowly close in, more and more crowded, until one of them falls in. If no enemy is present and the fall guy emerges from the water alive, then fishing starts furiously. At least penguins enjoy the catch. Academics with exceptionally high standards always think of a bigger fish they might have caught.

Nothing shows how pathetic all this is as the general excitement and apprehension accompanying the occasion of a rare visit of a distinguished person into the faculty club. Excitement, since this adds luster; apprehension, since the guest may talk shop. As if the topic two people in a faculty club choose to discuss at the coffee table signifies.

No; this is not specific to faculty clubs. Knock on the door of the office of a learned colleague and see that the book or manuscript that was on the table is covered, and, if the colleague consider you a person of consequence, you will meet a leisurely individual who will
invite you to have a light-hearted chat.

3.9

Acting like the academics I have just described may incur suffering, but also remuneration. Whether my own attitude is preferable, I do not know. Colleagues with high standards have kept admonishing me—this, I have told you, is one of the facts that have led me to write the present volume—for being dangerous and inconsistent, for advocating high standards and low standards alternatively. (Highly-strung Thomas Kuhn has said this of me in print.) I do not wish to pretend that I have a cure-all: you may run into trouble no matter what you do. Still, there is always hope; and sometimes progress. Since high-standard-pseudo-scholarship rests on outmoded ideas that are increasingly rejected in the various fields of psychology, education, sociology, and social and political and moral philosophy, not to mention methodology—in psychology largely due to Freud; in education largely due to Freud, Dewey and Russell; in social and political philosophy largely due to Weber, Keynes, Hayek, and Popper; and in methodology due to Einstein and Popper—there is in the plea for this Academic reform more ground for hope than in other fields of social reform. When the reform is somewhat widely instituted, the pressure against the practicing of the standards advocated here will decrease. Life is, in ever so many respects, easier and pleasanter than it used to be; there is no reason to assume a priori that the academic reform I here advocated must fail or, still worse, lead to a universal hypocritical semblance of reform akin to ones already accepted in some leading institution of higher learning.

On the contrary, it is somewhat surprising that of all the reforms due to the rejection of too high standards, the one here advocated still resists implementation. Considering the autonomy and intelligence present in Academe, the surprise is considerable. The reason for my wish to elaborate on it is that academics back their exceptionally high standards by the erroneous philosophy of science that they have inherited from the Age of Reason: they still view science as conforming to the highest standards possible; some of them consider it a substitute religion; sometimes even against our better judgment. The execution of the reform advocated here concerning the various fields of academic education and performance amounts to the replacement of the vestiges of Bacon-style standards with Popper-style ones. For, in methodology it was Popper who has argued that what the Baconian tradition demands from researchers is impossible: namely, full success. On the contrary, he said, science is an adventure; scientists must dare in the hope to achieve. Popper has viewed his theory as a reflection of the scientific research institutions of encouraging both bold ideas and criticism. Judged as history of science, his view is over-simplified and thus quite mistaken. Not that the institutions of science reflect the Baconian attitude; they decidedly try and fail to do this. Though they reflect Popper’s philosophy more adequately, their effort to appear as Baconian makes it differ from his description—thus far. He is quite right in finding somewhere in the scientific research world some sort of encouragement for boldness, at least in that it remunerates certain bold people (Einstein) even in their own lifetime for their ideas that Popper has rightly declared bold. Still, the philosophy of science prevalent in the academic world is pseudo-Baconian, and many institutions reflect this prevalence—to the point that many researches in it discourage boldness and even expressly assert that Einstein’s ideas were not bold in the least. Paper is tolerant. Popper’s plea for boldness and for tolerance thus need balancing: we encourage boldness and demand
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tolerance! Never demand boldness and always insist on tolerance!

3.10

Academic education is these days largely a mass phenomenon rather than a service for some sort of elite or another. This magnifies the damage due to the prevalence of Bacon’s influence, and in two ways. First, great crowds of students come from families with practically no intellectual tradition or scholarly background; from homes without books, sometimes. They are thus prone to swallow the Baconian tradition more literally and less critically. And even if practically everywhere in the advanced world Bacon’s ideas are (hopefully) on their way out, the new Baconians are still zealous. Second, the competitive character of the economy intrudes Academe, both because in expanding it swallowed competitive sectors and because, in order to maintain itself in expansion and expand further, a university must compete. And so the Baconian system of rewards has now more kudos than ever—so as to impress the international press, national organizations, Senate subcommittees, and even members of the alumni associations, former members of fraternities, parent-teachers groups of all sorts, and other bodies that threaten Academe with their naïve endorsement of academic mythologies.

Consider a cowardly academic who as a professor or head of a department exercises sheer tyranny over some students; suppose half of them drop out, some of them into mental homes and skid row (a few kinds of mentally disturbed students are attracted to departments with high-powered tyrannical teachers), but most of the rest will do tolerably well, some will succeed, and a handful will receive national awards, one or two perhaps even international ones. You know that the tyrant in question and the department in question will count as big successes. Not only do successful students testify to the competence of their teachers; even the high rate of dropouts from a course show that the standards it maintains are high. This is inevitable, perhaps, but you and I know that a good teacher is one who helps students improve rather than the one who can pick the most talented students and assist one of them become a top dog!

A minor point. The leading institutions of higher learning have statistics to support their claim to be the very best. Except that in principle, all statistics that displays success and ignores failures is fake. Public relations offices of universities and lobbyists for them are not likely to admit that they are not perfect utopias. So do ignore their statistics: all statistics that come from that corner. Entirely. They come in good faith but fake they are all the same. Yes, you are right: this includes the CV of your humble servant; you do not expect it to include records of my failures, do you? Let me tell you this story. In 1959, Popper finally got his 1935 Magnum opus published. He then worked on a blurb for its cover. It features passages from old reviews. Among these was a thoroughly negative review by leading philosopher of science Hans Reichenbach. The publisher vetoed it. Pity.

3.11

And so to the moral of this section. Cowardice is not to blame. It is often the outcome of the demand for courage. This demand is often a cover for the cowardly postponement of
Academic Agonies and How to Avoid Them

confrontation with the Day of Judgment. Such postponement makes the very first confrontation of untrained novices a huge battle that all too easily they are likely to lose, consequently to which defeat they would readily learn to preach courage and other high standards to mask their own emerging cowardice and tendency to postpone all further confrontations. Worst, it is an inducement to replace all intellectual adventure with chimerical standards of excellence—with middle-of-the-road accepted standards of routine competence. Modern Academe fosters this inducement. Fortunately, the middle-of-the-road accepted standards today are much superior to those of a few generations ago, not to mention the medieval university. (The demand for perfection forced them to repeat received dogma as the safest thing to do.) No institutional frame is perfect: you may escape the training imposed on you, as I have done. If you stick with me I shall try to help you acquire high competence by simple training and only incidentally to your labor of love; on the way you will have to fight some small battles, perhaps; these you will be likely to win; the victories I hope for will not make you a brave, but you will not have to be a coward looking for an ideological justification to escape any sense of shame. Intellectuals can be at peace with themselves. There is no law of nature against that—as long as you remember that there is no full insurance against failure, only commonsense safety-rules.

4. Cowardice Masked as Pomposity and Hostility

The cowardice I keep discussing with you is somewhat more abstract than, say, that of business people who would not take risks when they try to speculate in the stock market, much less that of a soldier in the battlefield. Individual cowardly entrepreneur seldom express sympathy with other individual cowardly entrepreneurs; they would hardly ever jump to defend cowardice with the aid of an ideology. The same goes, more emphatically with cowardice on the battlefield. The defense of cowardice is unique to Academe, and it is common there, as the following anecdote may illustrate.

In the early days of the twentieth century, Bertrand Russell did some interesting studies on the foundations of geometry. It led him to criticize the doctrine of Immanuel Kant as expressed in his celebrated *Critique of Pure Reason* and elsewhere. In a discussion ensuing a lecture in which Russell expressed his criticism, a member of the audience said that in defense of Kant, we must not forget that he was always exceptionally kind to his mother. Russell replied that he refused to believe that humanity is so wicked that kindness to one’s mother is a quality more scarce than the ability to develop new ideas about space and time. Here the cowardly ideology shows itself in all of its folly: the person in the audience assumed that Russell’s criticism was an expression of contempt: he wished to keep a humane balance of contempt by mitigating it somehow. Both these assumptions are unwise; one has to explain their hold on academics. My aim here is to observe that it does have a tremendous hold in Academe, and that very few are utterly free of it. As Plato said repeatedly all his long life, as criticism helps getting free of some error, to be a target of criticism is fine. Go and tell this to the heathens. The widespread ambivalence towards criticism finds its clearest expression in the readiness to accept it from a celebrity but not from a cheeky upstart like you.
4.1

Johannes Kepler noted that even important people may use hostility or pomposity to cover for their intellectual weaknesses:23 “...many people get heated in their discussions ...”, he says in his defense of Galileo; “... others try to impress people with too much grave solemnity but very often give a ridiculous impression quite unintentionally ...” Here Kepler has the last word: humor, he said, is “by far the best seasoning for any debate...”; sincere interest and frank readiness both to acknowledge the superiority of others’ work over one’s own and vice versa are also important; but above all, the ability to gratefully acknowledge others’ valid criticism of one’s error is what counts. So says Kepler; and every reasonable person should concur.

Kepler’s is the last word on the subject of the present section: intellectual cowardice breeds hostility and pomposity while sincere curiosity breeds intellectual courage. Hence, it is obviously and comfortingly less important to fight cowardice and its manifestations than to develop honest curiosity. There is no more to add to this insight of Kepler’s, and so this section is over. What needs further explaining, perhaps, is why Kepler’s rather obvious point did not prevail. Or is it obvious? I wish I could pretend it were not. All too often, a point I wish to make seems to me so obvious I am ashamed I have to state it. What is more obvious, after all, than that we all err, scientists or no scientists, researchers or no researchers, academics or others, and that those who show us an error of ours open for us the door to improvement. Do I need to remind you that had King Lear listened to his critics, who were devoted friends, it would have averted disaster? Need I tell you that in the preface to his Apple Cart Bernard Shaw predicts the downfall of the dictators of both Germany and Russia—then at the heights of their careers—due to their burial of all their critics. (Unfortunately, his prediction was too optimistic; but I resist the temptation to digress here into political philosophy.) The point I am making has appeared already in all sorts of literature, in all possible fashions. Plato’s Gorgias says it already crisply and vividly. (I greatly recommend that slim book to you: it is most delightful reading.)

Yet, people fear criticism; people hate criticism; people build institutions and customs to prevent explicit criticism. (The claim that Popper’s methodology reflects existing institutions of scientific research is regrettably an oversimplification, you remember: science is unique in its encouragement of criticism, but it is not consistent on this.) People advocate and practice pomposity to the point, Kepler has observed, of becoming ludicrous in their desperate attempts to prevent or avert valid criticism.

Karl Popper was my teacher. He has offered the theory that what distinguishes scientific theories from other theories is that they are amenable to attempts at refutation. To use Faraday’s idiom, refutations comprise empirical criticism. Scientific confirmation or scientific positive evidence, Popper added, is failed criticism (and not the fruit of uncritical efforts to prove a theory correct). He has suggested that we learn from experience not by the search for evidence that supports a theory but by trying to criticize them and thus transcend them. This way he has earned an odd reputation: his friends and acquaintances in Vienna Circle declared him a fellow who cannot mean what he says since he advocated constant and endless quarrels among scientists. Moritz Schlick, the leader of the Vienna Circle, considerer

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Popper’s doctrine masochistic, since only a masochist would wish his views validly criticized. A few reviewers of Popper’s books have later hit upon the same brilliant idea. It probably never occurred to them that though we may wish to be infallible, since we know that this is not the case, we might deem second best any valid criticism of our errors. Since already Socrates of Plato’s Gorgias has made this point, and with all the clarity and vividness possible, one might expect the great light of the Vienna Circle to have been a bit more up-to-date.

4.2

Reviewers of Popper’s book refused to see his point. Unless they had strong reasons for this, they were fools. Popper himself said repeatedly—and erroneously—that one should try ceaselessly to present one’s critics as well as one could before one criticizes them and before answering their criticism. It seems to me amazing that Popper’s works in this direction are not devoid of all interest and are even occasionally amusing to some extent: it only shows how hard it was for him to be boring or unentertaining; yet I cannot recommend to the reader his work in this direction, since it is much too sophisticated and it overshoots its mark considerably. One may indeed study these haters of criticism—their ideas are not more primitive, after all, than other systems of thought that have become topics of quite intriguing studies, for example, the systems of thought adopted by the inhabitants of the Pacific Islands or of the Vatican; but to reason with primitive people and to study them are two very different matters. On second thought, I am not very fair in mentioning the Vatican in the present context, since it had for a Pope a person like John XXIII who would find it easy enough to converse with Kepler—more so I dare say, than any critic of Popper who found Popper’s advocacy of criticism masochistic or cantankerous. To whom should we compare those who find in the welcoming of criticism chiefly a form of perversity?

It is hard to say. So let us begin with the bottom of the ladder, with the traditional officer and gentleman, that is, who could challenge to a duel and kill in cold blood any of his critics regardless of the importance and of the correctness of the critic’s observations. Such an officer and gentleman appears now only through literature; his hallmark always was pomposity. At least literature has won and ousted dueling by means of leading to public ridicule. The equation of the inhumanity of the dueler with his pomposity and the contempt of them are the themes of Pushkin’s Eugene Onegin of 1833 and of Lermontov’s A Hero of Our Time of 1841, not to mention Joseph Conrad’s derisive “The Duel” of 1908. Perhaps the pomposity of the dueler is much too excessive to illustrate Kepler’s point, and you may think that the modern professor will not serve as a good illustration for Kepler’s point. See then Erik Erikson’s 1958 Young Man Luther.24

Take the professor ... A strange belligerence ... leads him to challenge other experts as if to a duel. He constantly imputes to them not only the ignorance of high school boys, but also the motives of juveniles ...

What is the difference between the dueler and that professor? Admittedly, the dueler is more harmful than the professor is; this is a matter of difference of the institutional means available to both to defend themselves against criticism. As a defense against criticism,

24 Erik Erikson, Young Man Luther, 1958, Chapter II, section 2.
however, their reactions do not differ from that of a geography teacher I had in elementary school. He read from his text, “Burma is the second largest rice producer”. Someone asked, “Teacher, which is the largest?” He snapped back, “Shut-up!” His response was short and effective; if provoked more, he might have reacted more violently. My teacher in university who had to impart to me the mysteries of quantum theory was not as ignorant—he was an authority—but he had to silence his students too; it took me years to see that he could not answer our questions. Presumably, he could not admit this openly.

Here at last we do come to a fundamental difference between the dueler and the professor; the dueler defends his honor, whereas the professor defends the cause of science or some other noble cause; in this respect my elementary school geography teacher—gentle and kind as he was—may be classed with the officer and the gentleman, yet the professor may be classed with the dogmatist and the fanatic.

You may easily challenge this distinction. The poor elementary school teacher who has to teach a subject in which he has no interest was acting in self-defense when caught not having done his homework. Is the very up-to-date professor not acting similarly? Since professors claim to have done all their homework, they can claim to know all that is worth knowing—which is a better line of defense; and this is the same as allying oneself with science. “I am science” is as pompous as “I am the state”, if not more so. Perhaps the geography teacher was defending his position and authority as a teacher—for the benefit of the school and its pupils; the officer was possibly defending his uniform; the gentleman may sustain the social order; the professor defends the commonwealth of learning.

It is hard for me to argue the pros and cons of the last two paragraphs. The problem is too intricate and the returns seem to be diminishing fast. I can see that I am boring you, and I cannot blame you; I have myself agreed that Kepler was quite right: we need not elaborate the negative side here but may dwell on the positive.

4.3

To a positive instance then. The lifelong debate between Einstein and Niels Bohr is a classic. It fascinates outsiders not only because of its philosophical content, not only because it displays satisfactorily (to outsiders, not to physicists) that unanimity in science is an overblown myth, not only because it is about some of the most deeply felt transitions in the twentieth century, not only because it was conducted by two people who were famous in their own rights; the debate fascinates outsiders in the manner in which it was couched because of the display of a determined and persistent intellectual opposition on a large scale between two people of almost saintly dispositions, of unusually amiable nature, who belonged to the most exclusive mutual admiration society of their century whose membership consisted of these two alone: for Bohr, Einstein was science impersonated; for Einstein, Bohr was musical—even more than Kepler. (Yes, I am speaking of the music of the spheres again, of course; but the expression “musical” is Einstein’s: his application of it to Bohr appears in his scientific autobiography.) The outsider has the picture right; it is the ordinary physicist who shows a surprising lack of interest and appreciation and is more than willing to dismiss the whole debate with the feeling that, evidently, Bohr won the debate to the utmost satisfaction of everyone. In addition to being a narrow-minded view of the
matter, incidentally, this is false: both parties seem to have lost—in the sense of having held opinions whose shortcomings have meanwhile become apparent, not in the sense of having lost a duel or a contest. Let me conclude this point with the observation that the proper spirit of the debate between Einstein and Bohr has done more for the advancement of learning than the content of the debate that, regrettably, towards the end of their lives turned stale.

It is hard to avoid pomposity and hostility. I do not think I can help you—or myself—to be above it as much as Spinoza or Einstein. All I do is suggest that Popper's methodology may help us overcome some of the worst obstacles on the way to reducing pomposity—obstacles that have no business to be still around so many centuries after Kepler. It is not that without Popper's methodology we cannot remove them, but that with its aid the task might be easier to perform successfully. For the root of the difficulty of overthrowing certain pomposities and hostilities is indeed methodological.

This section is boring. Let me briefly remind you that the over-confident in their own rightness express implicit contempt towards their opponents; I have discussed this corollary, which Bacon stressed, and you can easily see for yourself that this is equally true of matters civil or moral as of matters scientific or religious. In matters other than philosophical, it is so obvious, even Josephus Flavius, by no means a great light, has already noticed it: in the very opening of his *Jewish Wars* he says, some Romans tend to belittle the Jewish army, not noticing that thereby they also belittle the Roman army against which the Jewish army held forth so well and for so long. What is so obvious in that context should be equally obvious in scholarly context. Perhaps I can interest you a little bit more in this so obvious point, then, by a somewhat piquant observation of a pompous element in Popper's philosophy itself. I cannot say that this philosophy is very popular, nor do I contend that the pompous element in it is in any way essential to it; what I would say, however, is that inasmuch as Popper's philosophy has gained any popularity, it is that part of it that has become better known, which I consider pompous. It underwent vulgarization in an even more pompous fashion than its original version, but this is less interesting or piquant since deterioration through vulgarization is the norm.

4.4

Popper's earliest philosophical studies consisted of work on two problems, of the demarcation and of the methods of science. I have told you already what his theory is. He says the method of science is, in general, the method of criticism, and in particular, of criticism in which new experiments serve as new arguments against the best theories extant. We learn from experience to correct our errors. As to the demarcation of science, the question, what theory rightly merits the title “scientific”, the answer to it I have quoted in the beginning of this section; it is almost present in my last sentence above: a theory is scientific, says Popper, if and to the extent that it is open to attempts at criticism of it—by recourse to experience. Whether the attempt be successful or not seems less relevant than whether it is at all possible. Thus, says Popper, you may try to criticize Einstein's theory of gravity by designing certain sophisticated observations, such as Eddington's observations. Thus far, experience refused to condemn Einstein's theory; if it is true, this will never change; it is nevertheless conceivable that the theory is false, and, if so, quite possibly one of
Part II: Etiology

these experiments will one day come out with results significantly different from those that the theory leads to anticipate. Thus, Einstein’s theory is in principle open to empirical criticism and so it merits the title “scientific”. Not so Freud’s theory. Nobody ever deduced from Freud’s theory a prediction and then check that prediction. The ease with which Freud and his followers could fit facts into their schemes ensures success a priori; there is no hope for an opponent ever to pin down Freud, Popper said, and thus to force Freudians to change their minds in the light of experience. Hence, Popper concluded, Freud’s theory does not merit the title “scientific”.

All this is just terrible. It is hardly possible for me to understand how Popper could stick to his view that his ideas on the topic as significant; it is hardly possible for me to understand how he could ever mind which theory merits the title “scientific” and which not. Such a pompous question! I confess, I did find this question very important. I can explain psychologically and socially how I came to be interested in this pompous question and how it ceased interesting me, and I think I may generalize. My explanation is that I got interested in such a pompous question since it is rooted in the role of pomposity in our society. Let me elaborate on this. The question how and why our society maintains pomposity I shall discuss afterwards. Let me begin with Popper’s response to my challenge.

Popper always said, words do not matter. The word “scientific” is no exception. He said, his study of the demarcation of science is important as it answers Kant’s question, what can we know? The answer to this question is Socratic: we cannot know where the truth resides, but only where it does not: we can refute some hypotheses but verify none. This answer is terrific; it presents what we know as science as a version of Socratic dialogue. I do not know how you find this; speaking for myself, it is very much to my liking. For myself, allow me to add, this is what in Popper’s theory of knowledge appeals to me most. (This is why I consider myself his disciple.) It is not the whole of his theory of knowledge. In particular, it is a rejection of his theory of pseudo-science, his condemnation of the ideas of Marx and of Freud. If you want to condemn these, you need better arguments.

The core of Popper’s theory is admirable. As long as you are an ignorant young rebel, all well-wishers, and all those who think you may be a good student (whether they wish you well or not), start quashing your rebellion by an appeal to the authority of science. The authority of science may or may not be bigger than the authority of religion, of society, or of parents and teachers; it matters not, since the bigger the authority, the bigger the menace to freedom it is; and inasmuch as science is authoritative, we should simply condemn its authority in the name of freedom. Thus, efforts to quash rebellion in the name of the authority of science simply seem to side with science, but they side with those who condemn it. Let me be quite clear on this point. It is my honest and considered opinion that no human venture and no human conduct is free of evil, and hence there is evil in science. Popper’s theory presents science in such a way as to define all the evils possibly associated with science—such as the dogmatic pomposity of my science professors—as one way or another not part-and-parcel of science, but mere accidental accretions to it. To come back to our

25 This assertion conflicts with the claim of Adolf Grünbaum that Freud had tested his own theory and that it is successfully refuted. See Jon Mills, (2007), “A response to Grünbaum’s refutation of psychoanalysis”. *Psychoanalytic Psychology*, 24: 539-544. Popper has claimed that clinging to a false theory—be it Freud's or Newton’s or any other—renders it unscientific.
young rebel (such as Popper was, for instance) who accepts the authority of science—in ignorance, inexperience, and fear of seeming too quixotic. Once the authorities have bullied you that far, it seems only reasonable to check their credentials; once you wish to make your checking of credentials effective, you ask yourself, what makes for kosher credentials. This is precisely the problem of demarcation of science.

Do not sneer at the pompous guardians of the status quo too easily; many of them were young rebels suppressed by earlier pompous guardians. This is, again, the traditional-Chinese mother-in-law syndrome; you may profit more from studying its mechanism and ways of neutralizing its ability crushed you than from sneering at its victims. Remember: this is a report of an empirical observation: the more violently the daughter-in-law fights her mother-in-law, the more she is prone to become in her turn a dreadful mother-in-law herself. Such things did happen, and they still do, although how frequent they were is unclear since the exceptions were kept secret.

Popper himself rebelled against claims of Freud and of Adler for the authority of science. To criticize young rebels is unfair: there are so few of them, we have to encourage them first. Still, Popper was in error. When he spoke of Einstein’s general theory of relativity, he was as clear as possible: it has a canonical version. Admittedly, there are variants of the theory (with its lambda equals zero or not), but this does not affect its scientific status. When Popper spoke of Freud’s theory, however, he never specified what it is and it has no canonical version. Admittedly, this is a general defect. AdolfGrünbaum has devoted a whole volume to the criticism of Popper on psychoanalysis, yet he had no room in it for specifying the content of the doctrine (that he also rejected, though for the lack of empirical support). This is no small matter, since a major item in his theory was the place of catharsis in it. The neurotic patient fears the memory of the trauma that has generated the neurosis; the end of the psychoanalytic encounters is for neurotic patient to overcome this fear; when this occurs the patient experience a kind of excitement that Freud called catharsis and is thus ready for self-cure. Freud sent home such patients, only to discover that they were still neurotic. He then changed his mind. This renders scientific à la Popper the version of Freud’s theory just worded here. That version, however, is not canonical. What version is? I do not know. Popper was thus more than justified in studying the nature of claims for scientific status. His conclusion in this matter is a variant of the one that has been made a century earlier by the great William Whewell, who said that experiments that cannot possibly lead to the elimination of a theory, cannot possibly lead to its confirmation either. Whewell was not as clear as Popper was, and he was in error when—quite unlike Popper—he ascribed authority to scientific confirmation, in the belief that a properly confirmed theory can never be overthrown. Yet Popper, like Whewell, handled together the demarcation of a scientific theory with the demarcation of scientific confirmation.

It is hard to disagree with Whewell, Poincaré, and Popper: proper confirmability without refutability is too cheap. It is harder to disagree with Popper that loose confirmation is always available. We have now narrowed considerably the range of scientific confirmation and thus the range of the authority attached to it. Why then do we attach authority to confirmation? Most philosophers say, because we learn from it. Popper rejects this; like Socrates, he said, I hope you remember, that we learn from experience by empirical criticism, by refuting experiences. We learn from confirming experiences that we have failed to refute, that in efforts to refute we should look elsewhere. Yet for about thirty years Popper never
said what is the good of confirming experiments and whether it is authoritative, and if so why. I admit that an unprejudiced reader may concur with impressions shared by most philosophers of science I have come across, namely that Popper did ascribe some authority to confirmation.

Now we all treat some confirmation as authoritative; perhaps those who viewed with disdain Faraday’s assault on so very well confirmed a theory as Newton’s spoke with the authority of science; perhaps those who resented Einstein’s upsetting of all physics (at least prior to the confirmation of his own views), or Planck’s, or Bohr’s, also spoke with the authority of science. If so, then that authority is plainly evil. Paul Feyerabend said, people committed much evil in the name of science. This won him much acclaim. The acclaim was due to the reading of his text as opposed to science, which he carefully allowed for. This is cheap. Of course, Popper did not have in mind the authority that Feyerabend opposed; which authority, however, he did have in mind, he did not say. He was touchy on this point, and I could seldom talk to him about it; most of the time, I regret to admit, he was not on speaking terms with me—he insisted it is not because I disagreed with him, you could guess, but for quite different reasons. I am sure you take delight in gossip and I would not deprive you of the pleasure; but I do not quite know the details. Popper had assumed that I knew the details that made him angry with me, because he took it for granted that some mutual friends who were academic guardians of high standards had informed me: if you have a guardian of high standards for a friend, who needs enemies. The real cause for his hostility is that I published my criticism of his views rather than let him detract his error due to personal contact as befits teacher and student relations as he saw them.

Again: confirmation is authoritative; yet those who look for the authority of confirmation will not find it in science. It lies in politics, more specifically, in the law of the land. The law of the land should not appeal to the authority of science, as this does not exist. To be explicit, the law cannot appeal to personal convictions, as the democratic principle of freedom of conviction guards them; the law cannot appeal to researchers, as scientific research must stay free. The law can appeal to applied science, to the applications of science. The law (in modern democracies) demands that claims for the benefits of new applications of science must be confirmed, because this way we eliminate new applications of science that are harmful before they cause too much harm. We do not always succeed, as the case of thalidomide proves. Perhaps the Nazi philosopher Heidegger was right when he declared applied science detrimental for the future of humanity. We just do not know. We hope he was in error and we will do our best to refute his view. For this we should see that the authority that confirmation has is the authority that we bestow on it. This will facilitate criticism of our methods of confirmation and this their improvement.

4.5

To show you how possible it is that interest in confirmation may be due to public pressure based on the authority of experience, we may take the case of the person who did confirm his own unorthodox views and did feel proud of his ability in this direction, yet who never

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thought any confirmation is more than of a transient heuristic value (“heuristic”, akin to “Eureka!”), meaning pertaining to discovery; heuristic value is possible usefulness for research purposes). I am speaking of Galileo. He thought Archimedes’ work was as geometrical as Euclid’s and thus equally doubtless; yet he did confirm it with a most impressive experiment when court intrigues in 1612 forced him to do so in order to save his job as a court scientist: he showed that a piece of wax with some copper dust stuck to it may float on water yet sink when one single additional speck of copper is stuck to it. He held in principle the same view of the Copernican hypothesis and hence considered his own telescopic observations as well as his own theory of the tides to be confirmations of it—and as such he viewed them as useful; for the interim period and for social reasons mainly—in order to convince the heathens. Inasmuch as they had intellectual value of greater durability, Galileo saw them as criticisms, as a shaking of accepted authority, rather than as lending authority to his own view. Even in his wildest dreams he desired to achieve only permission to believe in the Copernican doctrine and to have free debate; even in his wildest dreams he admitted that the Copernican doctrine had not yet been logically proved—as it should be, he said; with all his powerful sarcasm and raging bitterness he hardly ever expressed in writing a single statement with authoritarian overtones. Individual autonomy was what he preached.

To return to Popper. It is a biographical fact, beautifully narrated by Popper in his “Personal Report”, that he developed his view on scientific confirmation and on the demarcation of science to break away from the authority of Alfred Adler, under whose tutelage he worked educating deprived youths in Vienna as a volunteer when he was a young lad in his teens. Adler tried to impress Popper with his “thousand fold experience”. Yet the “Personal Report” is not sufficiently anti-authoritarian to my taste, since it merely shows that the credentials of the applications of the theory of Adler are not half as kosher as those of the theory of Einstein. He evidently deemed Einstein’s view authoritative. I do not.

As examples of theories that make claim for the title “scientific” quite without justification, as examples of pseudo-scientific theories, that is, Popper has chosen astrology, Marxism, Freudian psychoanalysis and Adlerian analytic psychology and, though by implication only, theology proper too. I say by implication only because Popper was vague here, as I have tried to show elsewhere: he has never clearly distinguished between pseudo-science and non-science, and yet it is a clear fact that nowadays, unlike in the Middle Ages, theology is non-scientific yet it is hardly pseudo-scientific: it makes no claim for the title “scientific”. In his early works, at least, Popper displays a tremendous ease with which he was willing to dismiss all pseudo-science, and in the same breath theology proper. Later on he showed more tolerance to theology and even respect for some metaphysics; he was adamantly in his contempt for pseudo-science. Is all pseudo-science as contemptible as astrology? Is ancient astrology as contemptible as current astrology is? He did not think so. The affirmative answer to this question is too pompous for him, even if only by implication.

Admittedly, Freud and Adler had the mark of the phony in them; Popper has rendered a great service in pinpointing this, and in showing the imperviousness of their ideas to criticism. After all, Freud and Adler did not argue in exactly the same detached manner of Einstein and Bohr; Popper has made much of this fact. Yet to class psychoanalysis with

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astrology on the strength of this fact is excessive.

Example: in *Psychopathology in Everyday Life* (1901), Freud reports having rightly suspected that a woman had marital troubles as she mistakenly used her maiden name. This statement is pseudo-scientific: one cannot generalize it. Yet Freud's observation was astute. In detective stories, this kind of observation serves as a clue, although it will rightly not hold in court. One may propose to view a clue as confirmation when it turns out to be right and to ignore it when not. This is wrong: it is better to say, at the time it looked to me important, yet it is not. The detective knows that this is possible, and this is the reason for the search for better evidence. Freud did not behave as honestly the way the upright detective of the classical detective novels did. That is strange, because Freud himself rightly, analyzed this way the treatment of premonitions that he dismissed as superstitious.

We face two problems here. First, what is the problem of demarcation of science sans snobbery? The answer is obvious: why do we appreciate science? Second, what is the authority of science? The answer here is also obvious: the law recognizes general claims after they undergo scientific confirmation. Why? The answer here a little less obvious. To see this we should consider not success but failure. Consider inquests. In an inquest into a disaster, we expect them to answer the question: was the accident in question due to some negligence? This is why standards of confirmation have to improve. For example, only after the disaster that thalidomide had caused, the suggestion came up to test drugs for possible harm fetuses. Only then it became negligence to harm fetuses by medications; not before.

4.6

Adler's theory has drawn much less attention than Freud's, and for a few obvious reasons: it is less strikingly original than Freud's, being (intentionally) a variant on it; also it is less provocative and more in accordance with common sense, since Freud crudely equates love with sex, whereas Adler equates it with acceptance or approval in a much wider social sense (sex included, of course). Freud's theory is deeper, in the sense of being more Darwinian, in its basing conduct on two basic biological drives—for food and mating.28 Freud believed in the reduction of all science to causal theory and much appreciated the Darwinian causal theory of natural selection. However, he noticed that we still lack a causal theory of basic animal drives; taking upon trust that this theory will appear one day, he allowed himself to use it. Adler's theory is more worldly and it leaves fundamental questions open quite deliberately. Moreover, Freud's theory is much more piquant, and avails itself for a wide variety of applications outside of psychology, from parlor games to high literature and literary criticism. The worst thing about him is his view of women, as both Melanie Klein and Karen Horney have argued in detail.

Adler's merit is there all the same. The hysterical Victorian aunt moved under his impact from high literature to melodrama to burlesque to oblivion; you are most unlikely to have an aunt who, feigning shock or feeling neglected says the famous punch-line, “Darling, I think I am going to faint.” Your grandparents still had such aunts; not you. Attempts to draw attention by fainting, temper-tantrums, and similar gags, were good enough for Napoleon

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Bonaparte and for Ludwig Wittgenstein; today they are considered too silly to be of any use, and those in dire need to draw attention have to use less obvious ones (such as hypochondria or mild paranoia). That is Adler’s prime achievement. It was quite considerable. For, the fainting aunt was much more miserable and much more of a nuisance than a first glance may suggest.

(The same considerations go for conversion hysteria, to wit, hysteria with symptoms of physical illness and paralysis. Since this was the object of Freud’s early studies, much interest and a vast literature exists concerning its disappearance. I do not wish to bother you excessively with psychiatry.) The drive for recognition is still there. According to Adler, it is a version of search for attention and for care. Adler was concerned with the pathological manifestations of this drive, the so-called Inferiority Complex that he considered a proper substitute for Freud’s Oedipus Complex as the primeval neurosis. Both complexes are observable; the disagreement here was metaphysical: which complex is basic? (Freud, On the History of the Psychoanalytic Movement, 1917.) Adler was limited in his effort to amend Freudianism rather than build an independent system or rather solve problems unsolved or unsatisfactorily solved by Freud. Following the line of Freud’s Psychopathology in Everyday Life, of Freud’s insistence that the distinction between the normal and the abnormal is a matter of degree, Adler found inferiority complexes everywhere. On this Popper has scored a clear point: the literature admits his critique, even though no always expressing the gratitude to him that we all owe. They overlook his perceptive remark that in all likelihood Freud was a Freudian type and Adler was an Adlerian type.

4.7

The Freudian claim (to be precise, Jean-Martin Charcot and others made it earlier) that mental abnormality is a matter of degree, is a profound insight and a challenging thought, but quite obviously a half-truth at best. It is an open secret that psychoanalysis of any kind has abysmally failed in matters of psychosis or mental illness proper (whatever that may be) and in other strange phenomena such as epilepsy. Although quite a number of writers have commented on the connection between Freud’s theory of degrees of abnormality and this failure, it still invites exploration. My point here is different: it is perhaps the comment of Buber and of Sartre on Freud’s theory: that theory is a half-truth, at best, in that it has no room for the study of the workings of the sense of responsibility. We all agree that a child is neither responsible nor irresponsible—that a child cannot be held responsible, to use the legal expression. In addition, traditionally, the law puts the mentally ill or the deranged in the same category as the child, together with the mentally retarded. What Freud has claimed is (though he was himself ambivalent on this point) that we all are child-like in spots, so that the difference between the child or the neurotic and the responsible adult is a matter of degree. Here he is at best only half right since there is a crucial difference between those who lapse into child-like inability to face responsibility in spots and those who are constantly child-like, either from not having grown up or from having relapsed all round.

When Dr. Thomas S. Szasz declares that mental illness is a myth he had a complicated message. When we pay indulgent attention to hysterical fainting, Alfred Adler had observed, we encourage the development of hysteria. Similarly, says Szasz, we encourage schizophrenics to act irresponsibly in order to make us place them in the category of those
whom we do not consider responsible agents. Others, such as Sheldon Glueck, attempt to reconcile Freud’s theory of gradation of normalcy with the existence of responsibility (in adults but not in children and not in psychotics) by the introduction of degrees of responsibility.

Correct or not, this affords us a new criticism of Adler, and even of Freud. It is this. The claim that we are all children who constantly crave for care, attention, acceptance, approval, support of others, and what have you, harbors a serious confusion of the dependence on others that the immature display with the need of the mature to face society and to belong to a society—as a coordinating system, as a standard for what is reasonable and responsible, as a standard of sanity. Here, perhaps, we even touch on a serious error of Schopenhauer that Freud may have inherited from him. Schopenhauer saw an affinity between madness and genius. This is terrifying regardless of evidence for it and against it that constantly accumulates. We must admit that genius may find the strain of loneliness too great, both psychologically and intellectually. Nevertheless, the genius is mature in the sense of having a sense of responsibility, even though in loneliness the genius may need a greater maturity of judgment and thus have to undertake great efforts to achieve it. As geniuses seek the normal assurance from others’ responses, they find it harder than usual to attain it; and then they may but need not lose their sense of purpose. They may then find themselves in need to sacrifice ordinary companionship. The romantic philosophers whom Schopenhauer wished to combat declared this the test by ordeal that they viewed as imperative for geniuses to pass before they may deviate from received norms, since only then are they able to contribute their innovations. The romantic theory sounds radical but it is conservative in its permission to allow deviation only after passing tests by ordeal. Hence, Freud and Adler were romantic against their wills; they were all too ready to identify genius with mental aberration.

The wish to have recognition or acceptance fits the ideas of Freud and Adler; and so all of us fit them to some extent. This goes for all occupations, and manifests itself differently in different ones. Academics who lapse into the neurotic need for acceptance may distort or ignore an idea or an experiment, more simply, they may plagiarize or become pompous defenders of the Establishment, especially while developing neurotic self-mistrust like the professors whose honesty prevents them from defending poor students against obvious injustice. Common as the phenomenon that concerns with desire for recognition may be, it is nevertheless cheap to pretend that all its manifestations belong to one simple category. There is too little written on this subject to allow me to elaborate at any length, but I can barely refrain from briefly referring to the cases of David Hume and of Claude Debussy. Both felt the problem and frankly expressed bewilderment concerning it. Hume was exceptionally honest and unusually at peace with himself. In his brief autobiography he confessed the motive for his writing was his love of fame, yet he also reported there he was a happy and contented person although his philosophical work “fell stillborn from the press”. The case of Debussy is similar. He had a reasonably high opinion of his own output. He did not think much of public acceptance or rejection, especially since he was unusually familiar with the history of music and knew how much great music remained unperformed for lack of technical possibility to perform it all (this was before the invention of the phonograph). He was sufficiently open-minded to recommend publicly that the Paris Opera gave the best possible performances of Wagner’s operas although he sincerely loathed them; and he enjoyed music of both the highbrow and the lowbrow sorts, judging each piece by its composer’s intent. He viewed aggressive public rejection of a composition as a great honor.
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bestowing severe obligation on its recipient; yet he admitted that he was quite ambivalent towards signs of recognition, feeling averse to the pomposity, boredom, and vexations it entails but being unable to “be insensible to that little ray of provisional glory”.

As self-critics, both Hume and Debussy were too ruthless. Hume’s claim that his motive was a love of fame comes from Bacon’s philosophy, and Debussy too, was subject to the influenced of the same stock of ideas, through second and third hand. Joseph Priestley, no less, dismissed Hume, saying, one should not expect much from the pen of a philosopher who shamelessly admits being motivated by the love of fame. Already Kant expressed his surprise at the cavalier manner in which Priestley dismissed Hume (he rightly admired both of them). As to Debussy’s critics, the less said of them, the better. To show that their excessive self-criticism was mistaken, we may use the case of Einstein. He received as much fame and glory as any scholar could ever get from peers. It embarrassed him deeply and he did not wish for more. Yet, he confessed, he was always lonely, and early in his life he suffered from this loneliness. Approval he received, but a society to give him standards of reasonableness he seldom had, and he benefited from the company of very few people who could match him, such as Planck and Gödel. What Schopenhauer saw, then, in the similarity between the genius and the lunatic is there all right—both constantly struggle, as they have no accepted standards to rest on; but the one is above accepted standards, the other below. Small difference. Saul Bellow’s Henderson the Rain King (1959) observes:

when I say that he lost his head, what I mean is not that his judgment abandoned him but that his enthusiasm and visions swept him far out.

4.8

Here we have come, quite incidentally, to the kernel of truth and to the obscurantist aspect of the philosophy of Ludwig Wittgenstein, one of the most popular philosophers of the twentieth century and of its greatest prima-donnas; his closest pupil and biographer Norman Malcolm, viewed him as casualty of both a touch of genius and a touch of madness. Philosophical doubts, said Wittgenstein, are spurious because they are peculiar: unlike other doubts, those that touch upon specific topics, whereas philosophy touches upon the very framework of our activities, intellectual and otherwise. All his life he spent enormous efforts to show the obvious, namely that philosophical doubts are indeed peculiar in their generality; he said almost nothing to support his claim that hence we should ignore philosophical doubt. What he did say, namely that we constantly do operate within socially accepted standards—even in our innermost thoughts—is admittedly usually true. Yet when we look at the greatest geniuses among us, at its Bacons and Descartes and Humes, at its Debussys and Einsteins too, we see people who try hard to break away from accepted frameworks in efforts to create ones more adequate for the problems that they struggle with. They may or may not suffer loneliness and pains; these pains may be necessary or unnecessary; they are, however, all too understandable. For them Wittgenstein’s cure—indifference to fundamental problems—will not do at all. Fortunately for us, the Einsteins among us totally ignore him.29

4.9

We are almost ready to return to the opening question of this section. Let me remind you of a brief anecdote about Russell’s discussion in public of the theory of space and time of Immanuel Kant and the member of the audience who observed in response, that Kant loved his mother. Now this observation is hard to defend but it is easy to empathize with. Most of us feel criticism as censure and rejection. The reason may very well be that as children we tend to be stubborn and ignore criticism unless it comes with great pressure. As children, we suffer both from the lack of attention and from the lack of standards—we feel a loss and we feel at a loss. These are two very different pains; in our trauma, we tend to fuse them. Freud has never distinguished them. He was the last believer in the noble savage, and when he feared that the ideal of the noble savage did not suffice, he simply plunged deeper into his Schopenhauer-style pessimism. The part of the received standard that he endorsed, especially concerning everyday matters of fact, he deemed as belonging (not to society but) to the ego. In this, again, he was deeply and quite mistakenly under the influence of Bacon. The very idea of the noble savage, of people not infected by common superstitions and so intellectually superior, is a Baconian myth.

For the purpose of emotional hygiene, there is admittedly not much need to distinguish between the child’s loss of attention and loss of guidance that come as penalties for stubbornness; but for the purpose of intellectual hygiene the distinction—between being lost and feeling lost—may be important. (This echoes Buber’s critique of Freud: he did not take notice, Buber observed, of the difference between guilt and guilt-feelings.)

4.10

As far as child-psychology is concerned, most experts recommend the avoidance of traumatic events in a child’s life. We might expect them to have some impact and cause some improvement here. Oh, no! We have our old acquaintance the ideological academic bore pompously guarding the institutions fostering damage and insisting on penalizing every stubborn rebel. If you criticize a public figure openly and frankly, then the bores will try to make you understand that in doing so you bar yourself from ever gaining public recognition; and if an accepted public figure criticizes you, then the bores will want you to feel that your career has ended. If you escape censure, then the Establishment penalizes you, ignores you, or crowns you as a new public figure. The latter option is not for you. At least not yet: you must learn to be patient and wait for your turn! If you have any merit, you can be sure that we will recognize you in good time, they promise. Do not hate them: they know not what they do.

It is easy to get rid of the pompous bore. All it takes is a social reform. Pompous bores are docile and they will follow the rules even when these are agreeable. Would it not be nice if every person whom a Fellow of the Royal Society attacks in the academic press will be automatically made a candidate for a fellowship in it? This would remove the ambivalence of the Fellow who launches the attack and thus remove the need to justify the attack by including in it the customary expressions of pomposity and of hostility to opponents. This

30 See Freud’s *Civilization and its Discontents* (1930) and his correspondence with Einstein (1931–2).
will make it preferable to present criticism openly and render it desirable to be a target for an intellectually decent criticism. This will make Fellows more discerning in their choice of target for criticism and induce in them the disposition to choose opponents their own size. This will present criticism as a precious act to administer with some measure of discrimination rather than as mud to sling.

I may be seriously in error, of course. Still, in my view for what it is worth, the Royal Society was once a tremendous institution, bold and experimental in both its scientific ventures and in its playing its social role as creating incentives for the advancement of learning. You do not think the Royal Society is going to accept my proposal? You think it will meet with pomposity and hostility? Ah, well, you may be right. No matter; we can build our own mutual admiration society, you and I, where members pride themselves on the ability to parry well, riposte well, and willingly admit a hit like any regular fencer. (Fencers know that as long as you have the slightest disposition to conceal that you were hit you are still a novice; the same holds if you claim that you have hit your opponent rather than wait patiently for an admission of it. How Socratic!)

4.11

In the meantime, let us attend to the moral from this section. The pomposity and hostility of an academic often result from old pressure by pompous seniors. Fear of criticism leads to pompously authoritative modes of speech plus the expression of contempt towards opponents. This is why it is advisable to try to ignore thinkers’ pomposity and authority, even their occasional display of a phony streak. (The refusal to ignore pomposity is pompous.) Again, the question is not how authoritative is what one says but how interesting and important. If not, it should not be criticized—at least not in Academe; and if it is criticized only because it is interesting and important (though false or at least possibly false), then criticism is a compliment. The ambivalence of academics towards criticism (that various institutional devices enhance) we should laugh out of court the way our ancestors did with the popular custom of dueling. That mature thinkers view criticism as complimentary is manifest in various cases, especially from the dispute between Einstein and Bohr. Still, so many thinkers pompously declare that Pasteur’s verbal violence towards his opponents is impossible to compare with the violence of the officer and gentleman, and that we cannot possibly try to emulate such giants as Einstein and Bohr.

Let me be clear: in my view, controversy is the heart of science. This idea is not popular. Even my teacher, Karl Popper, who declared the disagreement between Thales and his followers the dawn of science and who always encouraged controversy, even he did not assert that controversy is the heart of science. He demarcated (not controversies but) theories as scientific and non-scientific. My interest is broader: what makes one controversy important and another dull? For example, compare Galileo and his adversaries to Newton and Leibniz. The latter controversy fascinated even some interesting sworn Newtonians. Einstein, who viewed himself a follower of Leibniz, had to explain why at the time Newton won the debate. By contradistinction, Galileo’s adversaries are remembered, if at all, because

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31 See Einstein’s Foreword to Max Jammer’s *Concepts of Space*, 1954.
he argued against them magnificently. Nobody discusses the ideas of these famous adversaries: they are now gone ignored. What differentiates the two controversies? I do not know; it keeps fascinating me. The adversary of Newton, Leibniz, kept engaging thinkers for generations; not so Galileo’s adversaries.

5. Cowardice Masked as Dedication And Loyalty

Thus far, I have spoken against the pompous insistence on the maintenance of certain high academic standards and of the evils that this might incur. Of the standards themselves, I said little thus far, except for the alleged standard of objectivity that academics use to force peers to render their discourse boring. Standards are artifacts; as such, they may be unsuitable. The orthodox adherence to them, thus, may increase their fault and the damage that it subsequently incurs. To return to the historical example I have mentioned in passing, it was Robert Boyle who instituted the demand that speculative papers should include some experimental results.

5.1

Boyle did that while he was registering a plea for tolerance. In his Proëmial Essay to his Certain Physiological Essays of 1661, he complained of the existence of a certain dogmatic adherence to the new mechanical philosophy. (This is the theory of Descartes of the world as consisting of purely rigid bodies that can only collide with each other or else move in uniform velocities.) He referred, as an example, to some medical work published some years earlier and passed unnoticed by the learned public because—he suggested—its language was not that of the mechanical philosophy. Historians of science have declared an anonymous seventeenth century work on medicine Boyle’s earliest publication. If so, then he was familiar with the dogmatic dismissal of works and was probably referring to his own personal experience and in his said Proëmial Essay, he was arguing for the possibility that a work not following the mechanical philosophy may be of use even if the mechanical philosophy is true. For, if true, a statement of fact or a theory must be explicable somehow by the true mechanical philosophy. Our present ignorance of this explanation does not detract from its truth. For example, he noted, nobody was then able to explain mechanically the phenomenon of elasticity. Springs are elastic. If we explain the behavior of air on the assumption that the smaller parts of air are springs, we may learn something about air—for example, that (in constant temperature) its pressure is proportional to its compression. (This is the celebrated Boyle’s Law.) Our theory of the air will thus be a theory of elasticity and thus not yet mechanical. However, if the mechanical philosophy is true it must in principle explain elasticity. Hence, the disregard for a study because is cast in a language other than that of the mechanical philosophy is shortsightedness. Even if a theory is false, said Boyle,

33 This assertion of mine requires a qualification. In these days of expanded Academe and publication pressure, you may find in the learned press discussions of the most undeserving items.
34 Not so. In the eighteenth century, the great Jesuit philosopher Roger Joseph Boëvich argued that elasticity refutes Descartes’ mechanical theory. His criticism is unanswerable.
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it may lead to interesting experiments that critics have designed in order to refute it. Boyle noted that in those days there were more people ready to speculate than to experiment. Therefore, he suggested, it is important to encourage experimentation and discourage speculations. So let us agree, he said, to accept for publication any paper that is not too long and that contain some new experimental information.

Boyle did not object to brief speculative works. He published such works, though surprisingly rarely. Soon The Philosophical Transactions of the Royal Society and its French equivalent appeared. They made it a standard policy to publish as little speculative material as possible. To make things worse, natural philosopher (physicist, we would say today) Benedict Spinoza, a rather controversial thinker, submitted to the Royal Society practically at their invitation a paper on the relations between wholes and parts—highly speculative, need one say—and the Society almost published it but did not. Boyle was the least pompous and perhaps the kindest Fellow of the early Royal Society. His uprightness and moral and civil courage were never questioned by friend or foe. Yet he was not brave enough to publish Spinoza’s note. He also showed uncharacteristic pomposity and hostility towards opponents of the Royal Society. True, he welcomed criticism and had never any problems about it as far as he himself was concerned; he was very generous in acknowledging other people’s discoveries and he was extremely frank about his past errors. He was extremely sensitive however to his colleagues’ sensitivity to criticism. He repeatedly explains that criticizing a colleague openly might cause resentment and so lead to mere discouragement. Since Boyle’s philosophy of the social foundation of science was very clear on this matter, since he clearly thought that only amateurs could be the disinterested carriers of the burden of research, he found most important the need to entice people to invest efforts in research. Not only in matters of criticism but also in all other respects, his aim was to make people perform experiments and publish their results. One of his subtitles is “an attempt to make a chymical experiment” that now sounds funny, coming as it did from the best and the most respected chemist of his time. He proscribed criticizing an opponent openly; the ones who had held the criticized doctrine will know that the new experiment refutes their view; there is no need to publicize this. Twice Boyle deviated from this early in his career, in the days in which both his new law the new Royal Society were making a big splash and it was terribly important to see whether anything in these excitements had lasting impressions. Under such circumstances, and considering that Boyle was criticizing his own critics, there was no need to explain or justify his conduct. Yet he did. He said that he loathed launching an attack against his sometimes friend, the Cambridge philosopher Henry More, but that he had forewarned More clearly beforehand that if More persisted in calling Descartes an atheist he would criticize him. This led More to complain (in a private letter) that Boyle had thus turned criticism from something required by the logic of the disagreement to a form of social sanction. Superficially, the situation was obvious: Boyle never openly criticized any Fellow of the Royal Society, but he criticized one member of a Catholic order and two philosophers who were of the most reputed non-Fellows of the Royal Society. When Boyle wrote against non-Fellow Thomas Hobbes, he stooped so low as to say that he could also criticize Hobbes’ political doctrines as pernicious but he prefers not to do so. One can explain this in terms of loyalty, both to King and Country and to the Commonwealth of Learning (this title, incidentally, is the invention of Boyle). It is unpleasant all the same.

35 Boyle could easily suppress the information that he had adhered to Brahe’s system; he did not.
36 See my “Who Discovered Boyle’s law?” reprinted in my Science and Its History: A Reassessment of the
Boyle’s requirement to report experiments without naming the theories that they refute became standard under the tyrannical reign of his follower and admirer Sir Isaac Newton. Newton’s influence was overwhelming—partly because (for two centuries) almost no one doubted that his great success was rooted in his empiricist philosophy and partly because he himself was a dominant character, touchy and unable to face public criticism.

The more stringent the requirement for experimental information was, the less the standard of novelty of that information became. Soon it came to pass that those who wanted to survey a field or to explain known phenomena had merely to report having repeated some old experiments—in variation; tradition then dropped that demand too. There was a great advantage to that requirement, in a world without scientific laboratories, and when universities were alien to experiment. Thus, at least three people who surveyed experimental fields learned to be top experts in them due to the requirement to report experiments. The one is Benjamin Franklin who had neither any training nor any connection with science but who somehow found in his hands scientific instruments and started repeating known experiments, as was the custom. The second is his friend Joseph Priestley who started his scientific career as a teacher and an educator: he felt the need for something like a textbook of science and found none. The third and perhaps last in history was Michael Faraday, a chemist in his early eighteen-thirties, who was asked to survey the literature on a very new experimental subject, electromagnetism. (He wrote the survey for the Journal of the Royal Institute, the institute that was his home and his workplace.) Beneficial as the requirement for experiments or at least their repetition was, it had its bad effects too. The Establishment disregarded speculative writings indiscriminately, including those of Ørsted prior to his discovery of electromagnetism. The earlier ones, of Boscovich, had to wait for the rise of field theory. Ørsted failed to secure a job in the University of Copenhagen because of his disrepute as a speculator; this led to a public scandal that ended by his receiving a stipend from the king of Denmark to build and maintain a laboratory. He later became an associate professor. Those were the days.

5.2

I do not know why I am telling you all these stories and in such a fashion. My aim is to make you lose the common disposition to take current arrangements for granted as God-given. My description is too brief to be accurate and too descriptive to bring a moral to you. To correct my story I should say that tradition allowed writing a paper not containing any experiments if it contained interesting mathematics. This raises the question, how new the mathematics had to be. Consider the story of John Herapath, an early Nineteenth-Century thinker who unfortunately was a Cartesian after Descartes went completely out of fashion and whose papers, even his mathematical ones, were repeatedly rejected. Although Maxwell recognized him as the father of modern statistical mechanics, historians of science scarcely mention him. He is gains mention chiefly as the founder of The Railway Magazine, a most important landmark in the history of journalism. I saw his books in the British Museum

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library; their pages were still uncut; I nearly cut them (the British Museum library
thoughtfully provided its readers with paper knives), but finally decided not to destroy such a
historical document.

I do not consider the books of Herapath valuable, but that is not the cause of their neglect.
His crime was that he partook in too many controversies. This was the general rule. Thus,
even Edward Jenner, whose work on smallpox vaccination was obviously important, had
some of his works rejected by the Royal Society as controversial. It is so embarrassing that
almost all historians of medicine simply attribute to him the discovery of vaccination—he
was vaccinated as a child, by the way—and pay him homage to dispense with the need to
examine his contribution and its controversial character.

We have advanced a long way since the days of Jenner, you will say. Did you know that
young Helmholtz’ 1847 classical paper on the conservation of force was rejected, that a little
later Newland’s table of chemical elements, his law of the octave, the predecessor to the
Mendeleev table of elements, was also rejected as controversial? We have greatly progressed
in the last century or so, you will say. Therefore, to refute you I would have to cite the case
of Winifred Ashby whose work belongs to the period immediately following World War I.
She used the recently discovered characteristics of blood grouping to determine the life span
of blood corpuscles and the effects of blood transfusion: she simply injected blood of the
type O in patients with blood of other types and kept blood counts. She refuted both the
accepted views on the effect of transfusion and the then accepted view of the average life
span of the blood-corpuscles. The latter was of an immense practical value since if blood
cells live only twenty days it was futile to institute blood banks, but not so if they live sixty to
one hundred days. (They live one hundred and ten days and more.) She was under repeated
attacks from the top brass of the medical profession, especially the top Harvard expert. They
asked her to resign her job but she managed to stay. Her tracing method that I have just
mentioned is known as the Ashby method, but many writers and historians of blood still
ignore her, perhaps because she was controversial, perhaps because she was often in error
(though she came nearer to the truth than her opponents), perhaps because she was an
intruder into the medical profession—which, to this day is still deemed unforgivable—and
surely also because she was a woman.

I bet you know little or nothing of Winifred Ashby; you are not likely to be ready to check
my story and you are not willing to be impressed with an isolated case that is not too new
either. But if I were to cite more contemporary cases—and you can see I am quite a collector
of grievances, perhaps because I have none of my own, perhaps because my view of
Academe on the whole is so favorable I fear I may become too smug (even to my own
taste)—then I shall have to cite a number of cases that are going on, and I shall contradict
arguments that a lot of editors, departmental chairs and their likes offer generously. In brief,
history will not do, as we must think of the present. Current standards, which are
improvements on yesterday’s standards, have proved their mettle to a surprising extent. You
may insist on them.

This discussion sounds reasonable, but only because it rests on a narrow base, thus assuming
what sounds as its conclusion. There were other societies, and they were very different.
Their intellectuals held other and very different standards, and the upholders of those
standards viewed them as very satisfactory too. Incomparable to any other technological
Achievements as those of our own civilization are, they had satisfactorily functioning achievements too, and yet they did not last. Do you know how well the late Roman Empire functioned? For me, the symbol for its efficiency is the Roman method of erecting marble pillars; on the principle of the cheap cigar: dirt in the middle, surrounded by a layer or two of bricks, and plated with thin marble slabs, often ornamented. That was good enough. The contributions of Herapath too were good enough: they challenged Maxwell to develop his versions of statistical mechanics and of thermodynamics and more.

5.3

Sheer commonsense may suffice to require drastic reforms of certain traditions. The Swedish Academy has unwittingly caused enough damage to the intellectual community already. It may be a matter of sophisticated philosophical discussion to consider the Swedish Academy’s refrain from awarding Einstein the Nobel Prize for his theory of relativity; one may view the Academy’s remark, when it awarded him the much coveted prize, to the effect that the prize had no relation at all to his theory of relativity, not so much intellectual cowardice as a legitimate and laudable expression of scientific caution. At times Bacon’s claim holds: when one gets excited over sweeping generalizations one may thereby have lost one’s head and thereby disqualified oneself as a detached scientific investigator. The demand for detachment is anyhow overrated. Can one use sheer commonsense, without delving into detailed, sophisticated philosophical deliberation on science and on its methods, in order to show that the attitude of the Swedish Academy to Einstein, just as the attitude of your professor in his classroom, is rooted in cowardice rather than in commendable scientific caution? I do think so.

Ah, you look most incredulous; and I do admire you for that. It is not possible, you say, to turn the tables on so many and so clever—much less with the aid of sheer commonsense. You are quite right to be incredulous. More often than not, people who come forth with claims such as mine—or with any intellectual claim, for that matter—prove disappointing, and often sooner rather than later. Yet, sometimes even the most incredible claims proved themselves quite viable. Galileo proved by sheer commonsense that the most commonsensical thinker of all times, “the master of those who know”, Aristotle himself, deviated from commonsense in his theory of gravity. What is more commonsense than to assume that ordinarily, freely falling bodies fall faster if they are heavier? Yet Galileo showed that this is inconsistent with commonsense. Take a ten-pound brick and a one-pound brick and tie them; the slower will impede the faster and the faster will drag the slower so that their combined speed will be some sort of average between their different independent speeds. Now glue them together and you have an eleven-pound body. Who can believe that tying or gluing the two bodies makes them fall at different speeds?

Ah, you will say, modern science begins with Galileo; no one among the people who run Academe today is an Aristotle. This is not to my taste: it is easy to say it long after the event. It took Galileo many years to give up his Aristotelianism and many more to discover the proof I have just mentioned. Moreover, the idea that heavier bodies fall faster does look convincing and its opposite does look puzzling. Envisage the following experiment of Boyle and ask yourself how commonsensical or intuitive it looks. He put a feather and a marble in a glass tube, emptied the tube of air and turned it upside down; the feather and the marble
fell practically together. This result follows from Galileo’s argument. Even Boyle could not explain well enough this experimental result, or the validity of Galileo’s argument. Newton did it. He said, the heavier body is both more attracted and yet it is more resistant to the attraction of gravity than the lighter body does; so that the outcome, the acceleration of the fall of the heavier, is the same as that of the lighter. This is barely an explanation: why does resistance to gravity exactly balance gravitational pull? To put it in jargon, why does the inertial mass (resistance to force) equal the gravitational mass (the force of gravity or weight)? The first answer to this question appeared centuries later, in Einstein’s theory of general relativity. We are unjust to Galileo when we say that he merely refuted a muddled thinker: he raised a puzzle solved centuries later.

The reason Newton rejected the wave theory of light is that waves diffract—go around obstacles, as sound waves do when they enter the door of a room and fill it—whereas light always travels in straight lines. That light-waves diffract is obvious nowadays: hold a thread near your eye and you will not see it since light-waves circumvent it; indeed this is how a veil functions, looking transparent to the one who wears it but opaque to the one who observes it. Try to direct a beam of light into a black box through a hole and you will see a light diffraction-pattern. Moreover, if light is not wave-like, then it cannot disperse: look at dust particles dancing in the beam of sunlight and see them shine no matter from what angle you look at them. Yet Newton held the view that dust reflects sunlight rather than disperses it, so that it should not shine equally in all directions. It is thus easy to show that common experience contradicts Newton’s optics—only because much of the research done after him, and partly because of his challenge, this has become obvious. It was not half as obvious centuries ago. Commonsense progresses too. Remember: his magnificent *Opticks* of 1704 was for more than a century the leading text in experimental physics.

Or, do you think the mercantilist economists were foolish when they advocated government intervention in the economy in the form of tariffs and their likes? U. S. Senate minority leader Everett Dirksen advocate the same view in a similar fashion well after World War II, while expressing allegiance to the free market theory; yet Adam Smith argued for the free market by sheer commonsense that tariffs impede the working of the free market and thus impoverish the nation. If you are not an economist, try to show by commonsense that Smith was mistaken too. Do not most people think that if a country has more gold it is richer? Hume has shown by sheer commonsense that if everyone will have tomorrow twice as much gold (or government-printed money, for that matter) nothing will change except prices which will double. (This way we ignore goldsmiths, of course; their part in the economy is negligible.) Hume’s argument is strikingly commonsense; it is merely the application of the law of supply and demand. So is its criticism, which took a very long time to appear in the economic literature. If you are familiar with the literature even superficially, you may still come up with it—easily. If not, you may still be able to, but only if you are brilliant.

Or take Mendelian genetics. It appeared in the nineteenth century and replaced the ancient theory that Plato had endorsed and that horse-breeder still employ, namely that characteristics of offspring are mixtures of their parents’ characteristics. So how come two dark-eyed parents may have, though seldom, a child with light-colored eyes? Prejudiced they all were, say most historians of science. Mendel’s own ideas escaped notice until Thomas Hunt Morgan revived them. How incredible! Mendel’s own ideas were refuted by the existence of recessive characteristics detrimental to their bearers (like hemophilia); Morgan explained their persistence by modifying Mendelism—the so-called mutation theory. Even
then, Mendelism scarcely is sufficiently innovative to be successfully applicable to cases of breeding racehorses or cows with high yield of milk. But once we look at the world in a Mendelian fashion, Mendelism becomes obvious and its difficulties obscure and all too easily we allow ourselves to call prejudiced the best biologists who lived before Mendel and who agreed with Plato!

Moreover, when an argument wins, many of the obstacles on its way may disappear, and then one is even more justly, yet still in error, surprised that the idea was not always obvious. When you take a fresh case, you can see it clearly. When bodies recede from each other, the light they receive from each other appears redder than it is; this, the red shift, understood as a Doppler effect, enables calculations of the speed with which heavenly bodies recede from us. The application of this technique to distant stars previously identified as radio-stars or quasars, made them look almost miraculous; the result was so quaint, it hit the popular press; its discoverer, Maarten Schmidt, had a write-up in an American national weekly. One would not believe this was such an excitement unless one knew why the scientific world took it for granted that such enormous red shifts were impossible (I cannot go into details here); once one knew these ideas, one could well appreciate why for once practically everybody took it for granted that it was worthless to explain the strange light as normal light with enormous red shifts. Once the explanation was worked out, once innumerable details easily seen (after much hard labor was invested) to follow from the explanation, it becomes harder and harder to dismiss it as crazy even though it poses serious problems and difficulties to be handled later on as best we know how.

The invention of a wild idea is incredibly hard: we are so blinkered; it is surprising we can think at all. It is even much harder to carry a wild idea through to amass all the parts of our background knowledge that conflict with it and offer a fresh look on them or to press hard against one small part of our background knowledge until it gives way and we may then hope to see the rest tumble down effortlessly. When a great thinker has done this Herculean job, we can come and see in retrospect how easily commonsensical it looks.

This point I have already made in the first section of this part. Usually, facts do not suggest explanations. When they do, we may just as well call the process inductive as by any other name. The suggestion is confusing though, as the process takes place within an intellectual framework, and so it is of progress within a narrowly blinkered field of vision; inductivism forbids this. It is when a fact defies any such explanation that the task of explaining it becomes Herculean. We then view with admiration those who have performed it—by starting new frameworks. Except that novelty “comes in degrees” all innovations are revolutionaries but there total revolutions, like the one that Descartes has attempted, are impossible.

5.4

My own Hercules, I keep telling you, is the philosopher Karl Popper, whose ideas are so wild that philosophers still refuse to take his statements as literal expressions of his views; they
suggest that he talks in paradoxes in order to impress, to sound more original than he is.\(^{38}\) Popper’s idea is that the routine in science is the presentation of bold conjectures to explain given phenomena and the attempts at empirical refutation of these conjectures. This does not account for all the facts in the history of science; all too often scientists find experience impressive in the authoritarian way. Einstein’s theory of gravity, his general relativity, was not half as much appreciated before as after it was allegedly found to be correct; his special relativity was allegedly absolutely correct to everybody’s satisfaction, but before that happened the Swedish Academy took pain to stress its suspension of judgment concerning its value while acknowledging the value of his theory of the photoelectric effect by granting him a Nobel Prize on the ground that its enormous importance had been proven experimentally when the theory was proven to be correct. There is, I say, much more to Schlick’s criticism of Popper than meets the eye: he alluded to the contrast between Popper’s view of science as criticism and the view received in Vienna of his youth as a matter of course that science is success. Suppose someone who draws an obviously abstract painting says, I am drawing a portrait. This is barely imaginable. Yet it happened from the very inception of abstract painting. Popper said of researchers something wilder: they say they try to prove when they try to disprove! Artists who paint abstract work and call them portraits are aware of the oddity of their act. The Swedish academy is not.

To wind up my reply to your first objection that I think is a good objection. Utterly unobjectionable ideas are scarcely new. (This is not to deny them importance: when we need them, we praise them as eminently commonsense.) An objectionable idea, if dismissed on the strength of existing objections to it without further ado, will not make headway. Therefore, for a new idea to be capable of occasionally overcoming old ideas, we must examine afresh the objections to it and reassess them; if they withstand further examination, the new idea has to go. Data that corroborate Newton refute Einstein; to consider this as a final verdict is to endorse stagnation; to allow for progress we ignore all older corroborations and devise a crucial observation between the two; if Newton wins, we allow Einstein to try again, and if Einstein wins, the case is closed (unless someone reopens it, of course). It seems that here is a bias in favor of the new idea; it is not: most new ideas are stillborn (Hume). But if we apply statistics and say, since ninety-nine percent of newborns are stillborn let us neglect all newborns on our hands, then one hundred percent of newborns will be dead and progress will be utterly blocked. The bias then is in consideration of the fact that all progress is delicate and easy to kill. This is why it took so long for progress to be established, and this is why, when it is encouraged, it may grow fast. This is problematic: it dies when not expected and it dies when expected with assuredness. (This is why Popper argued against inductive logic all his life: philosophers who advocate it in support of progress achieve the opposite!)

This is but another way of saying that those who cling to old ideas reject their new replacements; they are no fools, yet no great lights either: they have good reasons for clinging, and they reasonably hold their reasons for it, yet the new ideas challenge the old ideas, and so it becomes less and less reasonable to hold the old ideas without re-examining and re-evaluating them in the light of the new ones. Pay attention: the new challenges the old.

Part II: Etiology

5.5

We tell our young how terrible it was of our ancestors to oppose novelties like those of Schubert, Semmelweis, or Cezanne. They forget that unlike Schubert and unlike Cezanne, Semmelweis no less than declared that his colleagues the obstetricians were the carriers of childbirth fever—quite a fatal disease—who transferred and thus spread the infection. They forget that these physicians were the best and cleverest in the profession, they forget that practically all those who blame all their colleagues are almost invariably hopeless cranks. We have to admit that this is true but already insist that they were rogues who put their own egos ahead of the interests of their patients. For, all that they had to do to render their intolerable conduct towards him reasonable was to try his proposal and wash their hands with soap as they moved from the mortuary to the maternity ward and check whether this reduces the death-rate in the maternity ward or not. They did not care; the ward in question was not for ordinary Viennese women but for ones too poor to pay their hospital bills.

It is amazing how much the ego of a leader may serve as an obstacle for progress. Physicist Freeman Dyson reports on his war experience, on his failure to reduce the ill effects of fire in the cockpit of warplanes:

All our advice to the commander in chief [went] through the chief of our section, who was a career civil servant. His guiding principle was to tell the commander in chief things that the commander in chief liked to hear... To push the idea of ripping out gun turrets, against the official mythology of the gallant gunner defending his crew mates...was not the kind of suggestion the commander in chief liked to hear.

We all want to absorb the latest progress in the arts and in the sciences as soon as they appear. We are not able to do so, but we may try. We may try also to avoid messing things up by over-eagerness: we may pretend to appreciate every new canvas of pop art; we may listen to every cacophonous concert; we may listen to every crank (as Paul Feyerabend has declared we should). This will only muddle us. No, to absorb new ideas is to change one’s field of vision under their impact: there is a ceiling to the rate of growth of the arts and of the sciences.

I see that I exasperate you. Let me lend you my pen. Dear author, you say, I think honestly that you are crazy. No insult meant, of course, nothing personal; but you really do go much too far. You are writing a section on conservative cowardice and what I find you talking about is progressive cowardice. I thought you were going to tell me about resistance to novelties, that is something rather understandable and not entirely unknown (to say the least); instead of talking about the fears leading to resistance to novelties; moreover, you talk of fear of resisting novelties, and of the resultant cluttering of the mind with all sorts of novelties, good or bad, the muddle ensuing. Do not interrupt me. You are going to tell me that no insult is taken, and that you are doing it for the sake of contrast. I have never met you, but having read you thus far, I suppose I know you well enough to expect you to take kindly to this outburst of mine and condescendingly start a new digression on contrasts. So just shut-up for one minute more—yes, Mr. Author, no insult meant, only I wish to show you how crazy and impossible you really are. Who do you think you are, anyway. You are telling some of your own colleagues they are too slow; you are telling others they are too fast; you are comparing your allegedly humble self with one Semmelweis who also ordered his colleagues about, only, it has turned out, he was right. Very clever of you. That is too
much, quite regardless of my regrettable ignorance of the rights and wrongs of the case of Semmelweis, although his explanation of childbirth-fever epidemics in hospital wards was essentially correct, as is well known. One moment more, Mr. Author; after all, I cannot possibly be as verbose as you are. Do you remember that you have promised to stick to common sense? What common sense is it to say that some thinkers are slow to catch up because they fear jumping on the wrong bandwagons, others too fast because they fear missing them? Is it not more reasonable and commonsensical to assume simply that fast thinking is fortunate?

Now, Mr. Reader, I hope you permit me to parry: after all, it is my book, and if you do not like it, do write one of your own. Do! It will make you feel good! Now, I am grateful for your outburst because I started feeling myself that I am becoming condescending, and there is nothing better than a brisk exercise to stress the equality of us all. I draw encouragement from the posthumous success of the great and brave Ignaz Semmelweis; since his battle was hard to win, both because he affronted doctors and because it is hard to rid hospitals of staphylococci and streptococci even in these days of high sanitation. All I hope for is that some people will be half as interested in the possibility that my proposals are beneficial as others were regarding those of Semmelweis, even though the outcome of my proposals will not be nearly as stupendous as his, of course. I do not risk my life by my proposal as he did. Under such conditions, I am willing to put up a fight.

Senseless cowardice and its ill effects are the topics of my present section; never mind how many people exactly suffer from them; you may immunize yourself against it and I hope I can help you in this task; cowardice, senseless or sensible, may be conservative and it may be progressive. Professors of medicine transmit to their students the most up-to-date material knowing that such material may become outdated when these students reach maturity; this is why journals for the specialist practitioners exist. They rest on the assumption that doctors differ from medical students only in their familiarity with the terminology. The fear of remaining behind, thus, fills the professors’ schedules with detailed results that leave no room for intellectual education that condemn doctors to lag behind or remaining apprentices forever. Lecturers in medicine know that they can teach a bit less up-to-date material to be able to teach a bit more theory and research-techniques. As a result, doctors will be able to read about later developments not in instruction sheets but in progress reports. Few try this out, since most of the literature (on research technique—mostly philosophical) is so regrettably too poor.

It is indeed here that I think I can help you with the use of the pure milk of commonsense (following Popper, of course): nothing is easier for a Western student to understand than that given theories come to solve problems but are found not sufficiently effective. This finding is criticism. It can be logical, empirical, or any other. Granting criticism central stage may hurt some egos—ignore these—and it renders learning much easier than stuffing student’s minds with significant data unexplained. Students who absorb the system in the critical mood can start reading progress reports and have much less dependence on instruction sheets. I hope you will become a scholar of this ilk. If you find my willingness to help you in this respect condescending, for which I am truly sorry, just ignore me. Even so, you need not blow your top—I am not forcing you to read all my diatribes. Of course, you do; otherwise, you could not possibly get angry with me. Tell me truthfully, do you get angry with every stupid, verbose, or eccentric author? Is anger in intellectual debates not a
maladjustment to modes of argument?

It is not that my knowledge and dexterity are perfect, let me admit; it is that I had some training in both playing the game and training others to play it, and I hope that I can be of service to you in this very respect even though we have never had an occasion to meet and are not likely to. Nevertheless, you have little reason to listen to me in the first place, especially since I am prone to offering repeatedly some remarks that will sound to you somewhat outlandish. Here, you see, I, too, need some social approval to gain access to you! Lacking the means for approaching you, what I count on instead is your desperation or your being bewildered and in painful need of some help—as I have indicated in the preface to this work. This, I think, explains your anger; you wish to listen to me and profitably so—otherwise you would have stopped reading these pages long ago—but you feel that I make outrageous demands; you fear that I will lead you astray; you fear that your loyalty and dedication are under fire. You are right—at least on the last point. On one point you need not have any fear, however: your reaction is normal: there is nothing unusual in it. I make allowance for it. Do not worry about this matter: you have already too much to worry about.

Academic fear is nothing new—I have heard colleagues all over the world allude to it as a phenomenon that is as inevitable as the sense of insecurity generally is. People who hold prominent positions that shield them from the vulnerability to attacks from less-prominent colleagues may still feel haunted by fears of such attacks—from a baseless yet strong sense of insecurity. The literature is full of stories of people in high military, administrative, or business positions being devoured by insecurity and taking it out most unjustly on younger and weaker colleagues. When the fear of that kind manifests itself this way in Academe, it may (but need not) have one specific manifestation that is of some interest for our present discussion of your future. For, one of the manifestations of such insecurity is the hatred that academics show regularly toward critics. It is indeed the fear of criticism that I discuss. Ignore it! Colleagues who take it for granted that some established people may feel threatened by younger colleagues who mildly criticize them are right in considering such a reaction-pattern unjust but rooted in a sense of insecurity that can hardly be eradicated; they are mistaken, however, in considering all criticism threatening. What they usually view as the mark of unreasonable conduct is that the established person fears mild criticisms—criticisms offered by friend, or by not so powerful critics, such as younger colleagues. Most academics I know concur in viewing criticism as damaging; fighting the unreasonableness of this view may bring much improvement. For, once we agree that criticism is damaging and merely condemn the boss who insecurely fears mild criticism from young upstarts, that boss will speak of far-reaching consequences and demand loyalty the institution in question, to the university, to the profession, to the uniform. Fear of criticism is not necessarily the outcome of specific traumatic experience, during childhood or later; it usually is but a part of a social and educational pattern. It is the Chinese-mother-in-law syndrome again; in traditional Chinese society, a woman suffers all possible indignities from her mother-in-law, only to take revenge later on in her life on her daughter-in-law. Of course, if the sole cause of the persistence of this inhumane practice were psychological, i.e. the desire for revenge, as nineteenth century anthropologists explained this phenomenon, and then some kind-hearted mothers-in-law could stop the practice. Even some other factors that may be somewhat accidental could do that. The current accepted explanation of the phenomenon and of its persistence is in terms of loyalty: mother-in-law has to defend the clan's interest against the whims of the new intruder; it was her task to be harsh to her. If the two women become
friends, as is often the case, they would wisely conceal the fact.

When a child, an adolescent, even a young adult, offers some clever criticism of someone seniors, often such conduct elicits signs of delight from the surrounding company, the target of its criticism included. Of course, the criticism is answerable, even easily, but was it not brilliant, at least charming? Criticism may be unexpectedly brilliant, yet still not threatening to the criticized. Under such conditions, the criticized will make song and dance about the achievement of the critic. Even that has no assurance. Morris Raphael Cohen, one of the best philosophers of the early twentieth-century, had a brilliant student, Sidney Hook, later a well-known philosopher too. In his autobiography, Hook narrates that once his admired teacher gave him a book to review. The review he wrote was most laudatory, but with one minor criticism. He was apprehensive, he narrates, and so he consulted his teacher’s colleague and good friend. The colleague gave the needed reassurance and the review went to the printer. It infuriated Cohen. In the uneasy confrontation that followed, Hook referred to that good friend. He said, even so-and-so has approved of my review. I always knew he is a traitor, was the swift reply. I wish I could dismiss this anecdote as untypical.

The academic profession is in many respects much preferable to other professions in the community at large; it is less inhumane, less illiberal, less bigoted, less ignorant. It is just now administratively in poor shape, as I have tried to indicate before; but this is a transitory defect: until recently it could manage itself surprisingly well without much administrative training or concern, and so it was caught momentarily unaware in the dazzling expansion of its institutions imposed on it by the community at large.

Consider again the officer and gentleman who would have challenged to a duel any critic who came upon his way. Did he think he was the peak of perfection? No; even an officer and a gentleman is seldom that stupid. It is stupid enough to pretend perfection, because such appearances fool no one and because the cost of keeping up appearances is very high: the damage incurred is all too real. The answer to this is, usually, noblesse oblige: the gentleman is loyal and dedicated to his uniform, class, mistress. Move from the officer and gentleman to your physician. Ask yourself, does your physician admit criticism? Does your physician admit to you not having all the best available answers to your questions? The claim that physicians play God is still not easy to deny; they do not fool themselves; their schools of medicine it is that trains them to play God. Oh, there is an excuse for that: physicians are under the constant threat of a suit for malpractice. To repeat: every criticism is answerable, but the answers are often too poor to take seriously. At times they are taken dead seriously anyhow.

Envisage an officer and gentleman planning moves in headquarters on the eve of a crucial battle; imagine, further, that one of his tentatively planned moves is rather silly; imagine, furthermore, that one young and inexperienced but rather bright member of his staff spontaneously puts him on his guard. Most insulting. Under any normal circumstances, he would not easily forgive the intrusion: he solemnly addresses the young offender and says: if, God willing, we both survive tomorrow’s battle, I shall have to ask you to choose your seconds, young man! Not under the circumstances under consideration. Under these circumstances, our officer and gentleman is much too concerned with the truth of the matter to behave like a pompous ass. Granted, he is hardly moved by the love of truth for its own sake; even concern for the lives of his men need not be a strong point with him; his desire to
Part II: Etiology

win the morrow’s battle may be rooted in no more than a human desire to win a medal, even in stupid motives, such as what he calls his honor. At that moment his desire makes him pay attention to the truth, and this suffices for him to be reasonable despite the traditional demand to act foolishly: he knows that the criticism helps him win the battle and he is grateful (Bernard Shaw, Too True To Be Good, 1932). This you may remember, is Kepler’s point: the desire to find the truth already fosters intellectual courage. The loyalty that prevents it, then, is intellectual cowardice. The desirability of criticism (and hence the divided loyalty) is dimly recognized in many popular attitudes which, at the same time, illustrate the folly of the general hostility to criticism. Folk-sayings (Proverbs 27:10), folk-tales and higher forms of literature (King Lear) illustrate the obvious: it is sometimes the duty of an honest friend to offer severe criticism; one should take it seriously. Other common sayings recommend the suppression of criticism of a friend in the name of loyalty, as well as the suppression of criticism of young artists and scientists in the name of encouragement and good will.

What makes a person a coward may be an extremely low degree of ability to control or overcome fear, an extremely high ability to experience a strong sense of fear, a sense of insecurity, or sensing fear with no special justification for it, such as when an adult person fears the dark. The fear of the dark is here incidental to the fear itself. This is the discovery of Freud: he discovered Angst fear. Because it is widely assumed that fears must have objects, psychologists call fear without objects by its German synonym: angst. Because those who suffer from angst hold that fear must have an object, they project (this is another technical term of Freud) it to almost any object around. Hence, says Freud, it is useless to convince those who suffer angst that what they fear is harmless, since admitting this they will not be rid of their angst but merely project it into some other object. If we are to believe Kafka (Amerika, 1927) or Truman Capote (Breakfast at Tiffany’s, 1958), even without knowledge of Freud, some people know that they have fears with no specific object or with some mysterious object (still more in tune with Freud, who held that every angst is the residue of the same traumatic but reasonable fear) and thus be free of the need to project it. Is angst the same as the sense of insecurity, that is to say the ability to be frightened? Do all who fear the dark simply project angst? I think, as usual, Freud saw something very interesting and failed to notice that the phenomenon is not half as universal.

I hope so. For, I am discussing here certain shadows that most academics fear unreasonably, with the hope that this might be useful to those in whom they inculcate this fear. I suppose that the fear develops not by traumatic experiences but by a simple mechanism that I wish to expose in the hope to bring it soon to full disuse. I also hope that my discussion will explain why ideological academic bores fear intellectual excitement. After all, my chief purpose is to argue that intellectual success is the ability to excite audiences intellectually, rather than to be right or scientific or politically correct.

Here we differentiate the institutional from the psychological. Fear of criticism is fear of rejection; it is unreasonable, but often it is a Freudian projection. As it is psychological, it need not be clever and it need not be commonsense. A major instrument of its maintenance is the alleged standard cure for it: the effort to replace insecurity with self-assuredness. All one needs for self-assuredness is poor imagination. It is all too easy to imagine all sorts of obstacles to any plans anyone has. Yet the idea that fear and doubt stultify is so common that even the assertion of the Bible to the contrary, Proverbs, 28:14, does not help. The King
James translation of that text rightly says, “Happy is the man that feareth always.” The standard translation of the text however is inaccurate: “Blessed is the one who fears the Lord always”, or, “Blessed are those who fear to do wrong”. We should always fear for what we value, of course, especially the well-being of our nearest and dearest. The important is to prevent the fear from stultifying. Otherwise, we will end up in total paralysis. Just look at Academe.

6. Cowardice Masked as Humility

Having no wish to speak against either cowardice or humility, my aim is to immunize you against them: they comprise sheer ballast, and you don’t need no ballast.

The best way to make you permit the Establishment to dump ballast on you is the story of their success and of their dependence on them. Now I do not know them and I cannot comment on the marvelous things that they do in the cause of the advancement of learning. Much less can I comment on their claim that unless you are a humble coward you stand in their way. Still, some information is available about their predecessors, about the scientific tradition since the Copernican or the scientific revolution (the middle of the sixteenth century or the seventeenth). Their predecessors always defended scientific unanimity, and thereby they always impeded the growth of science. It is rebels like you—this is my fervent hope—that might, just might, save the day. Were members of the Establishment today better than their predecessors they wound be encouraging you. So there.

6.1

Medieval scholarship centered on reconciliation. The paradigm was the great Al-Farabi (died 950). His influential book was, *Harmonization of Plato and Aristotle*. In this vain in the thirteenth century St. Thomas Aquinas harmonized Archimedes with Aristotle. Copernicus altered this. In the preface to his great book he said, since the ancients disagreed, they are no authorities. What he and his disciples found in the stars was the autonomy of the individual.

Francesco Buonamici was professor in Pisa of the next generation. Astronomically he was no Copernican: he was a firm advocate of Aristotle’s views. Methodologically he was: he expressed disagreements openly, even with St. Thomas. The historically most important idea of his was his disagreement with St. Thomas about Archimedes and Aristotle: he said they were in disagreement. Galileo expressed gratitude to him for this very point. It made Galileo a Copernican. He considered it sufficiently important to write to Kepler about it as a new argument in favor of Copernican astronomy.

Galileo did not dare publish his new arguments in support of the Copernican hypothesis: although he was not too brave, one cannot call him a coward, since the opponent he feared was sufficiently vicious to burn his peer Giordano Bruno at the stake. Moreover, when Galileo had enough evidence and he did advocate the Copernican hypothesis, his evidence was of no avail and he had to gather courage to face the music. This he did. He had the best trump cards, but the society to which he belonged and with which he identified (he was an
earnest and sincere Roman Catholic) did not have institutions to safeguard fair play. The Church had to humble him because he won so stupendously that it looked as if he had mocked at the Pope. The Pope had no choice: he had to insist that Galileo should suffer public humiliation. This was tragic since the two were friends; tradition regretfully ignores this and instead it presents the Galileo affair as an expression of an inevitable conflict between science and faith declaring him a martyr of science. He was not; Bruno was.

6.2

In modern scientific society, the fairytale goes, the play is always fair, provided you wait patiently for your turn, and—like magic—your turn always comes at the right time. You cannot lose, only win. Hence, if you lose you must have played foul. It is very similar to having had malaria in the British armed forces stationed in the tropics: until late, the malaria of an enlisted man was sufficient evidence that he had failed to take his quinine ration; the court martial found him guilty on the strength of that evidence. When he protested that he had taken his quinine faithfully, his commanders dismissed his protestations as contrary to scientific evidence. The medical profession, not the military, bowed humbly to the facts, admitted error, and conceded that quinine is not a fully satisfactory preventive of malaria.

Thus, all you need is to wait for sufficient evidence. That this holds in a modern scientific society is hardly credible. Its defenders explain cogently: it may take decades before you get your desert; you may be dead by then, and this is regrettable, but. And so, you may be right but wait; you receive the best training and it is good enough, and if you work hard, you will succeed. I may be dead by then; you may be dead by then; but the innumerable minute contributions of which it consists—including mine, and hopefully yours; and posterity will know and appreciate!39

You can read this in many a preface. Consider authors who wait with good ideas for three decades or so until they had enough evidence in their favor. You have to admire the strength of character of such authors and realize that instead of rushing to the print in order to make names for themselves and gain a promotion and establish priority and all that jazz they were humbly working by the book—they were piously following the rules of scientific method—of induction. Accounts of minute and dreary facts, the results of simple, insignificant experiments and observations, uncluttered with their reporters’ personal opinions, are admired for self-discipline and humility—even by such imaginative people as the great poet Johann Wolfgang von Goethe. I do not know if it was his tremendous urge to be a scientist that made him follow the myth that many researchers spouted but hardly any followed; in any case, his book on colors is embarrassing.

6.3

Hans Christian Ørsted, I have told you, published his speculations on electromagnetism and even got into some small trouble. All this changed overnight when he made his discovery in 1820: he sprang into the greatest fame. A decade later, in 1831, in the Brighton meeting of

the newly founded British Association for the Advancement of Science, he was present as a
guest of honor. Sir John Herschel, the famous astronomer and author of the Preliminary
Discourse to the Study of Natural Philosophy, 1830, delivered a eulogy: look at Ørsted, he said, he
made the great discovery because he did not jump to conclusions and humbly and patiently
sought for the facts rather than speculate. Now in my mind’s eye I see Ørsted blushing and
wishing to bury his head in the ground for shame for the great astronomer who was
demeaning himself.

Herschel did not have to know the facts. He had a clear idea as to how facts must have
happened. He learned it from Sir Francis Bacon. (Let them read Sir Francis Bacon, he
advised young students; they will find him tough meat, but he will sharpen their teeth!) So let
us take one further step back and look at the ideas of Sir Francis Bacon; I should have
humbly started right in the beginning—with the Greeks and Romans if not with the
Babylonians and the Egyptians, but.

6.4

Francis Bacon envisaged the new learning and dreamt of industrial revolutions and of
technocracies, of secular universities and of meritocracies; unlike his contemporary
Shakespeare, he had one vision in his life, which hit him in his adolescence when he was
preparing a piece for a party in his London Law School, a vision that nagged him and grew
on him all his life till it reached an unbearable magnitude. Bacon was an eighteenth century
idol: as Paul Hazard says (European Thought in the 18th Century, 1946), public opinion then
considered him the only thinker comparable to Newton; he was “reason incarnate”. In the
early nineteenth century, he became a possible target for criticism, and soon it became a
favorite nineteenth century sport to kick him. Since the title of my next section but one is “a
favorite sport: kicking an opponent while he is lying down” I shall postpone this point. In
the nineteenth-century, Bacon had two important defenders: Robert Leslie Ellis and his
collaborator James Spedding. Ellis was a Cambridge don, an editor of a mathematical journal
and a pioneer in studies of bees. In his spare time, he decided to study the reason for
Bacon’s fame since he was, in addition, a student of medieval and Renaissance literature of
enormous erudition, as well as a Greek and Latin scholar.

The longer Ellis studied Bacon’s works, the more profoundly it puzzled him: what made
Bacon so very famous? First Ellis discovered the great extent of Bacon’s plagiarisms: almost
all of Bacon’s scientific writings he dismissed as plagiarized. He plagiarized some botanical
details from Livy not knowing that these may be peculiar to Italy but disagree with the more
northern climate of his own country. Bacon’s scholasticism is very much contrary to what
Ellis expected to find. He found embarrassing Bacon’s pedantic style and his bombast
bother with classifications and distinctions that cut no ice. Ellis accepted as a matter of
course Bacon’s doctrine of prejudice—his theory that speculations and hypotheses make
people who hold them blind to contrary facts—but he intensely disliked Bacon’s
preoccupation with the classification of prejudices to four or to five categories. This, too, is
unimportant, though the style of Bacon’s Essays has contributed a lot—for better and for
worse—to the development of English prose: his Essays appeared in innumerable editions
and were compulsory reading in many classrooms and even in some colleges. This is partly
because Bacon was the first English essayist, and with Montaigne one of the first European
essayists. His essays are even crisp and modern, and they represent, together with his *The New Atlantis* and a poem or two, the best of Bacon’s style. He himself wrote to a friend that posterity would remember him for his essays. Justus von Liebig, one of his chief and most powerful nineteenth-century debunkers, concurs with this judgment. Yet Liebig was mistaken. Even Bacon’s fame as an essayist is largely derivative to his fame as a methodologist, as “reason incarnated”.

Ellis’s greatest puzzle—it is serious indeed—concerns methodology proper. It is a strange fact, that Ellis was the first to notice: Bacon says practically nothing about the proper method of science, to wit the inductive method. In his *The New Atlantis*, the president of Solomon’s House is at the point of telling Bacon what that method is, when the book ends abruptly. Obviously, adds Ellis rather bitterly, because Bacon could not say much on that. Similarly for Bacon’s unfinished *Valerius Terminus*. The case of his monumental *Novum Organum* is even more bewildering. Book I of that work is propaganda and preparatory. In Book II Bacon pulls up his sleeves and starts working in earnest, but instead of giving us the general idea he elaborates an example. When, in that example, he finally comes to the point of developing a theory out of the accumulated facts (such as that moonlight has a cooling effect and other medieval superstitions among them) he chickens out and makes a hypothesis instead—thereby, notes Ellis, betraying one of his own central and most forcefully stressed rules, namely that one should never speculate or hypothesize, lest one become prejudiced and blinded to the truth by one’s own ideas.

Ellis took for granted that scientific method is the method of generalizing from the facts—such as Kepler’s generalization from observed positions of Mars to all positions of Mars, namely to the orbit of Mars, and from the orbit of Mars to the orbits of all planets (namely that they are all elliptic)—and he knew enough of Bacon’s work to be unable to ignore the fact that Bacon had condemned this very method off-hand—as childish and dangerous (since it does not leads to certitude).

Bacon’s seemingly pedantic and meticulous scholarship particularly appalled Ellis when he contrasted it with Bacon’s casualness and lack of all self-criticism. Ellis was at a loss to resolve these inconsistencies. What troubled him most was his failure to make sense of Bacon’s view on the effort that the method of induction requires: it was impossible for him to decide whether Bacon’s claim that the inductive method is extremely easy or Bacon’s claim that it is extremely difficult, is more truthfully representative of Bacon’s system.

Ellis left this point unresolved; which he had to do often in view of the frequency with which Bacon exhibited so thoroughly uncritical an attitude. Possibly Bacon had borrowed from Petrus Ramus even his initial claim that as Aristotle is unreliable, a new methodology is necessary. This was very much in the spirit of the age. As Harry Wolfson has later illustrated, it was a favorable sport, shared even by Kepler, to assert views that Aristotle had criticized on no better ground that he had criticized them. Characteristically, Bacon seldom refers to Petrus Ramus, and then always critically and incomprehensibly.

A special insight into Bacon’s casualness is afforded by the fact that he published one book—*The Advancement of Learning*—twice, in English and then in Latin. Ellis compared the two texts carefully. In the English text, for example, Bacon argues for his doctrine that discoveries are accidental rather than the confirmation of clever hypotheses. For example,
you would expect Prometheus to have struck two pieces of flint by accident, rather than by design. For, the relative abundance of flint in Greece explains why the Greek Prometheus struck flints, whereas the West Indian Prometheus rubbed sticks together. In the Latin edition the West Indian Prometheus is silently dropped—evidently since he is hardly to be expected to have rubbed two sticks so specifically and for so long by accident rather than by design (i.e., according to a clever hypothesis). Moreover, we know that the Greek Prometheus too has rubbed sticks and not pieces of flint: throughout Antiquity, Greek sacred fires were lit the hard way—by rubbing sticks, not by striking flint.

Ellis tried hard to say a good word for Bacon. He was attracted to Bacon by forces he could not describe. He said, he could not explain to his satisfaction why Bacon had claimed utter originality so persistently, but he held to the last that there was some kernel of truth in this claim. All this is not too significant; no matter how common or uncommon the claim for originality was in the Renaissance or how insistently Bacon did or did not make it, it was his hold on Ellis that made the latter look for an original contribution in the former’s works. He found it in Bacon’s myth of the birth of Cupid, the description of the intuitionist theory of the birth of an idea that compares enlightenment with the break of dawn (the birth of Cupid) into the darkest part of the night. In 1933 C. W. Lemmi has shown in his Classical Deities in Bacon that Bacon had lifted that chapter from Natale Comes, an obscure alchemist-Kabbalist.

Bacon violated the canons of Baconian methodology. He was a visionary of science who saw in vision the greatest danger to science! I am most fit for science, said Bacon, because I am of a patient disposition and a nimble mind; and I am particularly good at humility. Were he not busy with affairs of state, he said, he could discover all of Nature’s secret in a few years, perhaps with the aid of a few research assistants, since the labors of research require so much patient collection of endless minute observations of plain facts.

James Spedding was the collaborator of Ellis and the editor of his posthumous work. (Ellis died age 42; on his deathbed he granted Spedding a free hand.) He considered Bacon’s writings serious and sincere. So were all of Bacon’s predecessors and contemporaries who all shared the belief in the philosophers’ stone. Were they all charlatans?

6.5

If medieval and Renaissance hermetic thinkers were not charlatans, how did they fool themselves? If they had the secret of redemption, why did they fail to use it? What did they tell themselves? Once you have the answer to this question, I think you will be surprised to see how medieval we all still are. The self-deception of the obsessive gambler (Madame Pique), money-grabber (You Cannot Take It with You), power-thirsty (All the King’s Men), academic-titles collector (Wild Strawberries), they are all akin, and they were all exposed systematically and repeatedly with no progress. The model that fits them all is that of the frustrated prospector: if I would only achieve a little, it would offer me fame and fortune and more chances and thus real happiness. The failure of the frustrated prospector imposes the choice between two hypotheses about what the achievement of success requires. One is the hypothesis that what is necessary is still more of the same, and the hypothesis that it is something different. Invariably, the prospector prefers the former option. They knew that
the chances of success were very small, but they went for the jackpot. Obsessive gambler Fyodor Dostoevsky made it a philosophy of life: he said that those who aim at the possible achieve it and more, but they scarcely count. The insatiable reach for the stars from the very start (The Idiot, 1869). Thus, they know that their greed is but a step in a never-ending chain. Dostoevsky forgot altogether the ambitious adventurer who tries the impossible and gets it or perishes or both; with all his psychological insight he could never envisage a Martin Eden or a Great Gatsby; not even a Captain Ahab—not to mention real-life Spinoza. The reason is that he viewed all ambition as ambivalence: no ambitious person could stand the sight of his ambition fulfilled, Dostoevsky (and Freud) insisted, in disregard for a few familiar facts.

Ambivalence is neurotic, Freud has observed: it rests on defense mechanisms, his daughter added. He postulated one cardinal, if not one and only one, defense mechanism: it hurts to think about your neurosis so you drown your doubts in work, in trying ever so hard to achieve this or that, the unattainable object of your ambivalence—and so the circle closes. Anna Freud postulated more defense mechanisms, and indeed invented the very term. Psychologists still overlook the purely intellectual defense mechanism that culture imposes; Popper called it reinforced dogmatism. Dogmatism may reinforce itself by showing that the very doubt concerning it proves it right. For example, doubts about religion are the works of the devil: they thus call for repentance. This example suffices in principle, but it is rather crude. Better examples are the Marxist explanation of disagreement with them as due to class-prejudice and Freud’s explanation of resistance to his views as due to repression. Here is one more.

The mystic redeemer who possesses the formula for the salvation of the world has to qualify by personal purification. Ritual baths and an impeccable way of life comprise only the first step in that direction. Concentration on aim in hand is equally important: one has to feel personally all the agony of the surrounding world to stay fast on the sacred task. But then, seeing the greatness of the task brings about a different risk: the risk of falling a victim to pride, to hubris. Thus, the nearer at hand success is the more remote it also becomes. The idea that pride is the greatest obstacle Bacon found in the work of Natale Comes and copied when writing his book on ancient wisdom. For Bacon, speculations were the signs of pride, of lust for power—for intellectual authority: it was the original sin and the cause of the Fall, the Fall that was the forgetting if ancient knowledge. So says the final passage of Bacon’s magnum opus, his celebrated, epoch-making Novum Organum (1620). The publication of a false theory proves that its author had not humbly collected sufficiently many facts of nature. The moral of the story is that all you need in order to avoid error is patience and humility and hard work; whenever troubled, drown your trouble in the laboratory; you will then have your trump card.

The mythological nature of Baconian methodology need not be disconcerting. It is very much in the spirit of the Renaissance, when they lit candles in front of statues of Socrates. The ideal of the Renaissance was the same as the ideal of the medieval mystic—the return to the Golden Age. Renaissance thinkers learned to do something about it, ever since Brunelleschi succeeded in using an ancient method to complete the erection of the dome of the Santa Maria del Fiore cathedral in Florence (1436). Renaissance architecture admired and tried to apply the Pythagorean doctrine of proportions (Wittkower). Renaissance painters admired and tried to apply Vitruvian Man and the Kabbalistic doctrine of man the microcosm (Sir Kenneth Clarke). Copernicus viewed the sun as the seat of the divinity and
Kepler viewed it as God the Father (E. A. Burtt, *The Metaphysical Foundations of Modern Physical Science: A Historical and Critical Essay*, 1924). Number mysticism and word roulettes led to Leibniz’ theory of the universal language which so influenced Frege and Russell, the fathers of modern logic, no less.

The proper attitude is, indeed, to be sufficiently concerned with one’s work to make quite marginal the point of personal profit—through making a name for oneself or otherwise. Now this is not necessarily humility: one can easily ignore one’s own personal interest, especially if the job is pleasant and society affluent; or, one may have to employ a proper appraisal of one’s abilities rather than somewhat piously and not so candidly declare oneself feeble. By the accepted doctrines of humility, Einstein could not possibly be humble except through much self-deception about the value of his contributions to science. As it happens, he was very candid yet also very humble. The humility becoming to a human as a human is sufficient, he explained. Those who preach an extra dose of humility, Christian or Baconian, thereby exhibit a lack of appreciation of human fallibility. Thereby they show a tinge of hubris. The truth in Bacon’s doctrine of humility then is such that it would have surprised him. Yet it was not hubris: it was his expectation from science. When Newton compared himself to a child picking a pebble on the seashore, he expressed a view of science very different from the one he projected in his *Principia*. When Einstein said the best scientific theory is but a way station, it was a remark better integrated into his worldview. Nevertheless, some of Newton’s awe-struck attitude to science is very appealing and may have been lost in Einstein’s attitude that is saner.

Bernard Shaw said, the tragedy of hypochondriacs is that they are invariably right, since no perfect health is possible. Hence, the hypochondriacs confuse health with perfect health. Thus, all you have to do to become a neurotic is to apply to yourself some unreasonably high standard; in the case of the hypochondriac, the standard concerns health; in Bacon’s case, it was the open-mindedness or non-commitment. In Newton’s case, it is the immense, incredible success of his theory and its being the very last word. Quite generally, radicalism promises the sky on one small condition that turns out to be not too small, impossible even. Now, suppose you do conform to any unreasonably high standard. The result is that you are an unusual person—a genius of sorts. Hence, the kernel of truth in the thesis of Schopenhauer concerning the resemblance between the insane and the ingenious. It sounds exciting, but unfolded it turns out to be trite.

6.6

Faraday complied with Bacon’s standards in an exemplary fashion. From 1831 to 1839, he published a series of papers in the perfect inductive style, hinting at his ideas by reporting experiments that illustrated them and piling evidence refuting the views of his opponents without using overtly argumentative or critical locutions. In 1839, he published a sketch of a small idea of his—concerning electric currents as cases of collapse of electrostatic fields. He was totally misunderstood. He had a nervous breakdown; he had severe attacks of amnesia and withdrawal symptoms and they worsened in time. In 1841 he recovered and published two more papers in a very austere Baconian style—one of them on electric fields. Peers ignored them. He then came forth with some of his most daring speculative papers,
declaring matter to be not billiard-ball atoms as was widely accepted at the time but mere aspects or characteristics of electromagnetic fields of force (quasi-singular points in fields). His ideas still found no interest. His amnesia worsened. In the fifties, he writes an enthusiastic letter to Tyndall, saying two young authors have referred to his ideas and this has revived his memory and rekindled his desire to publish. Alas, it was too late. To the end of his career, his experiments won increasing praise and his ideas still met with no comment. He saw his career as nearly finished and worked on his collected papers. An anonymous review in the Philosophical Magazine was rather favorable—I suppose its author was David Brewster whose life of Newton was the first anti-Baconian text of any weight.40 Faraday’s anonymous reviewer not only praised his experimental work but also pointed out that his speculations were a real help to him. Experts agreed then that perhaps a Faraday may employ wild speculations, but. My views, Faraday insisted, are at the very least better than the alternative. If I were a member of the majority school, he added, at least I would have replaced the billiard-ball atom by a solar-system atom. Nobody listened. His solar-system atom was lost. (Bohr reinvented it independently, half-a-century later, with powerful details that made peers gasp.) Perhaps I suffer from hubris, Faraday mused; in his pain, he once wrote in his diary IT IS ALL BUT A DREAM, and then again insisted he must be right. I have discussed elsewhere in this volume the difference between a normal healthy need for recognition and a regressive neurotic one. Faraday knew nothing of all this. Was he a speculator who had lost his judgment in amour-propre or was he so vastly superior to his contemporaries even though he knew no mathematics? He tried to go back to work. He published one further paper. Another paper a brilliant young mathematical physicist rejected as too speculative. He returned to more experimental work, trying to discover the effect that Pieter Zeeman discovered independently almost half a century later, and trying to discover the asymmetry in diode tubes that was discovered by his followers a generation or two later. His memory was failing and finally his perseverance failed. He died senile in 1867 at the age of seventy-six. His biographers describe him as a Cinderella; in my book on him (Faraday as a Natural Philosopher, 1971), I present him as an ugly duckling who could not take so much of the contrast between the two views of his character—that he was he a crank or that he was a genius. As I have told you, his friend and sole pupil John Tyndall saw his speculations as cranky, but he insisted that the cranky streak was forgivable. In the eighteen-seventies, Hermann Helmholtz concurred; in the eighteen-eighties, he played a different tune: by then the duckling became a swan.

One of Faraday’s followers of the late nineteenth-century was George Francis Fitzgerald of the Lorentz-Fitzgerald contraction that adumbrated special relativity. In one book-review in the Philosophical Magazine Fitzgerald condemns some German physics book as cluttered with facts, and he blames the German national character as inductivist. Hegel and Marx had previously derided the English national character this way. This kind of nationalism is crazier and worse than inductivism.

I should not conceal from you that critics have railed my book on Faraday on three grounds. It is inaccurate; it distorts facts in order to present Faraday as a precursor to my heroes Einstein, Schrödinger and Popper; and it says nothing new. I also received laudatory

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40 Kant’s deviation from Bacon’s teaching is earlier, but it is implicit. The learned public ignored this. I can see what the poor fellow was driving at, said of him polymath Thomas Young, but I cannot forgive him his obscure style. The English translations of the Critique of Pure Reason improve its language.
comments on it, from admired teachers (philosopher Karl Popper and mathematician Max Schiffer) and from peers (mostly in personal communications). Still, I did envy authors who managed to receive lavish reviews. Their status as established and popular saves them the time and effort that lesser mortals must invest in order to find publishers, to have their books reviewed, except that their investment in becoming established is bigger.

6.8

The common history of science narrative as calm and free of upheavals is sham. Let me admit, however, that humility is the natural place for sham: it is hard for serious intellectuals to play down their achievements. This an American one-liner sums up nicely: when it comes to humility we are tops. The great Maimonides said, one can never be sufficiently humble. Now, as his Codex is a great achievement, how could he be humble? This question must have troubled him, as he offered an answer to it—in a private letter. He said, he had written it for himself, since he had a bad memory. Not true. Hence, even the great and sincere thinker that he was spoke of humility inaptly. Not all great thinkers were humble. Einstein was. Facing the same question as Maimonides did, he said, the humility that becomes humans as such should suffice. How nice!

7. Cowardice Masked as Responsibility

You already know the contents of the present section; so it is but an exercise in pyrotechnics. Take any conceivable form of academic cowardice, find any old reason from the stock of vulgar prejudice—yes, it will turn out almost invariably to be Baconian or at least quasi-Baconian, you do not have to worry about that—to show that the a display of cowardice is nothing but a case of academic responsibility and then look for a case history of a cogent historical example. By now I trust you well enough to be able to perform this exercise—perhaps you will need to consult the literature, but I think you have the general drift. To make it easy on you, let me outline some examples and leave the rest to you.

7.1

To start with our last point, notice how irresponsible it is to publish an unproven speculation and a half-baked idea, not to say information not thoroughly checked. To continue with our example, take nationalism and show how very unscientific and unfortunate it is, at least in certain manifestations—the harmful ones, of course. You will find that certain great scientists were nationalists—even Max Planck—and that even famous physicists like Nobel laureates Johannes Stark and Philipp Lenard were authentic, card-carrying members of the Nazi party who denounced the theory of relativity a Jewish, and that Heisenberg worked for the Nazi regime in research aimed at the arming of the Nazi forces with nuclear weapons. Do not let this discourage you: it proves no more than that even a scientist may lapse to unscientific irresponsibility. If you need examples to show how unscientific this irresponsibility is, consult Sir Gavin de Beer’s *The Sciences were Never at War* of 1960: do not let your inability to read much of such stuff discourage you; you need not study the book systematically, only skim through and pick a morsel here and there. Do not feel too guilty
about it: they all do it, and the nobility of their cause (which is the greater glory of the Commonwealth of Learning) absolves them from the sense of guilt.

If you think all this too cheap, take different cases. Speculations about homeopathy, for example—the idea that a drug that causes healthy people to simulate symptoms of a given illness is the proper cure for that illness. This idea led to lots of useless and even harmful medication, research, and their paraphernalia. It will take a long time to get rid of it. You may think it safe to endorse criticism of premature ideas rather than discuss these ideas. Not so: this may be dangerous too. True, it is the publication of ideas too early that leads to unhealthy criticism, but such criticism is also condemnable. Thus, Thomas Young’s wave theory of light was essentially on the right track, of course, but he published it too soon, his own fans admitted, and thus allowed for powerful opposition to build up; when he corrected his error (light-waves are transversal, not longitudinal) opposition did not die out instantaneously—he should have waited a little longer and done his homework a little better before his first publication.

The previous paragraph is so nasty; perhaps I should omit it even though it is obviously a mere echo of the worst in the traditional inductivist arsenal.41

7.2

As to false factual information, the erroneous statistics concerning the relatively low incidence of the cancer of the uterus among Jewish women first led to all sorts of food-fads allegedly emulating and improving upon Jewish food taboos, and then led to the defense of Jewish sex-taboos—a heap of still extant pseudo-science that rest on a lapse of a research worker in cancer long ago.

The worst is the pseudo-scientific evidence for the racial inferiority of some people that rests on obviously foul statistics and therefore known by the technical name—of the bell-shape—of a common statistical curve. The evidence serves those who wish to reduce the public-investment in the educationally discriminated against by the claim that spending money on them is waste. Karl Popper has suggested that one should not argue against this silly evidence but use it in the opposite direction: the less-gifted who have to work hard to achieve what the more-gifted acquire with ease deserve more help and so the argument should serve to raise the investment in the education of the educationally discriminated against. Were this line of argument generally endorsed, those who prove the educational inferiority of the educationally discriminated against would prove empirically the opposite.

Here are a few taboos still widespread in the commonwealth of Learning. Do not publish controversial material! Do not embark on large-scale projects! Do not try to dazzle your students; just provide them with the facts, techniques, and established theories that later in life they will learn to appreciate! Do not spend too much time guiding research students—doctoral or post-doctoral—as you will thereby lead them to prejudice! Just see to it that they

41 The traditional canons put your assertions in the wrong unless you prove them. Consequently, new untested ideas are often publicized not in scientific press but in conferences—especially in biology, more so in medicine—including the important idea that nucleic acids function as the genetic code.
should work hard! If they work on your project, do not elaborate either, but issue brief and operational instructions! If these will not do, leave them to their devices but keep yourself informed of their activities!

I have little to say about the previous paragraph by the way of detailed examples of academic careers that grow in parasitic fashions. Examples might be piquant, but not sufficiently important: if you reread the last paragraph carefully, you will see why rumor abounds about plagiarism from underlings, as rumor about empire-building does, and why it is so hard to pin down such rumors and find how much of their contents is true. You will soon learn to ignore these rumors, be they true or false. Only examinations of very exceptional cases can possibly be profitable, and only after much time lapses. Leave it to historians of science.

It is too early to sum-up any historical experience on the matter. The idea of securing priority originated with Bacon and instituted by Boyle. Hence, talk about priorities prior to that period is silly, just as talk about plagiarism, whether of Bacon or of Descartes. Due to the idea of Bacon and Boyle about amateur science, scientific collaboration developed only in the twentieth century. Some contact was always inevitable, and already Hooke had priority quarrels with both Newton and Oldenburg. This, and Newton’s touchiness, entrenched the tradition of the loner. The famous mathematician Jacques Hadamard said, he regularly dropped working on a research-project once he heard that someone else was working on it. The first case of something like a serious collaboration in scientific research was between Thomas Young and Augustin-Jean Fresnel early in the nineteenth century and they had a tiff concerning their relative share in the revival of the wave theory of light. The first research worker who had an apprentice proper was Davy. His apprentice Faraday had long ceased to be an apprentice—he was in his thirties—when he liquefied chlorine. Davy was jealous and insisted he had helped Faraday in the design. To get out of that indelicacy, Faraday searched for an earlier discovery of the same fact—and found something like it.

Attitudes towards the administration of the university do not easily lend themselves to Baconian interpretation, but it is easy to defend any of them in the name of responsibility to one’s community, just as it is easy to do the opposite. Indeed, it is very easy to advocate submission to the administration and opposition to it, participation in administrative work and abstention from it. This is a reasonable measure of the lack of seriousness of current discussions of these matters. This holds for other cases too. In the name of responsibility you may both refrain from controversy and viciously attack as phonies some of your more irritating opponents; devote more time or less time to teaching. In one college, I heard many professors say that universities are primarily research institutes when teaching was agenda, and that teaching is a supreme responsibility when research was agenda. This section bores me too. So let us move on.

No, no. Not to the next section but to an entirely fresh digression; concerning responsible and irresponsible modes of arguing about responsibility. I said it is easy to defend in the name of responsibility opposite attitudes towards the university administration. You can also defend the publication of half-baked ideas in the name of responsibility: you do not want to conceal from anyone, especially those who may benefit from your speculations. Do not be

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42 Bacon’s plagiarism from an unpublished work of William Gilbert is nasty, especially in view of his sneers at Gilbert.
alarmed. Sir John Herschel’s already mentioned *Preliminary Discourse to the Study of Natural Philosophy* (1831) shows how one can do this with ease. The book is chiefly a fanatic attack on speculations. Its tenor is the idea that failure is the result of speculations that are thus irresponsible. For example, the poor adventurer who tried to build a submarine boat and went down never to be heard from again. (Do you remember the ill-fated US submarine Thresher? Do you remember the ill-fated US submarine Thresher? Do you know that the first systematic glider, Otto Lilienthal, died in a crash-landing?) Herschel had other examples of laudable success and of damnable failure; what have these to do with hypotheses, however? Throughout the book, he opposes them, except for one place where he hotly defends them—against whom, I wonder—showing how important some hypotheses were; it is irresponsible to condemn every hypothesis, he concluded. Goethe had said, and Herschel quotes him (without reference, though), that those who confuse hypotheses with science mistakes the pile for the building. It is thus irresponsible to suppress all hypotheses and it is irresponsible to confuse hypotheses with proven theory. (Followers of Newtonian optics did that and as Herschel was the leading advocate of the new wave theory of light, he accused them as a way to exonerate Newton.) This comes in a book that repeatedly condemns all hypotheses.

I have digressed on my digression. So let me start afresh. It is not very responsible to argue from responsibility for some action when it is equally easy to argue from responsibility to the contrary. Can one argue on responsibility responsibly? Does it not follow that we should not argue from responsibility for an action only if it is impossible to argue from responsibility to the contrary? If so, further, does this not imply that the contrary action is irresponsible? Is this not, hence, to say that when arguing from responsibility our argument should be clinching? If you have caught me here in each non-sequitur, then your immunity to inductivism, to any too-high standard technique, is high. Congratulations!

7.3

Let me recap, in reverse order. If it turns out that an action is irresponsible, this is no proof that the contrary action is responsible: a very different action may be called for. For instance, on new ideas, the contrast between publishing and non-publishing it is such: the best policy is to write up your ideas and show them to increasing numbers of friends and colleagues, take account of their criticisms, and then publish to elicit critical notice of wider circles. Similarly, concerning cooperation or non-cooperation with the administration: it is best to cooperate with them on your own turf, on your own terms, and by advising them on minor academic policies.

Next, the contrary action may be neither responsible nor irresponsible but either a matter of taste or a matter of expediency—e.g., publication for the sake of promotion. A friend of mine who as a rule does not publish is a good university teacher. He knows he is unoriginal. They had to promote him to the level of associate-professor—he did not aspire to a promotion but by regulations they had to promote him or fire him—so they forced him to publish two or three papers; and this he did and very unpretentiously so, jotting marginal comments on marginal comments on a rather marginal item that personally interested him to some degree.

Another friend of mine was on point of being forced out of Academe for want of
publications. Friends helped him turn some notes of his into something publishable that got the problem of his promotion solved by minimal cooperative work.

An action contrary to an irresponsible one may be defended as responsible, but not obviously so. Traditionally, moralists found greed selfish and irresponsible. Bernard Mandeville and David Hume and Adam Smith defended it with quite ingenious arguments and they had sufficient following to make a difference. Smith viewed his opponents’ ideas as prejudices, but that was his (understandable) Baconian bias. His Baconian bias must strike a modern reader as incredible. When he sent Hume’s autobiography to his publisher, he added to it a short obituary. In it he said, of Hume’s philosophy I shall say nothing, since those who endorse it admire it, and those who do not despise it. Most philosophers today admire Hume’s philosophy without endorsing it. Yet to blame Smith for his having been an orthodox Baconian is a bit too rash, just as to tolerate a similar bent today is a bit too indulgent.

7.4

Back to the question of the responsibility of any defense of an action as responsible. The responsible defender has weighed existing contrary arguments and found them wanting. Upon hearing of a new argument not previously heard, the defender shows interest, out of responsibility if not out of intellectual delight, and then shows readiness to reassess previous attitudes and actions. Even if the reassessment comes to the same conclusion, however, it is a new assessment that needs presentation as new.

Here, again, we fall on accepted standards. Civilized law considered responsibility as essential by condemning its opposite: negligence. It distinguishes between reasonable error that is permissible and one due to negligence that is culpable. If the error in question is common, even if experts know better, negligence is not the default option; whereas, if public opinion rejects the error as a superstition, then even sincere belief in it does not exempt its holder from responsibility. This holds for almost all civil matters. When you try to apply it to scholarly or academic affairs you reach Popper’s philosophy—but Bacon’s philosophy is an obstacle against such a move. Fortunately, no death directly results from this stumbling block—only endless agony and sometimes even slow death. Life in Academe is nonetheless much happier than elsewhere—chiefly because Academe rewards its members both in cold cash and in refinements of all sorts: it is the only institution that allows eccentricities as a default option and so it does not punish excellence (except at the insistence of the excellent).

Just a minute. I said that not only for the insane but also for the ingenious accepted standards would not always suffice. Indeed, I do not think Semmelweis, for example, could benefit from my present volume to avoid the agonies and pains and frictions of his

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43 For example, Preface to Wealth of Nations, 1776.
44 Negligence is the default option when assessing some actions of an expert but not of the rank-and-file.
45 The theory of rational degree of belief is the most popular in the current philosophy of science with no discussion of any of the ideas that lead to it and with the mere concentration on the (mis)use of the calculus of probability in it. See my “The Philosophy of Science Today”, in S. Shanker, ed., Routledge History of Philosophy, IX, Philosophy of Science, Logic and Mathematics in the 20th Century, 1996, 235-65.
researches (which cost him his life). He even changed standards of medical responsibility. Well, I never said my book is a panacea. There are enough agonies in the world, and we need not fear that we shall eradicate them all.

Let me conclude with mention of a literature that criticizes Academe that I assiduously ignore here. Its major thrust is that the academic system no longer fulfills its social task so that it does not hesitate to cast its framework in unpopular socialist terms. Its criticism is excessively severe and it makes no proposal. By contrast, my view of Academe is favorable, I offer some simple proposals, such as replacing on-campus lecture-courses with some up-to-date recorded lecture-courses that students may download, and my concern is primarily your individual troubles; the ills of society at large come next, as they take time to fix and you should not suffer needlessly waiting for this to happen.

8. A Favorite Sport: Kicking Colleagues While They are Lying Down

I do not want to write this section either: just contemplating it makes me uneasy. When you see life in the raw, you notice that heartlessness is regrettably too common. Even though sadism is not common and malice is rare, their effects spread rapidly. When you lead a sheltered life in the ivory tower among refined and cultured people who are surprisingly well off by any reasonable standard, you shudder to see so much of the same. I admit: it is heartbreaking.

I once tried to solicit the good will of a friend of mine to help another. They were both painters, A and B. A was both popular and a leading academic, successful and rising; B was jobless and a total failure. A did not want to listen to me. He had considered B good enough as a commercial artist, he told me, and accordingly he had tried to help him get a job. B turned out to be too proud, too purist, or too ambitious to become a commercial artist—even temporarily; he preferred to starve. I said to A, who was a friendly person, that his lack of liberalism or lack of familiarity with the seriousness of the situation was surprising, since B was on the brink of committing suicide. Let him, said A somewhat rigidly, signifying that the conversation was over. And B did—shortly after.

B’s suicide shocked me. This shows that I had not taken my own prognosis as seriously as I would if I were cleverer and better informed; so, obviously, A too had not taken the possibility too seriously. Yet the fact remains: we both neglected to help a friend when he was in need—of which need we both knew, though not fully. Somehow, however, I consider A’s neglect significantly different from mine. Truth to tell, nobody can assess the nature of A’s success, and as rumor has it he is himself not so very different from many a commercial artist; quite possibly the coolness with which he had dismissed B’s case betrays a certain degree of awareness that B, in his silly pride and puritanism and ambition, had shown a strength of character that A would have gladly bought for some high price were it on sale.

I told you I hate to write this section. I am so very angry at B that he put an end to his life for such silly things, and I am similarly exasperated at those colleagues of mine who care so much about their work that they cannot enjoy it and I am so exasperated at the other 46

46 His incessant criticism of doctors led to his incarceration in a mental home, where he was beaten to death.
Some academics need to be heartless—from fear of excess self-revelation. *Emotional Problems of the Student* (1959), is a series of essays on psychiatric experiences in Harvard University, compiled by G. B. Blaine and C. C. McArthur. I find it so revealing in that respect that I can hardly do it justice here; if you do not believe me just get a copy of the book—it is available also in paperback and in digitalized versions—and check it for yourself. The only human part in it is the introductory contribution by the then leading American psychiatrist Erik Erikson. It tells of William James’s severe depression in his early adult life, of its philosophical aspect, and of James’s recovery through serious philosophical investigations (chiefly his overthrow of determinism to his own satisfaction). In itself, Erikson’s essay may be unhelpful, though his general tenor is nice. Alas, his view does not leave its stamp in any of the subsequent essays. These are largely technical; I was particularly impressed with the story of how the authorities managed to keep an eye on a student with aggressive tendencies and put a hand on him just at the point when he was going to harm someone. Another essay, allegedly on psychiatric problems of medical students, explains the difficulty of rejecting candidates with obsessive tendencies. The technicality and impersonality of the discussions are remarkable. Only at one point the book’s tone is different. In the essay on the role of professors it is narrated (pages 20-21) that a student obsessively afraid of failure was much relieved by his professor’s confession that he had seen failure too—in his student days. The funny thing is that the author, Willard Dalrymple, takes it for granted that the student could not imagine that his professor had ever failed. He does not even consider the hypothesis that possibly it was not the content of the professor’s confession but the fact that he was friendly enough to confess anything whatsoever, his becoming a little human for a slight moment that comprised an encouragement to the terrified, depressed, bewildered student. The writer may be right, of course, but one may wonder why professors are so heartless that he finds exemplary such a minor event as some personal contact between professor and student. The indication here is staggering, and one must assume that Harvard professors not merely feel indifferent to students but rather positively fear any personal contact with them. Their reticence is thus more revealing than hours of confessions.

Students are supposed to be adult and independent when they come to college, and so professors consider themselves quite justifiable in feeling no educational responsibility toward them. If this were all to it, there would be some occasional and casual and spontaneous and unintended human contact here or there and this way or that way between professor and student who meet, after all, quite regularly and who are meant to meet in office-hours and in departmental parties and in official advising sessions and on occasional encounters in the street-corners or bus-stops or parking lots. Not necessarily educational contact, but perhaps some other contacts, since students do need education, especially in these days of the enormous swelling of Academe, any personal contact can be educational. The swelling offers professors even more justification: fellows who do not feel at home here are better helped by facilitating their leaving college at once rather than by letting them suffer a semester more—kick them out as soon as it is reasonable! We have too many undergrads!

The same goes for graduate students. Nowadays higher-degrees-granting institutions offer masters degrees solely as a compensation for rejecting students from doctoral programs: M.A., more so M.Sc., has become the poor citizen’s Ph.D.—the poor in spirit, that is: non-
academic high-school teacher, industrial consultant, education ministry employee. What makes a student fail to get into the Ph.D. program we do not know—most surprisingly, the case is almost entirely unstudied.\(^{47}\) I cannot generalize my personal experience since the sample is much too biased and much too small to be likely to be representative. I have met a few desperate or almost desperate cases of graduate students who needed help badly, and some of whom I have helped, if you allow me a little boast. Others did not help them, partly, at least, from being too anxious to get rid of them; partly, at least, because it would be too painful and too self-exposing to help them, even to show concern with them. I am speaking of bewildered rebels, you must know by now. They may represent a small minority, but their potential quality seems to me to be more valuable than plain statistics can indicate.

We should move then, from graduate students to teaching fellows and young instructors. The *Atlantic* publishes repeatedly (last time in October 2012) complaints that all too often students (and their parents as well as their neighbors, be they semi-academic or quasi-academic or pseudo-academic) are attracted to an institution in which a great light resides, only to be taught by minor figures like teaching assistants. The complaint is general. A Patient thus may pay an arm and a leg to be under the scalpel of a leading surgeon, only to find an assistant performing the operation instead. But let us stay with schooling. The complaint is silly not merely because a young student today seldom has any idea of what to expect from college—from its great lights or from its small lights. The complaint is silly: if it is hard to get seats for a performance of a pop singer, why should it be easier to get seats for lecture of a pop professor? An artist, at least, is usually a good performer who can conjure an air of close intimacy with almost every member of an audience consisting of thousands. A professor, even the greatest expert of the time, is not likely to be a good lecturer, much less to be good at creating a semblance of intimacy. A professor can be of use to only a handful of close research students. Public relations offices and recruitment offices will not say so in public lest the profession’s mystique suffers. An M.I.T. president once said, the currently practiced arrangement of relegating most teaching to budding academics is good both for the student and for the teaching assistant, as it is quite a challenge; it may result, that president added, in some wonderful experiences. Admittedly, anything can happen.

Still, what that president said is right. It may be an exciting challenge to be thrown into the water, or to the lions. The questions are different, nonetheless: how much of the arrangement ends up satisfactorily and what happens to the rest? Are the people involved ready for the challenge? How much the experience of the less successful helps improve the system? Nothing. Not a murmur. If the challenge leads to a failure, then the obvious scapegoat is the very same teaching-assistant, and the remedy the system offers for its own defects is, as usual, mercy killing. Admittedly, very good teaching-assistants who happen to be also good scholars and positioned in very fortunate departments may be lucky and find jobs there or elsewhere. This is not to say that ambitious teachers with a flair for education have better chances to become tenured academics. Their teaching success will seldom be noted, and never appreciated in any detail. If successful, they will seldom be available for copying, chiefly from indifference and ignorance. Failures, however, may lead to severe penalties even though successes hardly ever count for much. Contrary to the said M.I.T. president, leading universities care little for the quality of their teaching. If they care at all,

they wish their advanced courses to be up-to-date. This shows how much they trust their students: well-trained students can update their training, whereas all the up-to-date training, we hope, soon becomes outdated.

We now come to colleagues proper. (Is not it dreadful to be so systematic?) Their quality as teachers concerns no one; their qualities in the department too depends on their ability to proceed with no scandal. Their scholarly work, however, is something of some interest for this section too. The first popular and pernicious rule here is, specialize and declare total ignorance of the work of your colleagues, whether in your own department or elsewhere, except for the very few who share your specialism with precision. The way to do this is to brand everyone as a specialist in some subject within the department’s authority or better a sub-sub-subject. When you will start making headway, you will be branded a specialist too, I predict. Anyway, the specialists in your field are all worthy, hardworking, and serious; and they are all friends of yours (you send them your reprints). All, that is, except one: the scapegoat. Colleagues have already made sure the chosen fall guy cannot kick back. Attack the one person everyone attacks. So do not be clever and choose a new, dead scapegoat: there is often more life in a carcass than in a moving target, since some carcasses are loaded enough to feed hosts of parasites. One person will turn up, whose lifetime task is to defend the honor of the dead colleague you are attacking and you have hysterical fanatic foes avidly jumping at you. (Watch it: they need a scapegoat too, and you may be it. Avoid this predicament!)

The standard recommendation is to specialize in order to avoid attacks. It is hard to apply this to research branches that attract general interest such as education or psychology. There are better branches. I remember once a philosopher newly appointed dean of arts who had to deliver an inaugural lecture on education. He spoke of education as reflected in the Kalevala, the Finnish national saga. Smart. If you too are an incurable coward, then he is your model.

Suppose you are a budding economist. If you try to attack Léon Walras as an a priorist, you will attract fire; if you attack Ludwig von Mises as an a priorist instead, you will meet with approval: everybody will know that your heart is in the right place. Why and what for? Simple: if you merely advocate more empirical research in economics, you may be preaching to the convert; but if you attack von Mises you thereby prove that there are still some heathens about: everybody does this. Admittedly, Walras was a kind of a priorist too (Preface to his Elements of Pure Economics, 1874). Too many people still admire him, and rightly so; but somehow von Mises failed to gain the same wide recognition for his significant work, partly at least from the extremism of his view of economics as a branch of politics. So let us have a go at him! Or, if your field is not the methodology of economics, but economic theory, you can attack Karl Marx—western economists consider him as dead as a dodo, and his outspoken defenders, followers of respected Piero Sraffa, cannot do you much harm. Or attack the a priorism of Descartes if you are a methodologist or a historian of science—this practice goes on successfully for two centuries. Even the famous physicist and historian of physics E. T. Whittaker who has published a book on Descartes’ problem and proved himself somewhat biased in favor of Descartes, even he attacks him rather violently—out of the sheer force of inertia, perhaps. You can ridicule Bacon, especially if you are a Baconian yourself—this is a two centuries old practice, but still fresh. It is safe.
I have told you that my friend who would not help the other except to get a job as a commercial artist was himself somewhat of a commercial artist in disguise. I also told you I did not want to write this section. I had stubbornly decided to write a plan of a book first and follow it up without change. I had intended to sum up here the points of all previous sections and show that cowardice leads to the various techniques outlined above culminating in hitting a poor opponent too weak to respond in kind. It was rather silly of me to lead myself through such a maze—you, I hope, at least received some entertainment—only to discuss the obvious, namely, that the coward prefers a weak opponent, that often heartlessness is a mark of inner conflict (Dostoevsky) and of cowardice (Mark Twain). This is general knowledge.

Never mind the rest of the world. You and I know what has misled me: I tried to discuss the ideology of the academic coward. It is news to me that we have to bother about any ideology that cowards do not take seriously. True, if you happen to be beating a Jew, it may warm your heart to support your conduct by the knowledge that that fellow has killed the Son of God. As you beat a Gypsy too, you do not really need that support; so to tell you that Christ was crucified millennia ago is useless. Hence, I was in error in pursuing cowardly ideology: it does not signify.

I should not have spoken of the coward at all, but of the possibility that the same ideology that once flared courage in simple people’s breasts may later make brave people act cowardly. It is better to discuss courage and cowardice. Schrödinger won praise for courage when he resigned his job in the celebrated Kaiser Wilhelm Institut in protest against the dismissal of Einstein from that institution. That reaction deeply puzzled him. His action always looked to him a natural, normal response; all his life he wondered why the other members of the same institution did not act the same way. The one who most obviously should have done that was the boss of that institution, who, after all, should have been the one to decide upon hiring and firing. The boss, Max Planck, was no coward and no fool, and yet; Einstein was his friend and testified to his rationality even concerning his political view that was German nationalism. Yet Planck did act like a coward, and it was his faith in the German nation and its historical destiny that was his pitfall. It made him see in the Nazis nothing more than a monstrous exaggeration that had to be a mere passing phase, and he was willing to make small compromises in the meantime. His error cost him more than Einstein’s friendship—the Nazis killed his son. This, however, is hardly instructive: with such people as Einstein or Planck around, the boundaries between private and public are less clear than with people of lesser susceptibilities lie you and me.

It is the same, I fear, with the cowardice of some academics in their chosen intellectual works. They may be cowards first, and find an ideology to suit their temper second. They may be in the ivory tower by sheer accident—what with the enormous swelling of Academe. Or they may have escaped into the ivory tower from fear of the challenges of life in the raw. They may find in Academe an ideal life devoted to insignificant work that interests no one with the rewards for the work as if it were significant and with no one to challenge them or their output or their positions in this world. No one, that is, except the few pests whom we should swiftly and ruthlessly destroy in order to make Utopian perfection materialized. This,
said Popper (The Open Society and Its Enemies, 1945), is how these people use dreams of heaven on earth as reasons for making hell on earth. All the same, Academe has to allow for these people and for their ideology. Regrettably, this academic freedom has its casualties: that ideology is traditional and it turns potential braves into actual cowards.

For, truth to tell, I have forgotten in my haste to tell you what is objectionable about having a scapegoat. Most scapegoats, you may notice, are dead; others may find any publicity flattering; and others do not mind one way or another about such things as public opinion. So what is the fuss I am making, if justice does not prevail anyway, and if all I am discussing is a handful of scapegoats, some of whom do not even mind being scapegoats?

I should have explained this earlier. First, my major concern is to prevent you from serving in this function. (Some of my students have, and I could do nothing to help them; I am ashamed to admit). Anyhow, we may notice the role of the official scapegoat: the Establishment shows prospective dissidents the official scapegoats to dissuade them. If this fails, they identify all dissidents with the official scapegoat (Orwell). Academe has them too, although there their role is marginal: in physics it is the determinist rear-gard (this, incidentally, no small honor as these are Einstein, Planck, and Schrödinger); in biology, it is Lamarck or Lysenko. You may wonder how much truth there is in Butler’s critique of Darwin and your colleagues may wonder whether you are not a heretic. If your filed is different, you can test your sense of orientation by looking up the question, who is the scapegoat of your current academic environment.

Let me say what all this is to you. In brief, the Establishment may declare any new material you produce (prior to thirty years of hard work) original, which is unproblematic, and it may declare it essentially the same as the scapegoat’s junk, which you should try to avoid. This may discourage you and render you a coward. It is my task (self-appointed, I admit, but do not complain—you can always dismiss me, you remember) to see to it that you are not so easy to discourage. But, you may say, you are not producing yet; so what is the hurry?

How right you are! You have to produce something; fairly soon if not immediately. Even if you are still a student you are better off with some measure of independent judgment concerning your next step—which means at the very least that you might as well start producing some independent and operative judgment. I have high regard for you, but allow me to question the wisdom of your next idea or guideline or whatever it is. However, if you are lucky enough to have your output meet with some criticism, that criticism may be a corrective on your road to better judgment but it may also be a means to discourage you and make you toe the party line. The way to discourage you is—you will not believe it is that cheap, but I fear it is very likely to be—the identification of all deviation with the standard deviation, with the duty scapegoat.

Well, then, let me try and see how the various techniques I have outlined in previous sections culminate in the technique of kicking a colleague while he is lying down. It is rather obvious—or rather, it should be obvious to you by now. The general theme is this. Academe does reward the daring, brave intellectual, even though it advocates cowardice. The defenders of the cowardly standards are in an exceptionally weak position and they have to attack enemies at their weakest. The academic ideological bore will show you how a scintillating non-bore has ended up in a very bad shape; the one who took up an exciting project and for thirty years or so was stuck in a blind alley. This, incidentally, I met regularly
when I was studying physics and when students complained about the routine character of the work our professor dished out for us. This now seems to me too obvious for words: behind all this stood the cowardice of those who fear adventure. Do you wish to fail like our scapegoat? It is equally clear that it is pompous and pious and hostile to the intellectual adventurers on whose products we the more mediocre colleagues live on. The adventurer may, indeed, fail—and then become scapegoat. Expressions of dedication and loyalty to science as well as to our seniors are often prompted during the process of imposing boredom on students. The trouble with renowned scapegoats is, they never did simple homework. Of humility, I need not say a word: who do you think you are, anyway? Darwin? Einstein? Cantor? So a small project is too small for you already? It bores you not to be an Einstein? If you were an Einstein, then that would be all right, but chances are you are as much of an Einstein as our cherished scapegoats are; they too had dreams. How irresponsible of you: do not you know that someone has to do the dirty work? Should we all be Einsteins? Look at all those who tried to be original—their almost all break their necks and end up producing nothing better than our notorious scapegoat.

Scapegoats seldom receive mention in classrooms and in lecture-halls. Although every mention of them there is pregnant with significance. The real place where they work overtime is in consultation, in consultations with bright-eyed, opinionated youngsters whose spirits have to be broken for their own good as well as for the greater glory of the commonwealth of learning. Keep up your spirits and do not be drawn into the practice of discussing scapegoats except, perhaps, when you are enough of a scholar to exonerate those scapegoats who deserve better recognition—for our own sakes, not only for theirs.

There are a few things I am rather proud of, small as they are. One of them is that I have succeeded to contribute to the drive to exonerate Dr. Joseph Priestley, the notorious last advocate of the defunct theory of the phlogiston. What contemporaries and historians have said of him! Though he had discovered oxygen and I do not know how many other gases, though he was a Fellow of the Royal Society who won the Copley Medal and whatnot, they often crudely and systematically maligned him. Inductivist historians like J. P. Hartog and J. H. White have attempted to clear his name. Not successfully, need I say. Then came others, including J. B. Conant and Stephen Toulmin and Robert Schofield. Even they did not fully explain the situation: it took Popper’s methodology, plus Popper-style observation of the limitations that a Baconian in Priestley’s position had to labor under, to see how ingenuity there was in his output and how valuable was his persistence and this criticism of Lavoisier—that enabled Davy soon afterwards to overthrow Lavoisier’s doctrine.

I tried to do the same for Dr. Benjamin Rush. Even his biographers and defenders had no defense for his theory that bloodletting is a panacea. For millennia, almost all western physicians practiced bloodletting and no protest led to any seriously critical study of that practice. When Rush practiced bloodletting extensively, protests were heard for the first time with some effect. When George Washington fell ill Rush was not invited to his bedside. Washington died soon after—seemingly of excessive bloodletting. From then on attitudes changed. The eighteenth century had seen the last flare of cases of non-specific nosology, most of them were refutable and refuted. In the early nineteenth century the first important non-specific school rose, and one of its chief targets was Rush’s doctrine. New statistical techniques had to be devised in order to refute it; and it was refuted, and bloodletting stopped (Adolphe Quetelet).
We all err, but the consistent and somewhat better reasoned error is more easily eliminable. Even Bacon knew that. When he deviated from his inductive philosophy and rushed to make a hypothesis, he said thus: “truth emerges quicker from error than from confusion”. Hence, the very conspicuousness of scapegoats that is the reason they were chosen for this unenviable role makes it more likely that they were great intellectual adventurers than the slobs, evidence to the contrary notwithstanding. I am speaking of the great scapegoats, of course, not of the small fry denounced by other small fry. What is common to the great scapegoats and the small, is Bacon’s attitude towards them. You cannot admire and criticize a person at the same time said he.⁴⁹ You can: I have little admiration, I admit, for Bacon’s present-day admirers who cannot criticize him; for Bacon himself I have both much criticism and much admiration—and for one and the same reason.

An old professor appears in some of C. P. Snow’s novels, an expert in a recondite topic—Nordic saga—full of it, enjoying it, knowing its narrowness and in general suffering no nonsense though quite willing to play the buffoon. I do think Snow has described a true case here. Many scholars and researchers had placid characters and fully succeeded to build for themselves a peaceful philosophy of life. My heroes in this line are John Dalton and Thomas Thomson—both English chemists of the early nineteenth century, and close friends they were. I resist the temptation to digress into biography again. Most of the peaceful inductivists, after all, were small contributors to the stock of human knowledge, who aspired to nothing more and who were amply rewarded. Dostoevsky has observed with a measure of bitterness, Nature loves those who want the attainable and offers them what they want, twice and thrice over. Perhaps. In any case, peaceful inductivists leave others alone, and the others reciprocate. Even if this volume, in being an attack on inductivism, were (quite unjustly, of course) deemed an attack on them, they will barely be perturbed by it—if they were, they would not be as imperturbable as they usually are, as Dalton and Thomson were.

Lord Rutherford was one of the greatest as well as one of the most renowned physicists of the early twentieth century. I cannot imagine any contemporary philosopher, least of all one of the few who at that period studied scientific method, would be brave enough to tell him how to conduct his research; and if there were any, he would have not noticed them. And yet he said of methodologists, we researchers will get along in our scientific work well enough if only the students of scientific method will leave us alone and not tell us what to do or how to do it. Methodologists, obviously, were his scapegoats;⁵⁰ collectively, since presumably he had never met one in the flesh—unless perhaps by accident and then only to terminate the encounter at once with a well-aimed insult, I imagine. Or perhaps collectively because there was simply hardly any individual methodologist around at that time (Cambridge had one, W. E. Johnston; he spent his time hiding and most of his methodological ideas that were ever published appeared in the work of his pupil J. M. Keynes somewhat later). The only specific individual methodologist Rutherford could have in mind when showing so much hostility to methodologists in general is Rutherford himself. For he was a methodologist of sorts—he even began his early scientific career, says an oral tradition, by worrying himself sick about the (quite insoluble) difficulty inductivism has concerning sense illusion (a difficulty that already Bacon had promised to clear, and that

⁴⁹ Preface to Bacon’s projected collected works.
⁵⁰ See my “The Role of the Philosopher Among the Scientists: Nuisance or Necessary?”, Social Epistemology, 4, 1989, 297-30 and 319.
already Bishop Berkeley has shown that it imposes idealism on any consistent inductivist)—a dreadful methodologist was Rutherford, yet the only one brave enough, foolhardy enough, to dare pester such a brilliant physicist as Rutherford.

Do not get upset just because I have said a harsh word about Rutherford. Do not ask me for references just to defy me and expose me and show how irresponsible I am. Would you be half as indignant if I spoke thus of your aunt? If I praised her even more than you do, and her kind heart and her devotion to the family, but dismissed her idea about pop art as somewhat parochial? Why can I not talk about Rutherford just the way I talk about your aunt? Figure this out for yourself if you can.

Next time when you take a stroll around campus, if your path chances to cross the library and you happen to be in no particular hurry, do drop in and look up *Aku-Aku* by Thor Heyerdahl (1957); or, if you browse idly at the campus paper-back book store—yes, we all know how sadly unequipped they usually are—and you chance upon it, I do recommend that you glance at a copy of it. Or you can find it on the internet. Heyerdahl’s case—I am sure you will indulge me one more digression, especially when it is intended to be brief—is quite enlightening, though Heyerdahl is an anthropologist of sorts, and though, unlike his popular books, his papers for the learned press are written in as dull a style as he could bring himself to use for the sake of true scholarship. In the end of that volume he reports a dialogue between himself and his *aku* (that is the Easter Islands’ version of the fairy godmother), who gently chastises him and mildly rebukes him for his inability to curb his propensity to speculate and think up wild hypotheses. Heyerdahl sincerely admits the charges and agrees that he is somewhat in the wrong. But the beauty and peace and serenity of the wide south seas and its deep blue skies and its enchanting emerald islands and its intriguing and fascinating inhabitants—all help to expiate his fault, and his *aku* helps him to conjure the magic necessary to render some of his wild dreams into science proper and kosher and acceptable (so he thought; his peers remained suspicious).51

In the previous pages, I have diagnosed many of the small ills of Academe as rooted in ambivalence. I am glad I can check myself. I cannot say why the ambivalence of Rutherford tormented him, as it seems it did, whereas Heyerdahl’s did not. Being at peace with oneself renders one less likely to harbor and transmit academic ills. I suppose they all tormented their kin—but at least not with the malice borne out of self-righteousness borne out of conflict and of suppressed self-doubt. There is nothing like peace of mind to mitigate bogus troubles—like most academic troubles. Let me end with an acknowledgement: I heard this from a once-famous sociologist, Shmuel Noah Eisenstadt of the Hebrew University of Jerusalem. He told me his observations made it clear to him that for the sake of his neighbors he had to be at peace with himself and that this insight had helped him achieve that peace.

9. The Natural History of Intellectual Courage

We have arrived at one of the most beautiful and admirable things in life, a pleasure to observe, to ponder, to daydream about: intellectual freedom in action.

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51 Heyerdahl’s diffusionist anthropology still meets with general hostility.
Dreaming of an impossible utopia—or near-utopia—may torment. Now unlike utopia (etymologically no-where) the near-utopia is there, all the time, yet often people fail to perceive it. Intellectual life is admittedly an escape for many people from all sorts of miseries: they cannot evade all the miseries all the time, but, on the whole, the result is better than expected—especially in present-day luxurious universities. Why, then, are so many academics dissatisfied? Perhaps they envisage the wrong method of escape.

9.1

If you want to see what the ideal self-image of Academe is, try to observe it when it is projected and how it sees itself then. Not in public ceremonies, not in hyper-self-conscious exhibitions of True Academe to the whole wide world, to students, to posterity. Observe academics in their intimate, yet not entirely private gatherings, when their spirits are high with genuine academic excitement, when they feel that they get their money’s worth and are all too happy to exhibit their excitement and pleasure to their peers and equals and heighten it with true participation and generous sharing. Go to the humble parties thrown to the very distinguished visitor before or after an interesting guest-lecture, to the lecture itself and to the ensuing discussion—but take care to disguise yourself as a worthy peer or your very presence will destroy the very unselfconsciousness essential to the activities. (This belongs to arch-anthropologist Malinowski: do not take the natives’ descriptions and exhibitions of their own conduct at their face values; rather mix with them, behave like one of them, and observe critically. Do not listen to their words, echoed Einstein with his peculiar sharp-but-good-humored irony; fix your attention on their deeds.)

Look at how academics laugh, at how they applaud, see what tickles them most, to what they applaud most on such occasions. You need not go to Timbuktu or Zanzibar or the Trobriand Islands for a proper anthropological exercise.

Do not think that I mean this assertion in jest—the exercise I have in mind is anthropological indeed, and I describe conventional modes of conduct, though of the somewhat esoteric kind. The anthropology of laughter is legitimate sociology: with whom a person is in joking-relations so-called within a given tribe, and what expression of such relations is legitimate. These are not matters of temperament but of conventions—given to wide temperamental variations, of course. Do professors joke with research associates? With graduate assistants? Even at tea before a distinguished guest-lecture? Do they laugh there? Do students? How do they laugh? Loudly? Softly? Or what? Among young Hassidim, laughter must occasionally be wild; not so among their elders. Some tribes have a standard way for laughing of all sorts. Professors who study the history of the laughter at intricate and highly erudite jokes laugh softly—with a dint of permissible self-indulgence and a touch of condescension. The laughter of physicists is different, especially since they are prone to laugh most at the joke made at the expense of some poor scapegoat, whether an erring physicist, or a plain outsider or—and this invariably brings the roof down—at the expense of that member of the audience whose mode of participation in the discussion after the lecture is too critical or cantankerous, or who otherwise blunders. Physicists laugh at such jokes heartily, confidently, loudly—not, Heaven forbid, discharging hidden anxiety, but freely and so even somewhat merrily. At least their merriment is heart-warming; sociologists

52 Einstein, his 1933 Herbert Spencer lecture, Oxford.
Part II: Etiology

try hard to imitate them but dare not express merriment—they do not possess self-assurance sufficient for that. Anthropologists laugh most eagerly—even at unintended semblances of jokes—I think in order to stress their appreciation of the speaker; but they will not permit the slightest smile when the speaker describes a genuinely ridiculous primitive practices. It is the same with psychoanalysts when they talk about sex—what else? Things can be much worse. For my part, I dislike a lecture beginning with a barrage of light-hearted and well-worn poor jokes—as if the lecture were an after-dinner speech or a stand-up show—after which opening the lecturer engages in a most ceremonious throat clearing to signify that the jokes are over and that work begins in earnest. This is a practice common in the less scholarly liberal arts and of the various branches of Academe devoted to the study and dissemination of education. I much prefer the practice of physicians: in public they prefer not to laugh. Period.

I once spoke to a group of American anthropologists about British anthropology. They laughed loudly, and it seemed to me demonstrative: it seemed to me their message was, you can criticize British anthropology to your heart’s content: as Americans, we are immune to it. So I spoke about the anthropology of laughter. That stopped the laughter dead.

How do philosophers laugh, you ask. I do not know. I suppose the atmosphere in philosophy lectures disturbs me so much I can barely retain the power to observe them with the necessary scientific detachment. Some philosophers, I did notice, however dimly, are eclectic in this matter, depending on their philosophical bent: positivists tend to imitate physicists (not successfully, though), existentialist tend to imitate historians or others in liberal arts—except when they are embarrassingly solemn, need I say, when their intended jokes are mere cheap expressions of derision. For my part, when I lecture I find the atmosphere so very oppressive that I ramble terribly at first until I throw in a wild joke for a good measure that catches my audience so off-guard they laugh their heads off. After that, my chief concern is less to keep the flow of my discourse and more to prevent the audience from returning to solemnity—for which end I use all sorts of erratic techniques, from wild associations to sheer verbal pyrotechnics including small jokes or even occasional big ones. Jokes are no joking matter.

If you are interested in more details, you can read those of my lectures that are printed. Well, I am clearing my throat now. I hope you liked the bagatelle, but I had my reasons for inserting it in this section rather than elsewhere in this volume: it is getting too solemn to my taste. Jokes aside, how academics laugh varies, but it is largely a matter of convention. Similarly with other practices, to which I shall not address myself—having cleared my throat already. The practices are varied, but obviously, in most cases they are manifestations of the same general idea of togetherness, harmony, full mutual accord and sympathy; no strife, no censure, nor criticism; just peace and admiration of all scholars and scholarship. This is tribalism. The confusion of criticism with censure clinches it. The same goes for the fear of all censure as if it were the plague. So let me tell you of my projected image of academic near-utopia.

9.2

No togetherness (except in my own family), merely mutual respect; no harmony (except in
great intimacy), but friendly feelings; and a little generosity will do no harm. And while the
game is on, simply total disregard for personality, rank, anything except the game itself—as
in a high-powered good game of any kind, personal asides are permitted and even
encouraged provided their content does not interfere with the game and the effect they
psychologically produce is conducive to it. Players hit hard and enjoy and appreciate it
equally well. They allow for switching positions with ease, and they always do this explicitly
and clearly. Even a lecture must report a dialogue. (In Plato’s Symposium, the rules of the
game force Socrates to make a speech; he does. In it he reports a dialogue, thus having it
both ways.) Defeat, difficulty, possible vagueness, ignorance of what your interlocutor
assumes that you know well—everything is fully declared and conceded without effort and
without rancor. It is not who wins but how you play the game: if parties play it well enough
it fascinates and excites. Debates should follow the rules of debate; for instance, interrupting
speakers is permissible only if it heightens the excitement all round. Strangely, perhaps, I
have witnessed two classes of intellectuals among who play the game better than in any other
class of players in Academe—lawyers and electronic engineers. Do not ask me why.
Talmudists can do it best, but they usually do it while studying the Talmud, which study
imposes restrictions on their debates that I do not recommend: the Talmud allowed any
premise to be open to challenge, provided the challenge does not appear as an assault on a
basic religious tenet.

9.3

I have at last come to my point concerning the natural history of intellectual courage: it is
not who wins but how you play the game; let the best party win, by all means; and if the best
party is not my party, we shall do something about this in due course, not just now. I shall
discuss techniques proper in the next part, and explain why, and how, one of the worst
violations of the rules of the game is to anticipate the critics’ next move and to answer it
without first having it clearly voiced. (Who expresses it, the defender or critic, matters little.)
Here I can say that anticipating outcomes of debates always amounts to cowardice, and thus
to stupefaction.

Admirable Benjamin Franklin was an excellent debater though in his Autobiography he
declared that a gentleman does not argue and that in science disagreements resolve faster
without debates (since these only increase the stubbornness of losers, making them less
prone to give up errors). In the same Autobiography he brags in good humor about his
dialectical abilities. He tells us he had defeated a roommate of his so often that the poor
fellow learned to refuse to answer even the simplest questions put to him, lest they were
traps and some consequences to his answer of which he was not yet aware might be later on
used against him.

Poor fellow. His reluctance made him unable to learn more consequences from his views.
He preferred not to lose debates even at the expense of curbing his intellectual development.
Often one feels unable to lose a given debate. If one were eager enough to know what one’s
opponent might say, the debate would proceed. Moreover, one may stop a debate for a while
and debate the grounds for one’s fear to lose it. One is equally afraid to lose those grounds,
or ashamed to confess fear, so that one does not even prefer discovering to what extent
one’s fears are reliable. One does want to learn, but …
Which brings us back to the old point of Johannes Kepler: curiosity leads to intellectual courage more than anything else does. So let us observe Kepler's point a bit more closely and critically.

To begin with, take a simple fact. Many dull lecturers are capable of delivering truly exciting and amusing lectures. They would do so on very rare occasions, among close friends, perhaps to audiences of one or two. I was fortunate to belong to such audiences, and I cannot tell you how great the experience was.

Have you ever watched a good performance of Lear or Hamlet without attention to your high-school-Shakespeare? It is not easy; Alfred North Whitehead confessed high school had spoilt Lear for him for life. It took me hard work to learn to enjoy the Bible—by an around-and-about way, reading The Epic of Gilgamesh and then Ecclesiastes that schools neglect. Have you ever read those for diversion? The experiences are elating. Perhaps you should listen to them recited (there is a BBC version of Gilgamesh on the Web). The experience of listening to an excellent recital or lecture is very interesting. You sit and in no time you lose all sense of time; you cannot tell whether time passes extremely fast or stands still—it looks as if it is both; a few minutes later, somehow the spell breaks and you look at the clock and observe with a real shock that only a few minutes had passed by; you can barely stop to contemplate because the speaker has captured you again and enchanted you; at the back of your mind some observer still keeps awake and notices that the whole visual world has altered—colors, distances, sounds, all seem both more intense and strangely more remote: in a sense you are transported into a Platonic Heaven where somehow the speaker and you share ideas and observe together the development of the narrative of the discourse—logical steps from one proposition to another: things fall together so beautifully that associations and imageries turn pale, the speaker’s shape and voice recede to a remote background and what you hear are not sounds or even words, but ideas.

A beginner reader reads letters of the alphabet, an advanced reader reads words, phrases, and even sentences. Reading normally advances to the point that one is unaware of letters, but one is seldom unaware of words and sentences—this happens only when one is so utterly absorbed in reading or listening and when reading or listening is so effortless, that one absorbs chains of ideas or propositions. It is the same, say, with driving: a beginner uses the accelerator, the breaks, the steering wheel; an experienced driver, driving effortlessly, merely decides what to do and accordingly wills the car to act this or that way; the whole complex of body plus car—one phantom-body so-called—somehow obeys. When an experienced driver has to keep a wide car on a narrow road, has to develop the feel for it in order to drive in a relaxed mode. Similarly, upon hearing a high-powered lecture one has to learn to relax; this leads to the same experience, much more intense.

It may puzzle you why so many people go to listen to boring lectures, just as it puzzled me in my childhood why adults go to synagogue or church. Some go from a sense of duty, some to escape an even more oppressing boredom at home and with the hope of meeting an acquaintance before or after the ritual. Some remember an occasion of an exciting event and they keep going a hundred times for fear of missing the rare occasion on which the event is so rewarding. It is like the purchase of a newspaper daily so as not to miss the rare occasion of an interesting news item or comics.
Why are interesting lectures so rare? Why do good speakers prefer to give dry academic lectures? They are chicken, that’s why. Once I heard a lecture delivered on the recent history of a local geological survey that outlined achievements over the last few decades. After the lecture was over, in a small circle, someone who knew the history first-hand and who was a friend of the speaker said, “Once, on a glass of beer, I may tell you how things really happened”. What a pity.

Whatever the causes, and I have tried to analyze some of them in previous sections, one thing the above anecdote makes clear: intellectual cowardice is not so much a matter of feelings, as conformity to certain conventions, to accepted rules of good form. Which is to say that Kepler’s view of the matter needs some supplementation.

9.4

What makes the sociological approach so much superior to the psychological approach, Popper repeatedly observed in his lecture courses, and he was a superb lecturer, is a simple fact, and an obvious one. Psychology all too often centers on motivation, whereas sociology plays down personal motives as far as possible under the circumstances. It cannot eliminate all motives, but it can introduce some uniformity, some leveling, by playing them down. For example, consider all those who work for one given railway company on all the complex motives and mentalities that they possess. I shudder to think of the complexity involved in a simple railway timetable, said Bertrand Russell. Yet somehow, railway timetables operate fairly well. There was, indeed, in the British humor magazine Punch a cartoon depicting a shelf in a public library under the title “Fiction” with a railway timetable on it. Yet this is something of an exaggeration because, Popper noted, timetable planners as well as sociologists can ignore the deep motives of railway workers and assume that their sole motive in working for the company is earning their wages and making a decent living. Making a decent living is similarly the motive of many an academic: if they were of independent means they might or might not remain scholars, but most of them would have left the universities. They conform to the rules of the game because they wish to stay in; and one of the rules, they fancy, is to provide dull lectures. Now, some of the rules concern very external matters, such as matters of good form; others are more elusive, and refer to intellectual honesty so-called.

What exactly intellectual honesty is may be under dispute—it is under dispute less than one might expect because the literature on it is scant. Here then are some obvious received ideas about it. Clearly, however, on one point Bacon was dead right: when scholars face refutations of their views, he observed, rather than give them up they make fine distinctions. You hear this constantly: “this is so because”. The right answer to this locution is, “never mind why this is so; you admission that this is so is an admission that your initial hypothesis is refuted; you should say this openly.”

In view of the possibility of violation of rules of the game without dishonesty—either from bad training or from no training—discussion of these violations has to be social. Most people, academics included, honest as well as dishonest, cheat in the game of intellectual discourse in the crudest manners possible, chiefly from ignorance, one that persists from the sheer cowardly demand to have consider it a moral duty to defend one’s intellectual
positions to the last, no matter how poor it happens to be: one should not concede defeat unless one is sure that one is hopelessly defeated—which is seldom the case. The permission to reap victory but not to concede defeat before the very end of a debate is obviously dishonest, yet students take it for granted, imbibing it from their elders and betters. They would change the subject and introduce red herrings to get out of a tough spot. They would surreptitiously shift positions and declare they were misunderstood. They would most incredibly reinterpret what they had said in the light of what they have just heard from their interlocutors instead of thank them for the new information. If they were playing bridge or chess or tennis they would blush at their cheating, but being engaged in debate they feel only self-righteous—or rather, their cowardice takes this shape.

Or a person may be very dishonest but play the game with meticulous care in order to gain some personal profit—whether the recognition of peers or the approval of audiences: this is how a sufficiently clever speaker would act whose peers or audiences know the rules of the game well enough. This is why politicians in the countries with educated populations dare not deviate from the truth as much and as obviously as politicians in countries whose populations are poorly educated. This is precisely why we find incredible the exception, the regular, blatant deviations from obvious truths of President Donald Trump: he appeals to his electorate whom he evidently holds in contempt.

9.5

A person well versed in the game may induce an opponent to play fairly. Playing by the book may be an ideal, but I am foolhardy enough to think it does happen on occasion. Intellectually honest people may discuss morality with able people and be converted from cynicism or a-moralism to moral life. When this happens, the music of the spheres fills the air.

Still, with all the social trimmings, the present point is simple: intellectual dishonesty is unwise. If you are mistaken you are better off knowing it. If you hope to conceal defeat from your interlocutor but confess it to yourself, you are too-clever-by-half: you have to concede it in company so as to continue the discussion and see what your error amounts to; your interlocutor will either know of your change of view or not be available any more. If you value instruction enough, the mock-shame resulting from the concession of defeat evaporates.

Psychologically speaking, intellectual honesty is not mental but intellectual; the contrary feeling is strictly a displacement, to use Freud’s term. Psychologically speaking, intellectual courage, too, is not courage in the sense of either civil or physical courage since no risk is involved in the admission of error—not even in public and not even in politics; in Freud’s terms, the contrary feeling is strictly a projection: losing it is no loss.

Nevertheless, the denial of all support that moral and intellectual courage lend each other is excessive. If your opponent offers you some new information, you should acknowledge it and express gratitude. If your interlocutor presents you with a new stimulating question, you

53 This happens in Galileo’s 1632 Dialogue, Fourth Day: its scientific and artistic value are still ignored.
should likewise acknowledge gratefully that you have never considered it and have to do so now. The moral side be damned—if you do not pay attention to it, you are merely a knave. One who ignores the intellectual side of it, however, is a fool. Moreover, as William Hazlitt has wisely observed, behind a fool stand a knave who exploits him. All things being equal, considering study, folly is more of an obstacle than immorality. In any case, I take it for granted that you are neither a fool nor a knave.

What then is the intellectual aspect and what is the social aspect of intellectual courage? How much courage is due to one’s purity of heart and how much due to one’s acceptance of the norms of one’s society? I can barely find out where to begin—simply because the display of intellectual courage depends on the way one plays the game. Which means that no intellect is an island and we cannot learn except in a society that tolerates learning so that novices may exercise the game in cooperation with individuals who know something about its rules. Medieval philosophers faced a very difficult paradox: What is higher, goodness by nature or goodness by effort? From the extrovert viewpoint, surely, goodness by nature is preferable as less prone to temptation; from the introvert viewpoint, goodness by effort is the triumph of goodness, and the effort surely deserves greater recognition and reward.

This paradox is insoluble. To the theologian it may present a real headache; not for our purposes, however. Intellectual courage leads to intellectual honesty and vice versa, and they both may rest on moral nature or on conviction, as well as from burning curiosity that may come from any direction and by any contingency; or, they may both come from the willingness to conform or to gain recognition. It all matters not. What matters is not who wins—not even why one plays—but how one plays the game. Yet I face a paradox too: I have said, the rules that Academe follows differ from the right rules of the game; I have criticized Popper for his suggestion that researchers abide by the right rules of the game. Yet now I am speaking of the rules as conventional after all. Where are we? Where do we stand?

Researchers obey the rules of the game; academics often violate them; hence, often academics are not researchers. Many of them are pseudo-researchers or pseudo-scientists, especially the ones engaged in psychology, education, sociology, and politology. It may be more reasonable to view most academics as ones who do not know the rules of the game and so as one who play the game improperly, while the cream of Academe do. The fact is there: those whom peers judge as able to bring the bread-and-butter are popular anyway (with some exceptions, of course: we cannot possibly weed out all the fakes, but it is hard to like them). Now all this is not good enough, since some of the best psychologists—Freud and Adler, for instance—broke the rules like bulls in china shops yet we (rightly) value their contributions from the viewpoint of the game: they have enriched it. The academic tradition gratefully receives all contributions, no matter from what direction they come. The ghosts of so many once-venerated-and-now-forgotten scholars and researchers demand a serious discussion of the question, what are the rules that impose unanimity in selecting people to rest in our scientific Pantheon? Historians of science try to answer this question and I have written a whole pamphlet54 (that brought me my successful career) ridiculing the modes of thought that most of them employ. Yet my pamphlet is unjust—as all my reviewers have noted, though arguing rather poorly for this—since most of its (just) strictures are funny at the expense of sincere, unfortunate historians of science.

My injustice was in not stating explicitly that I do endorse the list of heroes that these historians laud, although I reject their detailed hagiography as inept. How then do we all decide what researcher deserves a place in our scientific Pantheon? By deciding that the moves that they had initiated are great moves in the game of science that has begun in antiquity and that is still going strong. What is this game? The parts of my pamphlet that I am proud of are my repeated explanations of the importance of the contributions we all agree are important as refutations of great ideas. The best part of that pamphlet is my discussion of Ørsted's discovery. It was unanimously praised at the time; it still is; no explanation why. He sought it for decades. When he found it, he went into shock and was dazed for three months. (He said he could not account for his activities during these months.) Why? Because he discovered forces that are not Newtonian, thus refuting Newton’s axiom that all forces are central.

This only strengthens my query: why do we all play the game by Popper's Socratic rules yet claim to do something else?

Answer: we all admit the Socratic rules; the disagreement with Popper is this: he said, there are no other (inductive) rules. Most academics hold the deep conviction that we need more rules. To examine this disagreement empirically or historically we need first to sift the grain from the shaft. This might be question begging. Miraculously it is not so: Popper’s idea suffices: we all agree that yesteryear’s scientific heroes who are now forgotten with some justice. This miracle does not hold for academic heroes: we admire those who occupy the academic hall of fame and we have not yet examined the situation.

Somehow or other, if justice does not prevail in Academe, nor does injustice: if you are intellectually brave, everybody will discourage you—your professor in the name of scholarship, and your Aunt in the name of commonsense. For your own good, the wish is to prevent too much trouble for you in college. Yet if you refuse to obey, you have some chance to receive a reward. Thus, it is higher here than in any other culture or sub-culture on earth—past or present. As I keep telling you, although Utopia exists nowhere, Academe has come nearest to it that we know of. I recommend you take advantage of this obvious fact right now.

10. Intellectual Courage in Education and in Research

Anything to keep my book out of any kind of semblance of uniformity: I now embark on a book-review proper; if this sounds too academic for you, do skip it by all means; but if you enjoy seeing a big shot cut down to size, stay with me in this section a bit longer before you thumb through to the next. I have a friend who greatly enjoys reading my book-reviews: his wife tells him he is a venomous reviewer, and he therefore enjoys noticing, like Gustav in *Emil and the Detectives* of Erik Kästner, that he is not at the bottom of the class but second from the bottom. I shall try to stay true to my reputation as the very worst.

The book I have chosen to review is perhaps the most celebrated of its kind: it was a bestseller. It is Jerome S. Bruner’s slim *The Process of Education* of 1960. It is the outcome of a 1959 conference of thirty-five scientists, scholars, and educationists, under the distinguished auspices of the U. S. National Academy of Science. Bruner headed the conference and
reported on it in this volume. Some of the participants in that conference have added to Bruner’s deliberations.

Bruner’s volume is the result of a survey of existing large-scale projects of educational reforms in high schools in the United States of America. He worded it in as a manifesto, though its tone is somewhat more explanatory than declarative. The merit of the volume is in the great clarity of its exposition and its brevity, as well as its manifesto-like character. Even leading educational iconoclast Paul Goodman has called it “lovely”. I hope my laboring the obvious in this instance is excusable. I will save you the trouble of discussing with you Bruner’s august career or his title as the father of the cognitive revolution in education, or the nature of that revolution. Here then is the review of his 1960 report.

In his Introduction Bruner presents problems: what to teach, where, and how? What purpose, what emphasis, what effective techniques, should we provide education? These questions arose because of the increased expansion of Academe after World War II and the subsequent desire of university teachers to control high school education. Bruner took it for granted that this desire is positive, and for two simple reasons that he deemed indisputable: academics are intellectually superior to high school teachers and this gives them the right and duty to control all education.

It is to Bruner’s credit that though he was a psychologist, he was critical of learning psychology as too academic or too abstract to apply to the facts of learning in schools. Traditionally, he reported, educators separated transmitting general understanding from transmitting special techniques. Under the impact of late nineteenth-century psychology, the scale tipped in favor of techniques—only to be soon altered. One may wonder how valid were Bruner’s observations at the time, and, more so, how valid they are now. However, this is a separate issue, and at the very least we should acknowledge Bruner’s readiness to be critical of the system, especially since, it turns out, his final verdict on it was in its favor.

Chapter One presents Bruner’s structural approach. It is hardly more than the praise for structures—where structures are general theories. General theories are applicable to specific cases. They may be useful to students, but alas only to the very clever and advanced ones. This fits well the tendency of most teachers to neglect the top quarter of high school students on the excuse that they do well. Most surveys show that this applies to all teachers except for the few most ambitious ones. Can the structural approach—the transmission of general theories, chiefly—offer specific help to those who need it without handicapping the rest? These are the questions the Bruner raises and plans to discuss in later chapters. He does not.

Chapter Two advocates the structural approach. Neither facts nor techniques are educationally as important as some familiarity with the most general theories available. They are important for those who will not be specialists, who will thus need only a general outline of the subject; they are important for ones who will later on become experts: their high school studies should facilitate their future specialized studies. The trouble is, most teachers cannot convey general theories. Various committees, manned by the very best top dogs, have now grown like mushrooms to aid them with proper textbooks. Bruner approves of them with no comment. The poor teachers who desperately depend on their textbooks because, Bruner admits, their dependence is excessive, will hopefully benefit from these.
Now, as this process is over, we may seek empirical information as to their degree of success. In the Preface to his 1996 *The Culture of Education*, Bruner discusses the test-frame for budding ideas and dismisses his 1960 presentation as exhibiting too narrow an attitude toward education. So no test for it.

This matters little: the textbooks on which teachers depend, Bruner points out already in 1960, are insufficient at best: they need supplementation. They include no adequate treatment of either learning or research, and the poor kids need both the latest and most general theories, in addition to some research techniques. Are the kids to whom he refers the top quarter or the rest or all of them? Are they the prospective specialists or others or all? He does not tell. Perhaps this point matters little, since experience in the method of discovery, in Bruner’s view, shows that kids learn faster when they are allowed to discover the material for themselves. This raises a basic question: why not follow the advice of Jean-Jacque Rousseau (*Émile*, 1762) to leave kids to their own devices in Nature’s bosom? Like all those who discuss the discovery method—now forgotten but still popular in 1960, when this book was written—he seems to have assured success. This is a gross error: even the best researchers have no assurance of success. (Einstein and Planck worked for many years with little or no success, even after they won the status of very great discoverers.) Perhaps all the fuss I am making is about the pretentious title by which writers (including Bruner) refer to this method: “method of discovery” or “discovery method”. In the book under review Bruner takes cognizance only once (and in passing) of the fact that teachers are familiar with the solutions they help students discover.

Let me hasten to add that my discontent is with the ambiguity of Bruner’s text about the discovery method, that it is admittedly widespread. I have no intention to belittle all the texts that belong to the discovery-method literature, particularly not *Modern Arithmetic through Discovery*. I simply view them in very different light than most writers do, Bruner included. We are still in Bruner’s Chapter Two. He eulogizes there. Students who understand a general theory understand more clearly the cases it applies to; they remember them better; they can even transfer their development and increase their capacity in other fields. Moreover, learning general theories spreads over various years and affords students opportunities in later classes to re-examine and deepen their understanding of the material learned in early classes. As things are, what kids learn in early classes is outdated or misleading; as the new method has it, the material in the earliest class is already up-to-date only less profound and detailed. Moreover, in such a process students also learn how to apply scientific methods and thus acquire experience in the method of discovery. All these fringe benefits apply to science as well as to mathematics and even to literature (where the laboratory has to give way to efforts to imitate the style of Henry James). These are very general claims; they are very weighty; Bruner makes them rather casually.

Readers who suspect that the above paragraph is a caricature are very nice; sadly, it is not. I invite them to read the Chapter Two and judge for themselves. Other readers may see nothing obviously amiss in what I report. Now Bruner’s wish is that teachers avoid assiduously all teaching of outdated material—even in early high school classes. For those who find nothing wrong with this attitude of Bruner, let me elaborate a bit on it, and explain why to me it seems impossible if not monstrous.

Bruner considers mechanics to offer the best example for his method. By the old method, a
student would start with Galileo and proceed to Newton later—perhaps a year later. Bruner should dismiss this as erroneous or misleading. Galileo says that all freely falling bodies accelerate equally. Taken literally, this is erroneous or misleading unless the word “roughly” is explicitly inserted into the wording of the law. For, as Newton tells us, the acceleration of a freely falling body is smaller the higher it is above the surface of the earth. Galileo’s law draws vertical lines from the various positions of a projectile, assuming that they are parallel; the projectile’s path is then a parabola. These vertical lines are sufficiently nearly parallel for practical purposes; theoretically, they are not, since they all meet at the center of the earth. (The parabola is an ellipse with its distant focus in infinity. This is of tremendous importance for Newton’s marvelous unification of Galileo’s and Kepler’s laws.)

As Newton’s theory is more up-to-date than Galileo’s, let us take it instead. It is and less up-to-date than Einstein’s. Newton says that forces act at a distance; Einstein says that they nearly act at a distance, traveling as they do with the speed of light. Should ten-years-old kids be taught Einstein? By teachers who can only do so if they use textbooks prepared by the best brains in the field? Should they approach the study of the conduction of heat from the viewpoint of quantum theory and be told that metals conduct easily because they contain electrons that behave like a gas being rather free and behaving according to the Fermi-Dirac statistics? Or is this theory already out of date? I cannot say, since my knowledge of physics is painfully not fully up-to-date.

All that Bruner asserts in favor of the structural method should apply beneficially to any person who can study in accordance with it. Such a person usually belongs to graduate courses as taught in the better universities; but some kids are precocious enough for this method, and to them, possibly, all that he says in his eulogy may be profitably applicable. The most advanced theory may become out-of-date, hopefully due to some progress in the field. In which case Professor Bruner will say that it is erroneous or misleading. Hence, today’s discovery somehow accompanies the recognition that yesterday’s views were somewhat erroneous or somewhat misleading. Students who realize that Newton’s theory corrects Galileo’s, and that Einstein’s theory corrects Newton’s, may suspect that Einstein’s too need not be the last word. Yet, if they begin with Einstein, the may become precocious dogmatists. This ends my discussion of Bruner’s Chapter Two. My assertion that to the extent that Bruner’s suggestion is applicable it is a recommendation for the education for dogmatism may want some elaboration, though.

Bruner’s Chapter Three opens with a bold hypothesis. Every subject can be taught to every schoolchild in any stage of development, though admittedly it has to be taught superficially at first.

What is the content of the hypothesis? In one sense of “subject”, this allegedly bold hypothesis is trivially true; and in another sense, it is trivially false. Bruner says it has won ample empirical confirmation; the version of the hypothesis that is empirically testable is neither: it lies somewhere in between. Where exactly? Let us modify “subject” to make it mean a set of problems: physics asks questions concerning weights and temperatures, economics concerning budgets and trade. Already as schoolchildren, we knew many questions from both physics and economics and some answers—mistaken and vague—even before we entered elementary school. We knew how much bubble-gum costs, and its opportunity-cost in terms of ice-cream; we knew that daddy could not afford a Cadillac
Part II: Etiology

convertible; we knew that toy-cars fall faster than feathers and even that cold weather can turn water into ice. We even had a few ideas about genetics and hematology, come to think of it; and we were fully-fledged criminologists and experts in space science from having watched cartoons on super-heroes. All this wants no support from Bruner and no confirmation.

Take the second sense of “subject”, then. Up-to-date theories. Bruner uses the words “subject” and “structure” interchangeably. Can we explain the Fermi-Dirac statistics to an average eleven-year-old? No. We can explain to kids some of Mendel's genetics, but not up-to-date genetics, Pasteur’s ideas, but not the vaguest notion on the latest views concerning the etiology of cancer.

Evidently, Bruner meant the golden mean: for physics, he had in mind neither Aristotle nor Einstein but a smattering of Newton; for geometry neither primitive nor differential geometry but a smattering of Euclid. The smattering that he mentions as what kids can learn is trite. That would not matter, except for the fact that theories such as Euclid’s, not up-to-date in the least, fall under Bruner’s category of false or misleading ones. Chapter Two makes this obvious.

Chapter Three offers examples. They should confirm Bruner’s bold hypothesis. Being false, misleading, and unacceptable as science, they do not; they only show that the knowledge of science that Bruner displays is far from up-to-date. This is no fault, yet it disproves his bold hypothesis.

In the same chapter, Bruner also advocates the spiral curriculum, so called; it is the method of teaching the same subject a few times on different levels of detail, precision. This, again, is correct. It is old hat. To be consistent, however, he should object to levels of precision as imprecision, since it comprises mistaken or misleading claims. Nothing remains then of Chapter Three—except for Bruner's admission—to his credit—that any curriculum may be open to revision, pending further research.

Chapter Four advocates intuitive thinking. First, he contrasts the intuitive with the formal. Then he contrasts the intuitive with the analytic. Further on, he describes analytic thinking as explicit, be it inductive or deductive. He then describes intuitive thinking as skipping steps with little or no awareness of how this occurs. Intuitive understanding of a given material in class he then contrasts with the more traditional forms of deduction and demonstration. He mentioned explicitly three methods of learning: the analytic, the inductive, and the intuitive.

On a rainy day, having nothing better to do, you may list the ambiguities, incongruities, inconsistencies, and cross-purposes, implicit in the above paragraph. To Bruner’s credit, however, I should stress one point. Chapter Four mentions the existence of problems: it mentions the intuitive as a mode of their solutions.

Bruner adds a warning: intuition has its pitfalls. He stresses that the outcome of any intuition may be false; only if it is true it is analytically provable. He does not suppose that any scientific theory may sooner or later turn out to be false or misleading; this is contrary to his Chapter Two. To his credit, however, when talking about intuition he recognizes that there is no finality in science—for a short while, admittedly, as the outcome of intuition awaits
proof to supplement or overthrow it—but nonetheless, and fortunately, he does admit there that science lacks finality.

How does one train for intuition? Encourage students to guess? Their guesses are too often likely to be false. Bruner recommends guided guessing. (This brings him closer to the so-called method of discovery in teaching.) He also notes that intuition grows as a by-product: the more you know the better you guess. Proof: a physician’s tentative diagnosis improves. This proof, let me hazard a guess, is not empirically confirmed; it was never tested. The chapter continues for a few more pages, and, to Bruner’s credit, its two closing paragraphs refer to practical difficulties.

Chapter Five concerns incentives. At the end of his Introduction Bruner says this. Ideally, the best incentive is the student’s own interest, but it is neither possible nor wise to abolish grades and other external incentives. Chapter Three returns to this and admits that students’ inherent interest in the material at hand is a good incentive and grades are a poor substitute for it. Why, then, does he deem unwise to avoid the poor substitutes? Now, exams are relatively new; for millennia, schools had no use for them. Before compulsory education, the end of exams was to qualify professionals, usually clerics; artisans had to produce masterpieces to qualify as masters. The discussion about them raises thus the question, is education for the life of the intellect or preparation for the life of action? The practically minded planners of the curriculum, Bruner observes, want it to serve short-term purposes; the others demand the opposite. Bruner and the whole conference that he has chaired go for a middle-of-the-road proposal. Do these support exams? How do the usual middle-of-the-road exams look like? Do they differ from the traditional ones?

Most of the material in this chapter covers broad topics: American traditions, the crisis in the feeling of national security, meritocracy, and the two cultures. Does all this lead to a reform of the curriculum? If yes, what kind of reform is advisable? With present-day techniques, Bruner admits, arousing kids’ interest sufficiently is impossible: most of what we teach is intrinsically dull. Nevertheless, it is useful: national security and jobs in industry. This may be a recommendation to render all schools vocational. This may leave no time for studying the arts, and no jobs for teachers in the arts. Hence, we must do something against these risks, Bruner notes: we should enlist federal aid for education in the arts, and seek new ways for coping with these risks. This is puzzling. For four chapters Bruner assures us that his new method is applicable to the arts as is his recommendation that kids should be encouraged to try to imitate the style of Henry James. Now he admits that he needs money for research before he can help raise the level of the arts and of literature in school. Odd.

Chapter Six, the finale, discusses teaching aids. These are very good at times, but they do not replace the teacher who must serve as a living example to budding intellectuals—as an intellectual father figure. A teacher is “a model of competence”, “a personal symbol of the educational process”, an “identification figure”. Bruner also admits: unfortunately, some teachers are just terrible. No proposal for improvement.

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55 To the extent that extant diagnosis is improved, the improvement is almost totally due to improved techniques: https://www.ncbi.nlm.nih.gov/books/NBK338593/. The limits of progress in diagnosis is due to the limitations of the space for improvements. See Nathaniel Laor and JA, Diagnosis: Philosophical and Medical Perspectives, 1990, Ch. 5.
This, then, is a summary of the content of the volume on how to improve teaching: the most up-to-date and the most general theories should be processed into the standard textbooks of all ages and taught by a semblance of the discovery method while prompting kids to develop their intuitions—by motivating them; by arousing their interest; by promising them high grades. The aid of teaching machines and movies may be useful, but the primary factor is this: we need teachers who can serve as intellectual father figures; they should be morally noble and intellectually armed with the most up-to-date textbooks written by the cleverest people around. Each of these points merits much more research—urgently. Federal Funds please take notice!

This book is dilettante and confused yet it is distinguished and important. This provides what leading composer and musicologist Roger Sessions has called the inner dynamics of the piece. Scathing reviews are rather hard to write: if the book under review has merit, a scathing review of it is out of place; otherwise, a review of it is redundant. (Unmasking is intellectually cheap.) A reviewer has to consider an intellectually poor volume under review of great significance by some criterion other than intellectual, say, practical. This volume is of a great practical value: it should ring an alarm bell. The longer the alarm bell is silent the more urgent it is to activate it.

An author of a scathing review may show any kind of courage by publishing it but hardly intellectual courage. I surely do not have any intellectual pretense in doing so. The only thing I am adamant about is my hostility to avoidable compulsion. Further, I advocate, beginning at least in high school if not a little earlier, the application of the dialectical method in teaching—raising problems, airing solutions to them, offering criticisms to the solutions. This process begins where the student happens to be and ends when the course ends. The unavoidable end is either the last solution or the last criticism—depending on the present state of knowledge. Beyond this, the process is not instruction but research.

All this raises questions about academic conduct—including academic rituals and academic taboos—and about academic honesty and about whether and how the two can go together. A poor intellectual may get away with it by playing the academic game properly—by following the rituals and saying the silly things that most people believe in already. The system may, reluctantly, denounced the independent and brand them cranks. On rare occasions, this may lead to expulsion or to isolation. The former procedure takes place in the world of free professions and is a very tedious and costly procedure. The latter takes place in the intellectual world. As it is less costly, it applies more frequently and freely. Expulsion is official; its victim is legally barred from practice. Isolation is unofficial, and sometimes operates like an invisible web in a Kafkaesque world: the isolated practice freely but in isolation—and on rare occasions, they interest audiences and become fashionable. They may become fashionable because they are the last of a generation and magnificent grand old masters. As they cease to be dangerous, it becomes the ritual to admire them. Even otherwise, they stand a chance. Intellectually honest young people may find their ideas interesting; they may study and discuss them and examine their worth. Let me end by one more reference to Faraday: he was isolated intellectually but admired as a public performer. He used his lectures to advocate his ideas. Two of his famous Christmas lecture series aimed at children have appeared; if you are interested, you can glance at them and see how they succeeded in carrying out his subversive plan: the revolution in physics that he effected was barely noticed. (Einstein’s praise of Faraday and his expression of debt to him have passed
The Establishment dismissed my book on it, even though it appeared over a century later: fields of force are no longer at issue, but the very idea of them as revolutionary is still too subversive.

I had planned to talk in this section about intellectual courage, but I got tired of the topic after the last section and before the next part. In the next part, I am going to help you learn to act bravely, and I hoped to show you first that you need not fear too much trying out my proposals. I have illustrated this to you, I hope, without much pep talk: if Bruner and his colleagues could get away with what I have described, anyone can get away with almost anything. No kidding: Academe is tolerant. Never underrate this terrific quality.

Faraday discovered that electrolysis can take place even in the absence of water. He claimed that this refutes the view of his late teacher Sir Humphry Day. Dr. John Davy, Sir Humphry’s brother, expressed indignation: Sir Humphry had not said that electrolysis in the absence of water is impossible; he merely observed that he could not find such a phenomenon. Faraday was breaking a very strong rule of the game, and the attack on him was no small matter. Ever since the seventeenth century, the system discouraged researchers from publishing their guesses explicitly—since guesses may be false. When you criticize a researcher who worked by the book you should also work by the book: criticize implicitly. Faraday hated controversy, especially in his early days (he started as a Baconian).

Nevertheless, under heavy fire he published a detailed reply. Had I claimed that water is the only solvent for electrolysis, Dr. Davy would have claimed this idea for his late brother, said Faraday; now that I have proved the contrary, he argues in accord with my finding. It is hard to say where the story ended since it submerged in much bigger issues—Faraday’s heresies caused him isolation as a thinker. He won by a fluke: his cousin was a temporary lecturer replacing a sick professor; one of his students was William Thomson (Lord Kelvin) who later advised Maxwell to study Faraday. The rest is history.

The commonwealth of learning has a network of fluke-hunters—the intellectually honest—the elite whose influence is out of all proportion to its size. Perhaps you are mistaken in your decision to join Academe; but if you do, why not join the very elite: it is at no extra cost. Most academics I know suffer academic agonies—both from a sense of duty and from fear of ostracism. At half the effort and a little more planning, they could join the elite. How, I do not know, but it engages the next part of this volume.
PART III: PRESCRIPTIONS

The rule that guides me here is that of Bernard Shaw. He wrote his plays as political propaganda, but he needed an overall rule to guide him. He developed a new attitude towards the standard book of rules of the theatre. In almost every play he wrote, he planned to violate a rule; he did so while taking care of its rationale. Thus, for a conspicuous example, his early, 1896 play You Never Can Tell that is a mix of drama and farce, builds its plot on coincidences. The rule says, avoid coincidences: since this ploy is too artificial and too easy, it does not work.\(^1\) In that play, Shaw piles up coincidences, and so his audience soon expects more of them. As Maugham has observed, any event, however improbable, is fine as long as readers are ready to consider it credible, no matter why and no matter by what ploy narrators succeed to convince their readers. Another example is Shaw’s only tragedy: St. Joan. The most sacred rule of the theatre is that a tragedy ends with a catharsis. In that play of his, the cathartic scene is most memorable, as in it the priest responsible for her burning on the stake sees it happen (off stage), and expresses sincere great regret. (This comes to illustrate a major thesis of Shaw: evil deeds done out of malice are as boring as pickpocketing; it is the evil done with good intention that deserves attention.) After that cathartic scene, Shaw refuses to let the curtains down. Following Shakespeare’s Romeo and Juliet, he opens a discussion, to show that people refuse to learn the lesson that the tragedy teaches. It works—because, like Shakespeare, he delivers his lesson with a punch that expresses great concern.

Allow me a mini-digression on this digression. I enjoy the theatre and all other forms of the verbal arts, but they are not for me. There are many stories, for example, of parting with traditional ways and their replacement with better ones. Some of these end with reconciliation and adjustment to the new, some end with return to the old (and there are many other options). The authors of the stories that end with return to the old advocate tradition and the other advocate modernity. Examples go either way, of course, and so the choice of a case is an expression of the author’s predilection. Thus, intellectually speaking, art offers no argument. It is thus sheer propaganda. This is no criticism: it is the nature of the beast. The search for examples of the beauty of critical thinking leads us to different examples. True, the wording of a scientific text can be clumsy or beautiful; this may suffice to justify the repeated rewriting of scientific textbooks. Similarly, artists can dramatize some old great debates, political and scientific. Indeed, Plato’s The Apology of Socrates that many consider the philosophers’ bible, underwent dramatization repeatedly. Thus, even in the theatre the better advocates of an option recognize the merit of the alternative to it. The best dramatic example of that is the end of Inherit the Wind, the 1955 Jerome Lawrence and Robert E. Lee play on the famous monkey trial: Clarence Darrow has won the case, and he now stands alone, in the empty stage, holding two books in his hands, evidently the Bible and The Origins of Species, silently weighing them against each other. Nevertheless, this play, terrific though it is, cannot serve as a substitute for debates about the situation it describes so masterfully. That is where my heart lingers.

Back from the glittering theatre to drab Academic and its day-to-day life and its hoped-for

\(^1\) There are exceptions, though. Wilhelm Hauff had used coincidences freely; still, it is a weakness of his art, tolerated since his stories are otherwise terrific. Similarly, readers forgave Boris Pasternak his having his Dr. Zhivago bump into his sweetheart in the vast Siberian steppes.
reforms. These are sound rules that we should try to apply to all reform. First, examine the rationale behind the current system: there is a good reason behind every current practice—including even the stupid and malicious intrigues that notoriously obsess academics of all faculties and all departments. To implement a reform successfully, there is the need to try to see to it that it preserves the positive function of every institution and custom that it comes to eradicate. Reformers must advertise this when they implement their reforms. They also must see to it that the reform includes means that compensate all those who will suffer from it and institute amnesty for all who habitually behaved in the manner that the reform comes to outlaw reasonably successfully. The literature on reforms occupies a major part of the literature on the law and on politics. The most important aspect of it is this: minimize the damage a reform causes and compensate its victims as best possible.

For example, before we can abolish the lecture course, we must secure the tenure of the professors and assure them of two things: they do not have to replace their lectures with anything, and the reform assures that they can work for the implementation of any alternative to it that they like. Above all, we should never abolish the lecture course itself, only the obligation to attend it. This is possible only if reformers take care to ensure the avoidance of the institution of extraneous incentives to attend a lecture course: there is only one legitimate incentive to registering in a lecture course in the interest of students: it is their recognition that it is to their benefit to attend it—be the benefit intellectual or practical or any other.

1. How to Avoid Professional Mystique Without Loss of Self-Esteem

Professional mystique finds expression in ordinary language: the words “professional” and “expert” are used as synonyms although some experts are amateurs and some professionals are inexpert. Yet even ordinary language distinguishes between the two: praise for expertise is for efficiency and competence, for the ability to solve problems, whereas praise for professionalism is for the insistence on correctness, on etiquette. Yet etiquette it is that expresses mystique. Industrial psychologists accept it as a truism that professional mystique serves to boost and support needed self-esteem, that on occasion it might obstruct the development of professional efficiency and competence, and that in such cases the task of the industrial psychologist is not merely to remove the mystique but also to replace it.

I think you dislike this, and for two reasons. First, these industrial psychologists are narrow-minded professionals with the sense of superiority—the mystique, indeed—of members of a super-profession. On this count, you may be right. Second, there is an implicit comparison here between industry and Academe. You resent this. Here you are in error: you suffer from a sense of superiority. Academe has many functions, and it is comparable to other employer regarding any of these. As an ivory tower, it is possibly superior to any other ivory tower, from the Buddhist monastery to the lord’s manor. As an employer, the ivory tower is possibly superior to any other employer. Or as the center for the administration of rituals, or of justice or even as a center of learning or as means for the advancement of learning. Comparisons and contrasts of diverse sorts are always trite, but they may help dispel mystique: it may improve one’s sense of orientation.

Mystique comes to bestow harmony. In Academe harmony is absent as a rule: internally,
then, academic mystique is a failure: its target is the market place. The reason for its internal failure is that tasks of academics are not suitably definable. Comparing academics for excellence is hard, except for popularity. It includes students, peers, or administrators, but mainly the lay public. The diversity of criteria of excellence makes any opinion on them contestable. All this invite jealousy and mudslinging aplenty.

1.1

Let me advise you about the best place in the game that you can occupy: stay out of it. Instead, do your own thing: do what you enjoy doing. It is best for your soul and for your career. Do not volunteer. If they assign to you a role, play it well, but stick to the book: do nothing more, except to help students in need. Frequent the departmental seminar only if it interests you. Avoid bumping into peers. And remember: honesty is the best policy. Peers may resent your poor valuation of their performances; they may hate your dissent. This sounds as if a little flattery may help. Admittedly, it can go a long way; slight oversight of some awkward items is better. There is no harm in that. Nevertheless, I say, avoid it all. Repute for straightforward, honest conduct is much more rewarding and much more durable. It also becomes a good habit. It also disqualifies you generally for entering an academic clique. The penalty for honesty may at times be excessive, especially for non-tenured faculty. The world is often unjust and those are utterly fools who say that occupants of academic jobs are people who best deserve them. Yet injustice hits the honest and the dishonest; observation shows clearly that dishonesty too does not always deliver the goods. Above all, honesty does lead to the company of those who prefer honest criticism to flattery (in accord with the advice of Proverbs, 27:10).

All this is obvious. People are often shocked when they hear of injustices in Academe. For them academic mystique is a great success.

Academic mystique is surprisingly similar mystique elsewhere, especially in our own secular age, when academics sound ridiculous every time they use too overtly ecclesiastical means of mystification. In a section on mystique (called “injelititis”), brilliant Parkinson’s Law (1957) describes the mystique exercised in poor business establishments or run-down hotels or universities. The cheap spy novel The Looking Glass War of John le Carré (1965), too, shows how strikingly universal mystique is. Its anti-hero is the incompetent intelligence department of the war office. The story is that the competent intelligence department of the Foreign Office sets a trap for the competition, designed to force the government to close it. The author presents mystique as the language of incompetence and disorientation, the means with which to avoid acknowledging the existence of these qualities. Le Carré reacted to the popular, romantic, glamorous trend of spy-novels, describing the spying profession as both gray and callous in equal measures. Somehow, readers and critics alike refuse to get the message. They take his grayness to be merely the technique of creating atmosphere (with justice: his techniques come from the magnificent, romantic, pseudo-realist trend of the detective novel of Dashiell Hammett and Raymond Chandler). His message has passed unnoticed. That in that novel a man goes on a useless mission to die there, all critics have

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2 Some academics are influential in the academy or outside it. They may receive invitations to international academic gatherings or organize them. Others are editors or consultants. And so it goes.
Part III: Prescriptions

discussed; and they have often found it too unusual to be credible. As to the incompetence itself, they barely noticed it as a theme in the book, much less its universal nature. If you disbelieve me and if you care about it, then you can make an experiment to test it. Read the book and make a list of statements made by the incompetent intelligence officials there that both express and mask their incompetence. Go to the faculty-club or to the departmental office, where incompetent academics thrive. Try to find a difference in style. If I did not know that le Carré is one who used to mix professionally with intelligence officials and who had spent little time in a university, I would have suspected him of having moved dull faculty-club parlance to the drab offices of MI27.

I do not place le Carré in the same category as Chekhov. I discuss here one who uses contemporary idiom; I do recommend that you train your ear to hear it. When you hear professors saying, never-mind just now why what we are doing is important, when you hear their expressions of inarticulate contempt towards those who do things differently and their pooh-pooh at their reputations, when you hear stories from some good old days just when you feel that strong reasons are required, when talk of duty and of glory pops up in serious conversation, you may then feel unease and blame yourself for your shortcomings rather than pity those who speak that way. We should correct this error pronto. Keep away from contempt and from bitterness—in sheer self-defense, said charming Spinoza.

Let me then tell you a true story, and of the ill effect of the mystique on one of the most admirable and least naïve people I ever had the fortune to meet. Let me begin with the background information to the story. It was my mother-in-law, Margarete Buber-Neumann, reputed as the first to testify from personal experience about concentration camps in both Nazi Germany and the Soviet Union. She did that in court testimonies, in books, including her bestselling *Under two Dictators*, and in series of public lectures. I got her invited—with her consent, of course—to speak to the celebrated Boston Colloquium for the Philosophy of Science. This was no small matter since it involved a trans-Atlantic travel and since she was not fluent in English. Yet it seemed—it still seems—to me important since the Boston Centre for the Philosophy of Science was the intellectual centre of the American New Left that was a significant political force at the time. She agreed to compare the views towards rationality of the Old Left as she had experienced it in her youth and the New Left that dominated the scene then. This she did, and with great charm and great success. Unfortunately, the editors of the *Boston Studies* series did not have the courage to publish her lecture. (It appeared in German in her collected lectures.)

To my story, then. A week or so before the lecture, she rang me from Germany to Boston. She got cold feet. She wanted to cancel the lecture and suggested that I tell the organizers she was sick. This puzzled me since she was an experienced lecturer and an unusually brave one: she was used to hostile audiences since she lectured chiefly in Germany, to audiences that included many individuals who had spent their youth in the Nazi youth movement, so that they needed more than a dreadful military defeat to shed the convictions that she scorned. Yet speaking to an academic audience was different. This surprised me. To repeat, she did come to lecture, and did it very well indeed, but only because she had promised to come and had to keep her promise despite the feared fiasco. This expectation she owed to the academic mystique that she was a victim of, her amazing life experience notwithstanding.

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This story should show the ubiquity of the academic mystique: the default assumption is that it invites caution: dodging it requires constant efforts.

1.2

The one remedy to mystique that is possible to find in Academe today is proficiency, efficiency, competence. Here both Parkinson and le Carré would agree; wholeheartedly. I hope you do not need my story to know that this is not exactly my recipe, although I do agree that incompetence and mystique are Ugly Sisters. Professor Parkinson, a historian and a student of the differences between East and West, between democracy and other regimes, saw in efficiency something important on the scale of human affairs in general, whether in Western social and political life or in the western academic world. I shall not discuss here his detailed studies, interesting though they are. Rather, let me develop my own view concerning academic efficiency.

Taking competence and efficiency seriously generates a scholarly attitude and a thoroughness mentality that may easily amount to a mystique of sorts. Otherwise, it is much simpler if you leave competence alone, acquire techniques and proficiencies only when you need them and to the extent that you need them and no more. And no more. It is true that incompetence calls for mystique, but so does any exaggerated stress on competence. Indeed, over-stressing competence makes us feel incompetent and seek a mystique to cure it. Moreover, competence alone does not suffice for ousting mystique. In particular, the need is not so much for a high degree of competence as for a sense of orientation, a bird’s-eye view of one’s place in the world, a sense of how much one can reasonably expect to achieve regardless of one’s competence—under what circumstances and at what expense. In brief, the feeling that certain waste is inevitable is more important than respect for competence and efficiency. Since all this sounds rather highfalutin, let me offer an elementary example.

Take the very first serious task of scholarship: learning to read. It is the mother of all the exceptions to the rule. How can we explain to youngsters what reading is, I have no idea. Galileo considered script—especially alphabetical—one of the greatest miracles of all time. How can you explain to tiny tots what Galileo could not understand? How can you explain that teachers only pretend that they understand the mystery because they suffer from a malady called professional mystique? It is all so hopeless that it is not children’s misery but rather their survival that is inexplicable.

In desperation we shower our little wretches with all sorts of aids, educational toys, games with printed instructions, cross-word games, glossy illustrated fairytales—anything we can afford, and at times even slightly more than we can afford. It stands to reason that it all is a matter of hit or miss, that even if one experiment in the whole group might prove helpful, even partially, the venture was worth it. The sense of waste is oppressive, especially in hard-up families with bright problem children. And then enormous emotional and financial efforts are put into purchasing the newest, most expensive, dazzling piece of equipment; this flatters the harassed child and raises a momentary vague hope of a miraculous salvation—soon leading to an indescribably deep and painful sense of disappointment and frustration and despair, all of which goes promptly into a savage revenge on the new equipment; and the parents on the bewildered in the already miserable child.
All reactions of bewildered children to such situations are understandable. Yet parents feel they must make their bright children feel that they are in the wrong. This assuredly creates reading blocks. And yes, bright kids are more prone to suffer this malady, unless they are so bright that they learn to read almost effortlessly. And reading blocks lead to stubbornness. Rather than be inventive and resourceful, the stubborn learn to avoid work, to wait for the one and only way out of the problem; and when they try a way that fails, they neurotically wait for the wrath of God to fall on their heads. This increases stubbornness. The parents of the stubborn are then so frustrated that they cannot possibly do the only right thing—namely, comfort their child and offer all sorts of reassurance without explanation: no thunder is going to strike anyone; somehow, tomorrow will be a better day. Instead, parents get increasingly tense; they can easily lose their temper in no time and thus serve as instruments of the divine punishment that is bound to come.

How to avoid catastrophes of first-graders? The degree of competence required to prevent trouble is minimal. So is the amount of required general orientation. Yet the problem is very serious, and almost insurmountable, all the teachers and headmasters and child-psychologists and uncles and family friends constantly notwithstanding. They are all anxious to play their required role in the tragedy.

To make it easier on me, let me move from schoolkids to graduate students.

Like reading, proficiency in a foreign language and in mathematics are worth acquiring. You need not be expert; suffice it that you can read useful texts. You can acquire enough of this early in your career as a student. Find the classics in your chosen field that you enjoy reading, and study them closely. This is the best investment for a scholar. This is obvious to good teachers in some fields, chiefly in the humanities, but even psychologists and economists ignore it, not to speak of mathematics and of the natural sciences. You can enjoy reading good old texts: all it takes is looking for them; the internet is here a great facility but also a trap. Keep vigilance against the mystique. Aim at reasonable progress that helps you enjoy reading texts—in a foreign language and in mathematics.

1.3

As the requirement that doctoral dissertation should be original is the source of academic mystique, the requirements for proficiency and competence and expertise boost the mystique. Note this: competence is terrific in some specific contexts and deadly otherwise. This way they ruin the writing of a doctoral dissertation: the supervisor of the graduate student who has no idea about what is required of a dissertation can always ask for more work. How much? Doctoral dissertations are supposed to contain contributions to the stock of human knowledge, no less. Ask an academic what this is and you have invited trouble and may have acquired an enemy. This ensures the prevalence of academic mystique. The demand for expertise clinches the disaster. Keep your distance from it!

4 The trouble with old mathematical texts is old terminology. Avoid it. There is enough stuff without it. Some ancient and Renaissance text hardly use formulas. Early twentieth-century and later literature are easier to read. Some texts stand out: Maxwell’s texts are enjoyable as his equations are easy to translate into Heaviside’s terminology or even simply to skip.
Some decades ago, Princeton University senate witnessed a funny story. The head of the music school reported to the senate that the school had decided to grant doctorates to creative works and requested senate approval of that move. The head of the math department responded saying that, oddly, the math department had decided to have an innovation in the opposite direction—to grant doctorates to non-creative work. This raised laughter and the senate passed the required approval with no discussion.

This story merits analysis. Artworks were traditionally not in the jurisdiction of universities: to join a guild an artist had to produce a masterpiece. When recently the academy developed its current position as the home of all things intellectuals, it began with theories and histories of art and soon it laid its hands on art as such—by granting art schools academic status, by adopting art schools, by making art schools and art departments proper parts of the academy. A part of this process was the granting doctoral degrees for good artworks. In mathematics, standards are the highest: every doctoral dissertation had to prove a new theorem. It used to be pretty hard to find a dissertation that merely proves a new wording of an already proven theorem. To make it easier to receive a doctorate in mathematics it was necessary to find merit in a study that does not offer a new proof. The most obvious candidates are a survey, a history, and an educational thesis—but other options are available too. They are all known as non-creative. You can see how different the word “creative” means in art and in math. Most likely, the members of the Princeton senate were aware of this difference; it granted them an opportunity, however, to dodge the need to discuss the difficult question of the meaning of an academic higher degree. And they embraced this opportunity.

Doctorates were initially licenses to teach (licentia docendi): meant to control the teaching of dogma. Medical doctorates were different: licenses to practice. The rationale of granting licenses is that in many a society people employ strangers and they wish to reduce the danger of employing incompetents and charlatans. Prior to the industrial revolution, as church institutions academies required that their members to belong to the clergy; otherwise they were free (for life) of any task: sinecure means without care (of souls), without communities. Lecturing was secondary to scholarship and served as a means for publications. This led to granting of degrees that were intellectual licenses that the Church granted. These were coveted and so they were means for attracting students, which was a matter of reputation (and not of levying fees); though open to all, universities served only a small literate elite. They started granting degrees that in current secularized academic system were of questionable value other than that they carried the reputation that inevitably contributed to academic mystique. The only clear function of doctorates these days is that they all serve as professional licenses for entry into the academy: since World War II, hardly any academic institution will hire people with no higher degree; likewise, they will not grant a doctorate to one with no master’s degree. I still had friends with doctorates but no lower degree.

Professors supervise doctoral dissertations atrociously since they have no idea what is

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5 The reason for this is historical: mediaeval and Renaissance artisans (including artists) who wished to be masters submitted masterpieces to their guilds. The university began in Salerno as a separate (medical) guild as patients and physicians flocked to the dispensary of the monastery there; it ceased in 1812.

6 Not that criteria for novelty of mathematical theorems prevail. It is not very clear what theorem is new, what is a mere lemma, what is a variant of a known theorem, and what is a mere rewording of one. My image of math is thus somewhat idealized.
required of it, and they will not admit it. They have no idea as to when a student qualifies for a Ph.D. and they fear divine punishment, namely, their colleagues' ridicule, namely, the suggestion that they approve of a doctoral dissertation a trifle prematurely. To avoid this, they let their students hang about aimlessly for years; they allow the forces of circumstances and incidental events and outside pressures to determine the moment of relief; they cause a folklore of horror stories to develop among their junior colleagues and senior students concerning their bizarre methods of supervision and cruel ways of handling their graduate students. I shall not report any of these stories; you can hear them from others. My advice to you is, avoid a supervisor with many lingering graduate students.

1.4

Before you register as a graduate student, it would be wise of you to shop around. This may be wasteful, but you should expect waste: better lose a semester and move to another college than stay with an adviser who will make you waste an extra few years on a finished dissertation just in order to reduce the fear of releasing you prematurely.

We can expect the very competent advisers to teach their students the techniques they know well. So, unless you have a good reason that you have closely examined with the help of severe critics for wanting to acquire the given techniques, do not join a team of the super-efficient professor. Having made a reputation, this professor may very well be using students to sustain it. Any technique may become outdated any day and the day after you may find yourself in a marginal job, bitter, and boring your colleagues and students about the good old days. Your colleagues will cease to invite you to their parties and avoid your company—all of them except the incompetent and the lost. Your students will be a dull, unwilling, aimless bunch. You will be talking the language of mystique to these colleagues and students you will have. Your competence will still be there; what you will be missing is orientation and resourcefulness, and independence of spirit. You will be not incompetent but lost. Competence is not enough to dispel mystique; orientation is necessary for it too.

Orientation is a general feature. It applies to a field of study and to social life, and to your place in the department, in the university, in the community, in the profession. Mystique may develop with any relation to your professional work, yet it will become a professional mystique incidental to your profession. This is the basic optical illusion of industrial psychology: seen as a professional mystique, its roots being elsewhere is sadly overlooked.

Every society, social group, organization, or other institution, adopts procedures, a book of etiquette. Superficially, these are simple and accessible. The familiar with them usually abide by them: they live by the book. The unfamiliar with them are more fascinating. Some of them do not know and do not care: they are the happy-go-lucky whom everyone envies and admires and adores—rightly, but too often out of proportion. Not only God protects fools (Psalm 116:6); everyone does. The funny fact about them is that they are not such fools as they make you think they are (Suspicion; Gone with the Wind; Lucky Jim; Happy-Go-Lucky; The

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7 Where the requirements are clear, as in some chemistry and biology labs, a doctorate is a simpler matter. The problem there, however, is that the requirement is often for positive results, which makes doctorates gambles. Popper's methodology should alter this soon.
Man Who Came to Dinner). They do not live by your book, but they live by some book: they listen to another drummer (Henry David Thoreau). Their book is unusual in one way: through thick and thin, they absolutely must remain amiable and bubbling and delightful to the last. Those who do not act by any book, who have no special book to live by, they get penalized, often also broken—they either learn their lesson the hard way or move helplessly from one penalty to another, from prisons and mental homes to beachcombing and tedious temporary jobs. The most thought-provoking type, however, is rather common in modern society, especially in the middle classes: the type of those who know that there is a book and that they must abide by it. They have no idea how to do so, but they do. Common as they are, they awaited discovery; Franz Kafka discovered them—introspectively, by the way. He will be recognized as a psychologist who used literature as his medium of expression: he is the first and leading psychologist of the mystique.  

Kafka’s hero does not know the book because of a deep-seated mystique, a sense of guilt, and so on. Psychoanalysis will never help him adjust: they share the most serious flaw in Freud’s psychology, the erroneous view that we all know the book. Freud did not allow to blame the super-ego for the ambivalence that people suffer from. His father must have been a tremendously imposing individual.

Something hilariously ironical goes on here. Trauma initiates in childhood and sets root in adolescence; the book of rules that a child or an adolescent can know is primitive as compared to that of a young adult. Freud rightly considered learning the book for adults a part of the process of adjustment. Adjustment to what? To one’s environments; is not the book a part of the environment? Can the Super-Ego grow? Freud (and Freudians) described adjustment in sufficient detail for a critic to show that they do not include in this adjustment any growth of the Super-Ego. This may have practical consequences. For, however traumatized you are, perhaps you can bring yourself to learn some sets of rules; in the abstract; say in an alien society. If you do, you may find it easier to adjust, say, by joining that alien society. Rather than undergo analysis, perhaps you can try to read sex-manuals of alien cultures. Perhaps not; but analysts all too often advise patients to try all sorts of experiments rather than reading such a manual. This is empirical information: about current manuals of psychoanalysis. Freud advised his followers never to advise their patients. Critics said, this was barely possible” Freud could not possibly follow his own advice (Alfred Adler).

Back to Kafka. He would probably have refused to study any book of rules; he was neurotic enough to prefer to abide by an unknown book, constantly in fear that he was breaking it: the fear was painful, but it also gave him a thrill. I have a friend who knows only the rules of research, so whenever he is in trouble and he does not know what to do, he goes to his researches about which he does know what to do, and hopes and trusts that other matters take care of themselves. They often do, more or less. Most academics live like Kafka. They need the mystique as an excuse for their ignorance of the book, ignorance that the mystique in its turn perpetrates. They bother a lot about the book; whenever they have to make a decision, they worry a lot and go about it inefficiently; the more technical the problem concerning which they decide, the less technically they go about it. They lack worldly wisdom—they will not study the book.

8 The same holds for novelist Jack London: leading animal psychologist Konrad Lorenz has recognized him as the father of modern animal psychology.
Every manual of every university is such a book. Every letter of academic appointment refers to it. Administrators can and do bully academics and play with them all sorts of Kafkaesque games. My advice to you is, invest a little time now and then in study of the book that they expect you to follow. It is a good antidote to the academic mystique. It will prevent them from forcing you to ask for permission to do what it is your right to do just because you fancy it. In my experience, this piece of advice signifies.

1.5

Two stories by Kafka illustrate the malady and pave the way to a cure; both occur in his *The Trial*. A man stands by the gate trying to bribe the sentry to let him in; the sentry says he is not authorized to grant permissions. The man goes on trying—for the rest of his life. With his last breath, he hears the sentry volunteer the information that no entry permit was necessary. The second story is from the very last page of that book. K. has presumably been tried and found guilty (this is unclear: the book is unfinished); for, his executioners come and take him to an empty lot in a suburb to kill him there. To the very end he is ignorant about his crime, the judges, the court, or its legitimacy. On the way to the execution, the victim and his executioners cross a bridge; a police officer stands there idly. All that K. has to do in order to find out whether the business is legitimate, is to ask the police officer for help. He does not. Kafka offers his opinion only in the last sentence of the book that describes the last moment of the victim: “‘Like a dog!’ he said. It was as if the shame of it should outlive him.”

Before you ask for any entry-permit, inquire whether it is necessary and who is officially designated to answer the question, and examine the answer carefully. Regardless of your feelings, if someone jumps at your throat, do shout for police assistance. That is all you can learn from Kafka. Bureaucrats may demand entry-permits even with no authorization to do so; some of them do so despite explicit rules that forbid it. Ignore them and move on. There is nothing more to it.

Or is there? Manuals are full of hot air; people you consult talk endlessly and never to the point. Where are we? In a Kafkaesque world. Well, you have to find the right paragraph in the manual; and if you have no time for more, seek the right adviser. How? I do not know. Just keep trying.

When I was a perplexed adolescent, I went to *The Guide for the Perplexed*; in it, Maimonides had advised me to consult people reputed for their wisdom. It broke my heart: if I knew who was wise, I mused, or whose reputation for wisdom to trust, I would not have been perplexed. Yet nothing is easier than to thumb through a manual in search for the proper paragraph or to seek the person who might and would interpret it for you. You can consult various reputed persons and make up your mind whom you wish to retain as an adviser; even phonies may offer sound advice, however reluctantly, when you press your request with reasonable honesty. Maimonides was thus on the right track when he sent the perplexed to the reputed, but he could not help me by directing me to the wise. The worldly wise is who we need; the settled; the one who may be phony but who also can quietly and amiably take reasonable care of their friends and relations; one who is not easily thrown off balance by
the unexpected. Maimonides spoke to the perplexed in search of God, not to the perplexed in search of their own places in the world. My mistake. I am afraid I did not make myself clear enough. Let me try again.

1.6

An essay by leading Canadian neurologist-psychologist D. O. Hebb concerns the mystique of inductive confirmation and its effect on his graduate students: it made them nervous. It is the mystique of academic competence and success; it is your key enemy. Very few are successful all the way as inductivism promises. Most people fail regularly; some of them, not discouraged by failure, try repeatedly—usually with slight variations. Stories of mere success, in Who is Who, on the dust jackets of famous books, or in the College periodically printed mystique, stories of the pure milk of success are depressing no end. Hebb ignored all this. He reported that he had told his graduate students not to take things seriously. This good advice scarcely helps, as it matters to careers.

You may have read some biographies; at least sometimes, they may have depressed you by showing you quite unattainable an ideal. When Mozart was my ages, says Tom Lehrer, he was dead. This causes self-contempt, self-mistrust, self-doubt; intensifying it beyond reason is his proposed cure for it. Facts are simple: we all fail, even Einstein managed to fail although he was a success before he was thirty, and even Beethoven. Nevertheless, we may learn to be resourceful, cut our losses—viewing them as tuition fees—and start afresh. We may achieve nothing, yet live happily trying and trying again and approaching the grave as cheerfully as any has the right to, not only the Einsteins and the Beethovens. For this only hygiene is at your service: when anyone says, who do you think you are, you know that you are no friend of this anyone, no matter what a somebody that a anyone happens to be. Keeping distance from anyone of this ilk incurs no loss. So do watch it. Only the lonely cannot keep distance, and loneliness comes from the inability to help. So do learn to help.

More generally, it is good to remember that losses are a part of the process, that every development must be wasteful to some extent. Alas, first-graders cannot understand this. Parents can comfort kids and make them trust that all is well even when they do not understand how or why; but too often parents do not understand this either. Do understand and remember this if you do not want to suffer from mystique and from self-degrading of any sort. When others in your vicinity suffer likewise, you should comfort them and remind them that some failure is inevitable.

To recapitulate, Maimonides advises you to go to the reputedly wise on the assumption that they are wise. This assumption is questionable; in modern Academe, it is often false and then dangerous. Academic mystique exaggerates the success and wisdom of established academics and so they are often your worst advisers; to be of use to you they have to be worldly wise rather than great lights. Otherwise, they will feel phony because they tend to view their

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9 Donald O. Hebb, Biological and Biochemical Bases of Behavior, 1958, “Alice in Wonderland or Psychology Among the Biological Sciences”, 451-67.

10 There is logic to all that. Newton was supposedly infallible until 1818, when his optics was superseded. Physicists then felt the urge to prove that his theory of gravity is better founded.
reputation as exaggerated and fear that when advising you they may expose themselves. You may nonetheless get good pieces of advice from them, but only after making clear to them that their mystique will not do, that you sincerely want real advice and no pep talk.

1.7

Sociologists have concerned themselves for long with the penalty or sanction applied to those who break the rules. The penalty is all too often administered by what is known as public opinion, epitomized and symbolized in literature, Theatre, and innumerable movies, by the woman (often a spinster or a widow) who served semi-officially as village-gossip; at times the task was allotted to a frustrated wife or even a bachelor (*Sitting Pretty*). When a couple in the village live in sin, the village-gossip is supposed to ostracize them. Yet she dotes on them; she wants to know all about them first-hand since she is in constant need for refurbishing her stock of gossip; she is thus a peeping-Tom; and they are adorable, being people who habitually break the rules and get away with it.

Kafka knew that the threat from the village-gossip is pure projection. His *The Castle* describes carefully a once-popular-but-now-ostracized family. Their disgrace would have been forgiven, they admit, but for the fact that they cannot forgive themselves. Kafka was perceptive; he ignored a significant fact, though: the perception of the family that he described and its honesty with itself makes it most unusual. You should not forget this.

In Academe (undeclared) ostracism is much the rule as officially declared expulsion is in the free-professions, and much cheaper to execute. (I will discuss this later.) It is hard to know what kind of people are ostracized and why, much less than to teach you how to minimize the reasonable risk that you may be ostracized. Nor can I tell you how to exorcise the spell of ostracism. The myth says, almost all cranks and only cranks suffer ostracism, once and until they prove that they have repented and relented and reformed. What generates ostracism is never public opinion though the mystique would have you believe it is. You can easily avoid being the object of their wrath by starting not at the top, thus not coming to the unkind attention of those who ostracize until you are well established. Being established, incidentally, is also a matter shrouded in mystique; but in small doses it can be broken down to simple criteria: by the time you have a good position in an established school and a few publications in established periodicals, you are moderately established. Or even if a few leading people merely say that you are just great.

Remember this. No matter what you do, you are in the wrong just because you are a troublemaker and there is no need to prove that you are a troublemaker. If you concentrate on one thing, you are a narrow specialist: with all due respect, most of us may totally ignore you. Otherwise, you are too superficial, aiming to draw scholarly attention to yourself. Hence, if you must be popular, the right thing for you to do is to strike the golden mean. You may think the golden mean is between narrow specialism and thin spread; you are mistaken again: the golden-mean-kid is one we can be proud of, naturally; and so it follows with cosmic necessity that naturally the golden-mean-kid is not such a rebel and a nuisance and a pest as you are. So if you want the golden mean, then get civilized. Stop being a pest.

Get off our backs to begin with. Period.
Dear friend, if I had no hope that you will remain uncivilized for the rest of your life, and a pest to the establishment, I would not be writing all this junk for you. It has but one purpose: to keep your spirit from breaking too early in the game and help you sharpen your weapons and have a little fight now and then with the fellows who are so much in the middle of the road that they block all traffic. So keep your spirits high. That is much more important than all sorts of remedies are. In case you happen to be an ostracized colleague who wishes to know right now how to break the spell of ostracism, do proceed on the assumption that public opinion has no terror-striking tools and instruments of sanction and punishment. Why then did Franz Kafka live in constant fear that he might violate some rules? Why did Hebb’s graduate students?

Kafka was permeated with a sense of the importance of the book of rules and of the fear of violation and the irredeemable guilt due to violation. What did he think it important? What violation could make him feel so irredeemably guilty? When St. Augustine confesses his adolescent theft of a few measly pears, you feel he must be a saint to make such fuss over so small a sin. When Darwin describes his own youth, saying with an incredible measure of detachment, I think I was a naughty boy, and explains why, he wins his reader’s heart for the rest of his autobiography although some of his contemporaries were more amiable and easy going than he was. Does Kafka resemble St. Augustine or Darwin? He had a very good sense of proportion. In his Amerika, the story begins with a hero who at sixteen had fathered an illegitimate child, but neither Kafka nor anyone else except his pompous, cowardly parents make much of it. The hero, however, like all of Kafka’s heroes, suffer from unknown and inexplicable sense of guilt, a sense of proximity to a most important thing and failing to appreciate it. What had happened is simply that Kafka swallowed the mystique and suffered from it all the more because his strong sense of proportion forbade him from projecting it: his betters and elders could not explain matters to him and he knew that; yet he remained persuaded that somewhere an explanation must exist. He lost his faith, but he followed the Kabbalah: we must believe every day in the mysterious unexplained, so that we may be graced with the explanation (The Castle, 1926). Kafka’s greatest weakness is not merely in his taking the Kabbalah seriously; it is in his readiness to consider sublime the Kabbalist search in the book of rules of the maximum, of heaven-on-earth, in full awareness of it being impossible. This is not serious.

Consider your quest seriously but not too intensely. It may be specific: how to find God, how to contribute to human knowledge, how to be a decent member of a community, how to explain the anomaly of a semi-conductor. The starting-point is the same: there may be no answer; there may be some hint of an answer, a half-baked answer, or perhaps even a fully satisfactory answer. Look around; find some general guidance from well-oriented people even if they are not distinguished; experiment with their ideas; keep seeking. I do not know how, and I can do nothing about it except to encourage you to be resourceful. Think nothing of the waste as long as it is reasonable and as long as you enjoy the game and think nothing of the sanctions if these are reasonable: consider them low tuition fees.

How far does this go? Certainly not all the way. Students must know that if they drop out of courses and perhaps consequently graduate one or two semesters later than expected, life is not over, nor are their careers. True: certain losses are regrettably irreplaceable, certain problems are painfully insoluble, certain lives have been wasted irretrievably. Yet never forget: nothing ensures success, and so not learning the book of rules—and acting on it or
deviating from it. Nonetheless, I do recommend a reasonable familiarity with the book of rules.

How do we learn the book? How do we find the sanction for a deviation before we try it out? This is easy for students, since the major rules of the university that apply to them are written and binding. Not so with faculty. Some rules about this are not stated; authorities are likely to deny this. Thus, most of the coveted jobs are secretly filled before their obligatory advertising appear in the marketplace. This is illegal yet in regular practice. Worse, candidates who have received their doctorates after the age of 40 will not be serious candidates unless some external force imposes them (parachutes them, as the jargon goes). Rules that do not exist are necessarily rigid: it is impossible to fight ghosts.

Even less arbitrary rules are problematic. The book of rules says, for instance, do not rig experimental results to make them confirm your hypothesis. As I have told you already, Hebb reports that this sometimes leads graduate students to nervous breakdowns. How do others escape it? The book is silent about it. Of course, we have to alter the book and commend an experiment regardless of its empirical results. Alas, we cannot achieve this right now: the cult of success needs a serious onslaught.

When an instructor in a physics laboratory once showed me how to rig results, I was utterly dumbfounded. He would honestly and sincerely deny that he ever did such a thing. He simply did not know that he could fit a curve so expertly he could even teach a student how to do so, because he honestly believed it is very unscientific. It is: to squeeze them in is pointless. My friend did commit a folly. He could have told me that probably something had gone wrong with the instrument and he was too busy to investigate the matter. He did not. He was suffering from the mystique and he was transmitting it to me.

The students who suffered nervous breakdowns where Hebb observed them were not well oriented. They swallowed the mystique in the book of rules and never asked, what did other fellows do to get Ph. D. degrees when they were not much brighter? They often rigged results. Or they reported the refutations of their own hypotheses. Or they rigged their hypotheses. More likely, they rigged their doctorates and reported their results honestly in later publications.

1.8

John Chadwick reports in his breathtaking 1958 *The Deciphering of Linear B: Michael Ventris* and he had reported their discoveries in the learned press not in the dialectical style that would have fit the chronology of the discoveries more closely but in the inductive style. Some opponents had felt that something there was not quite kosher, and to this extent Chadwick confessed guilt. This is one instance for my view: there are two books of rules for research. The real book of rules is not inductive but dialectical. Induction is the professional mystique; you will be more at peace with yourself after you shed it. Therefore, my advice to you is, learn the rules of the two books. The most important rule of the real book is this: learn to admit error honestly; doing so puts one on the right track. More I cannot say, as I have no recipe for all eventualities. All I can tell you from experience is that threats of penalties on this matter abound and they are almost all bogus. The only serious disadvantage
of doing the right thing is that it yields many more rejection slips. You must learn to receive them with equanimity. Other than that, doing the right thing is not always rewarding and doing the wrong things is not always punishable. I still advise you to do whatever you think the right thing is; remember: it may be erroneous, but as it brings you closer to yourself, I recommend it.

Scholars read and write. Both reading and writing demand training. I will discuss writing later. The art of reading is simpler. Choose a question. Find as many books as you can that may be relevant to that question. If you find too few of these, consider changing your question. Glance at every book for one minute or so. Stop. Ask yourself, do I want to glance more into it? Put the ones with the affirmative answer on one side. Return the others to the shelf. Glance at the remaining ones a few minutes more and repeat the exercise. When you have only a handful of books you want to read, do so while taking notes; write reviews of them. Publish them or put them aside for a rainy day. The most general, most-often violated rule here is this. Low quality works are better ignored. Otherwise, add an explanation for the need to criticize them. (Mario Bunge’s criteria for this invite further discussion. I will ignore it here.11) And yes, book reviews should tell prospective readers what they want to know about them and why they deserve attention. A beginner, try to publish book reviews. For this, you need editors to commission you to write reviews of books that they send you copies of. Return a book not worthy of attention. Ask editors for detailed instructions. The more detailed the reply, the easier it is to comply.

2. How to Avoid the Academic Chores Without Being Inefficient

The mystique around the advocacy of hard work is so successful that a number of attempts to cut it down to size ended with utter failure. We cannot do better right now. I hope you are open-minded enough to reconsider and informed enough to know that the current cult of hard work, though it has biblical roots (Genesis 3:19: “In the sweat of thy face shalt thou eat bread”), it is modern.

2.1

Dostoevsky’s Idiot is the story of an epileptic: he joins a party in an opulent palace full of art treasures, especially an invaluable Chinese vase; the host warns him not to break it. The reader knows that the hero is going to get an epileptic fit, fall on the vase and break it. The author quickens the pace in a tremendous accelerando. The Chinese vase broken, the author starts a new chapter with a kind of moderato. The author appears there as a journalist who reports his having passed through a village, where he has heard gossip about some dramatic goings on in the party that took place in the nearby palace on the previous night. It hits you that the report is about the events you have just read in the previous pages. Whatever you think of Dostoevsky as an artist, surely his control of his craft was admirable. His stories move on two levels—the commonsense and the metaphysical—and the abyss between them is vast. On the metaphysical level, ignorance reigns supreme and problems and difficulties abound; Dostoevsky’s hero is possibly Christ incarnate. On the commonsense level, the

story is dull and the author stresses this superbly. This became standard technique. Ask a Kafka if he knows anybody; he would look at you disconcerted; he will wonder how on earth can anyone ever accomplish such a task as acquire any knowledge of, even the faintest familiarity with, anyone whatsoever. He will frankly tell you that some mornings he wakes up with the definite conviction that he barely knows who he might be (Metamorphosis). On the commonsense level, every normal person knows well friends and relations and work-mates. To avoid metaphysical pitfalls, we create conventions of acquaintanceship and familiarity; standards that are very superficial, so that they work as best we know; we reform them whenever we have to and have an idea how to. Look at letters of recommendation and their likes: unless they follow a formula, they seldom signify. The formula is simple and intentionally superficial: I know the candidate for so and so many years, I met him in my capacity as this and did with him this and that; we went on a tour to this and that place. It is practically useless to ask a good friend who does not know you well by these standards for a letter of recommendation for you. Often, a lukewarm recommendation from a person who knows you better by common standards will help you more.

Writing letters of recommendation will soon become routine for you—and unless you handle it on the commonsense level, it will absorb a tremendous amount of your time and energy; for many of my colleagues it is a real heavy chore. Newly acquired good friends may ask you to recommend them and you may feel terribly embarrassed because you will not know what to write in case you like them but you do not know them well enough by accepted standards. This embarrassment may lie heavily for weeks; it may deepen and cause endless chains of complications. It is easily avoidable very simply—merely by telling such friends that one has to write in such letters how well and how long one knows the candidate and in what capacity—and let your friends decide whether they still want you to write that letter or not: one way or another this prevents embarrassment.

You do not like all this. Nor do I. Acquaintanceship comes in different standards for different purposes; some of these might suit your temperament better than other; on the commonsense level or on the metaphysical—not on both.

Dostoevsky did for acquaintanceship what Kafka did for the book of rules. The inability to know people metaphysically upset him no end; he thirsted for real human contact. He thought the only real salvation can come from real human contact; love, hate, respect, contempt—they were all the same to him as long as they were real and tightly close; and so his heroes get exhausted and frustrated and desperate from failed attempts to reach contacts—often to the accompaniment of epileptic fits. Do not believe him On the contrary; had we accomplished life’s end, then we, or at least our children, would die of boredom. It is no accident that his Idiot fails to bring human interaction and salvation, and it is psychologically correct of him to cause his hero a breakdown at the end of the story. Better be worldly wise about human relations and no metaphysical recipe. Perhaps this is fortunate, considering that humans, and even other simians, must have tasks to perform or else they die of boredom.


13 In a sense, the writings of Dostoevsky comprise religious propaganda. His greatness was his rising above it as his magnificent “The Grand Inquisitor” illustrates.
2.2

Corollary: there is no general recipe for human contacts. Since I fear that this is what you may be after—quick instructions, in steps—step one, step two, and so forth—I have lost my tempo (if I ever had it). I can only hope that somehow you get a recipe to suit your own taste and circumstances, and that you enjoy the labor of concocting your own recipe as much as applying it. This is essential for the ability to sustain the happy human contacts that is essential for doing your academic chores with a good sense of proportion. I hope this volume amuses you. I hope it teaches you to avoid pitfalls, such as the confusion of the commonsense with the metaphysical, which may make great literature but not very productive life in any other respect. I can report some experiences and perhaps offer some hints. When I was a miserable student, I would have welcomed such a book as this one, even though its tempo is not half as good as that of Dostoevsky. When I was a young academic, I could help my department head because he took his academic chores very seriously and they put a great burden on him; so much so that I had to run things alone unauthorized. Still, if you do not like this volume do throw it at the wall. Go ahead, by all means.

2.3

You are lazy. You are lazy because you naturally hate work and prefer to do nothing at all (la dolce far niente) if not play silly games—which is the same—and even harmful ones—which is worse. You are selfish and so if we let you do what you want you will do nothing, and then the Devil will tempt you to do evil—as a penalty for your idleness. Therefore, it is our job, the job of your friends and colleagues, to goad you to work. If you do not suffer, you are useless dead wood, socially and individually.

The worst about the rubbish that the previous paragraph displays is that it undermines the distinction between the useful and the useless, thereby destroying all sense of proportion. This distinction is the heart of the present section: learn to ask of any task, is it necessary? If yes, is there a better—easier—way to perform it? Most chores are unnecessary; you hardly ever need bother about them (“Consider the lilies of the field, how they grow; they toil not, neither do they spin”; Matthew 6: 28). I suppose that you have loads and loads of chores. You can avoid most of these chores yet be a useful member of a department and a good friend to your colleagues (speaking on the commonsense level). My advice to you is, leave everything for a while and go out; go to the theatre, to the concert hall or to the bowling alley. Go! You will return to your desk with your sense of proportion retrieved.

If I show you that you hardly have to do any chore, and if we take for granted that you accept—voluntarily or grudgingly, I do not care—certain chores and even execute some, this amounts to your having swallowed the rubbish in the silly paragraph above. Yes, go back and reread it. I shall wait for you right here; and damn the tempo of these pages.

Well, then. I have discussed this point with many people. Some think I am crazy. Granted. Others think I am exaggerating though I have a good point to make. Someone must wash the dishes, they say, or clean the latrines; or correct the compositions of freshmen. What is a chore, I ask them. And when I show them that by a reasonable definition of a chore it is much less common than it seems, they grant me a victory but only a verbal one. They know
how much I hate verbal victories, but they hate being told not to do their chores too—so we are quits.

Even the greatest enemies of communism, if they know anything about it, admire the willing self-sacrifice with a smile, with which communists will execute any chore imposed on them. Now the truth is that some communists enjoy chores, and they soon find themselves in the position known in their party as “old horses”. Whether a chore done lovingly yet as a chore is still a chore is as tough a problem as the famous one: is a masochistic pain really pain? Ask students of the philosophy of Jean-Paul Sartre—they enjoy such questions, so let them handle this one. Ignoring the masochists, you will find that communists graduate fast from one chore into another—going through the whole menu and ending up either as party-functionaries—doing nothing, bored, and in search of some intrigue—or as ex-communists: it is the boredom that makes them start their criticism and move away from communism and further away (unless McCarthyism sends them back to the arms of the Party).

What characterizes the young Communist who does things so willingly is faith, hope, optimism. Old Communists are different: they have been around long enough to know that salvation is not around the corner. Yet they do their chore regardless—not from hope. They seldom know why. Perhaps in order to avoid thinking about politics. All too often chores turn out to be redundant and even harmful—such as the Communist’s chores, such as most of the five-finger-exercises and drawing courses and bookish classes and braided lace and high tea and pomp and circumstance.

Boredom, like any other disease, does not distinguish between an old Communist activist and a house cleaner: it hurts them all, since it is painful. Leibniz has made this observation in the seventeenth century. They say boredom is the outcome of laziness and laziness is an induced neurosis; an inadequate mode of protest that turns into a mode of escape from excitement. For many people washing dishes is not a chore; it is a chore for the traditional homemaker, one that symbolizes her unjust frustration. Yet Agatha Christie considered it a form of recreation. After a dull party, it may very well be a chore. When a party is zestful, however, there is always a helping hand of a charming guest who wants a chance for a private conversation with the hostess.

Only boredom characterizes a chore. What characterizes boredom is less its being routine and more its futility. What is additionally painful about chores is frustration or oppression. Whenever possible, we should leave a routine job to a robot to perform, or find a person who likes it, or one not yet very well drilled in it. College-kids who want to earn pin money may be less efficient in many tasks that they perform in their spare time, but they perform them with grace and so with no pain. The idea that one must do chores to perfection is one of the deepest causes of their pain. This is particularly true when a hard-working, snowed-under is in charge of the chores. Such people are snowed-under because they do everything and delegate none—and they then have to create jobs for underlings, jobs that are thus essentially futile: the real chores. The snowed-under will not give you a proper job until they are convinced that you will perform it to perfection.

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14 For “old horse” see Orwell’s *Animal Farm*, 1945; it is a standard term in the communist inner jargon.
Gossipy Plutarch says in his *Life of Pericles* that Pericles was such a snob that he would perform no civic task whatsoever unless he was fully convinced that no one else in Athens could do it at all—not even badly. It was Pericles, then, who discovered the principle of delegation of power. Many people think that they know the principle and that they believe in it. They all say, do not you think I would be happy to delegate all these chores if I could only find a really (watch the metaphysics!) trustworthy and competent fellow who could do them well enough? However, you cannot really trust anybody these days: if you want a job done really well you have to do it yourself. I can instruct and supervise the execution of the chore, but to do this really well is much more of a chore than doing it myself. There is no better evidence that such a speaker is ignorant of the principle of delegation of power. For, the principle says, to delegate you must give up perfection. This is not so obvious: Plutarch reported this unawares.

People who perform their chores because they want them done well have no time to do other things that may be much more important. They refuse to ask whether it is not more useful that the chores done not so well by others and allow them to do other things not so well. Doing things well, incidentally, can best be achieved by stagnation; if you want progress you must allow people to do new things and they do not do new things as well as things they already are doing well. Moreover, one should neither instruct nor supervise delegated jobs; keeping some superficial check should suffice. If the situation is very bad, then it may need a brief intervention of an instructing hand. Correct then only the worst errors. A sense of proportion trumps every day any efforts to correct all errors.

What you should know now is that bosses who undertake all the chores do not solve any problem for you; Parkinson’s Law operates here: pedantic bosses create sillier jobs for you. Refuse to perform them! To begin with, if worse comes to worst, you can confess incompetence. This will send your pedantic boss for long deliberations that may yield new suggestions. Meanwhile you can make a more reasonable suggestion. If it is reasonable, the boss will take more time to contemplate it. Meanwhile you can act, and do what you can to provide reasonable help—particularly for learning.

When you are a new member of a department, you will have a reasonable teaching load (6 to 9 hours, one week out of two). Your peers will expect you to do some research about which no one will have any discussion with you. (They may ask you for copies of your publications or invite you to talk to the local colloquium.) They will shower on you hundreds of other small tasks—they will specify them day to day; registering students, advising them, grading their papers; memberships on all sorts of departmental and faculty committees or sub-committees; organizing all sorts of occasional and standing activities from a publication and library to a party and students’ club. The general rule is, do not jump at a chore; do it if you like it—either because you see it yielding fruit or because it affords you contact with charming people, it does not matter why. If you enjoy doing it for a while, do it only for the length of time that you enjoy it.

Someone is sure to admonish you: we all must do our shares. Especially in modern Academe, where life is largely of a whole community within the ivory tower. In some cases even second-hand car dealers on lots adjacent to the college and housing agents to whom the college sends newcomers are eternal students and faculty spouses; they raise the number of chores on campus. Be friendly; always ask for the use of the chore at hand; always show
willingness to do some other job for which you may fit better: and do try the job that may challenge you.

Grading papers is tough because graders do not know how to grade: they have no criteria or, worse, they employ criteria that they disapprove of. If they are perfectionists, then they demand the impossible. It is important to know: there are no criteria. There can be none, since the task is senseless. Proof: exam with obvious functions are unproblematic. So grade a paper or an exam as well as you can and as honestly, with no waste of time: being on the tentative assumption that you should grant it an average grade (it is a B or a C, depending on local conditions). Try to refute your hypothesis. If you read a sentence that catches your eye, change the grade as you find fit. If the paper has reached the highest grade, just skim through the rest of it to try to refute the latest grade. If you fail, then the highest grade should be the final one. You may think that this is it. Not so. It may turn out that you grant too many high grade—too many by the rule of averages. Hence, your class is above average. If you follow my advice, your classes will often be above the average. Trouble: the administration assumes that all classes are average. Their assumption is demonstrably absurd, but they are adamant. You will have to quarrel with them. Do. If your class excels, they deserve recognition. Alternatively, the class may be below average. Fight for that too, although this time, more likely, it is your department chair that you will have to fight. Do.

Most papers and exams that you grade you will naturally find not much above or below average. This is why administrations go for the average. Here is a thought experiment that I do not recommend: grade your class randomly, with the exception of not failing those who do not deserve failing. Most likely, no one will complain. Why? Because most grading is with no good reason so that they are almost random. To repeat, do not try this: it is unjust. Oh, yes, injustice is rampant; yet it is no reason for you to be sloppy.

Here is the most useful information about grades: after graduation, everyone forgets them for good, except the traumatized. Hence, the most important thing to know about poor grades is that you should take great care to prevent them from causing harm. The harm can be due to the rule that disqualifies those who fail from taking the next step in their career. It can be due to the violation of a student's self-respect.

I am nearly finished—this section is not going to be long after all. There are chores that nobody is required to attend to and that you should not attend to either, except as a young academic. There is a special type of student on whom you may lay an informal eye and with whom you may try to keep friendly regular contacts. There is also the excellent colleague who suffers terribly from a writing block and who would be most grateful for your proposal to write a joint paper. Someone else will be happy to show you a manuscript and expect honest critical comments on it. There is the supervisor who is desperate about one graduate student whom you may unofficially instruct and launch in one semester to everyone's immense relief. There is no point to continue the examples of such possible chores. You will have to be a pal—to be alert and find cases peculiar to your specific environment and personal taste, and you will have to discharge them tactfully. Such tasks may frustrate, but when successful they are pleasant and useful and cost surprisingly little. If you do such things, if, following Pericles, you will be available however seldom but when no one else is, then you will not be negligent, nor will your peers consider you negligent. Those whom you will help will see to that.
This should suffice for you in your early stages; in later stages, rather than do it you can also instruct young colleagues in the art of doing it. You will find out soon enough that the more you shun chores the more disposed your colleagues will be to offer you significant and useful and interesting and challenging and delightful tasks. Serious people from Plato to Kipling say that you must learn to accept orders—and wash dishes—before you can become a responsible leader. This is nasty and only partly true. Besides, you should become a responsible citizen, not a leader. You can perform your tasks as long as you are learning and hence enjoying it. The moment it becomes a chore and a bore, drop it. Someone else will do it or else it does not matter that no one will.

Is this always so? Of necessity? I hesitate. I am trying to stay on the commonsense level. Metaphysically, arguments go either way: possibly life will be happier with no dishwashing; possibly the contrary is the case and doing chores builds excellent characters. Metaphysics aside, the question is different. For a million dollars, many people will wash dishes religiously, ecstatically, enthusiastically, lovingly, and throw in a sonnet to boot. Just look at those college-kids who are paid well in resorts for dishwashing; pearl diving is the technical term for it; appropriately.

Corollary: giving you a chore is making you a dupe. It appeals to the mystique and to a fuzzy sense of duty. Better make any task sufficiently worth your while: enjoyable and useful. Last word: a word of caution. Some offer a counter-mystique to avoid standard chores and their mystique. There is no need for that, as one can always say that one works too hard. This wins high appreciation, becomes a trademark, and provides a little local color. This may succeed in short term—at the cost of acquiescence in the mystique; thus one joins the crowd (Nietzsche). Do not join them; do not follow their footsteps; rip all mystique in its bud.

3. How to Avoid Memory Work Without Being Ignorant

Metaphysically, we are all ignorant. By common standards, some of us are less ignorant than others, and all of us are likewise less ignorant in one field than in another. Metaphysics and commonsense thus differ. The confusion between them made many a commentator on Plato’s early dialogues call Socrates a liar, although he was the epitome of intellectual honesty, just because he confessed total ignorance. The common standard of intellectual honesty is having honestly won it and possessing official certificates that say so. You earn it by receiving good grades. Here then is my advice to you: do not seek a certificate unless you must. And, indeed, since World War II an academic career requires a doctorate. Also, do not aim for excellence, only for passing the exams required for that certificate. And study the art of passing exams. And, most importantly on this topic, if you study anything that interests you because it interests you, then you will pass the exams on it with no preparation (as initially intended when exams were first instituted). Do not memorize except as the very last resort.

Descartes was the first considered individual memory purely physical, namely, mechanical: memory = a physical record. He concluded that from his view of animals as machines and whatever humans share with animals as animal. In the computer age, it is hard to imagine the boldness of this idea and of its immense consequence: speaking of information stored in computers as their memory is Cartesian. Hence, we need not store memory in the brain:
libraries and computers and ancient monuments store information, and as such they are extensions of our brains at least in one very distinct, specific, and functional way (the way both the sword and the pen are extensions of the hand). Consequently, we need not memorize the contents of the books we possess. We need the ability to find any item of information we seek—an inscription in an archeological site, a book in a library, an item in a book—we need to retrieve items of information that we want to use. The excuse for memorization is that the information in a book is not as easily available as our remembering of it. Now the difference between the two is not of storage but of recall: hence, what we try to overcome by memorizing is not retention but recall, the use not of our stored information but of our retrieval mechanism. How do we store information in the brain and how do we recall it? Why, in particular, do my students prefer recall from the brain to recall from a library? Why did I fail so regularly to help them alter this preference and to acquire the art of information retrieval instead?\footnote{The objectivity of information is difficult to recognize. To recognize the transfer of a sign from one list to another in a computer is to see the refutation of the description of a sign (as opposed to a symbol) as a physical object—a description that Rudolf Carnap made famous and that Hilary Putnam expanded and that is still popular. Frege and Pierce had declared information a third domain next to the body and the mind. Russell denied it but he finally admitted inability to make do without it.}

3.1

Memory = storage plus the ability to recall it. The uselessness of a book misplaced in a library shows that memory is not its mere presence. Tradition identified memory with storage alone. Now that we have so much interesting discussion of recall, we may recall that as children we found recall puzzling. Upon perceiving the face, a child will exclaim the name and then find puzzling the memory of it. We often find it difficult to recall some information that we have in store. Why? Plato said, we always possess all knowledge; learning any item is recognizing it. Why, he did not know. Freud found recall natural. He said, it fails when information that we possess is painful: we repress it to avoid the pain. This explains only a small portion of our poor retrieval abilities. Some modern brain researcher report that we remember better—are better able to retrieve—what we experience while pumped with adrenaline (for any reason). Our retrieval mechanism is more complex than that. The prevalent theory of recall is amazingly primitive. It is associationism, common to Aristotle, Locke, Hume, Pavlov, Freud, Skinner. Two items of information have entered storage together. Repetition reinforces this (Locke, Hume, Pavlov) unless the process is disturbed (Freud, Pavlov). This leaves much information about memory unexplained. Yet most commentators take the theory for granted. Oswald Külpe refuted it around 1900. To no avail.

When in your childhood your teachers forced you to read a poem repeatedly, your boredom and protest notwithstanding, they were acting on the primitive theory of memory as storage. So did your university professors as they examined you to ensure that you read your lecture notes at home, allegedly to make durable your memory—storage—of the information that they had imparted to you. Einstein said, exams made him lose the taste for science for a year or two. He said, he disliked memorizing what he could look up. Your professors ignore him. You should not. Remember: grades are external incentives, and these should but do not
facilitate the carving of the information on the hard rock that your brain is. That you could find the information useful or interesting was considered an additional incentive—internal incentive—but usually one that may fail to work because you were too immature. At least by now internal incentives are the best means for you to facilitating your memory.

The best means for memory is the understanding of their import. We do not remember telephone numbers just because they are arbitrary. We remember dates of important historical events if we have an idea of their flow, if we see them in historical context. To remember and to understand are two completely different mental qualities; they interact strongly. This distinction is on display in any recital of a geometrical proof from memory with no knowledge of geometry by any individual with total recall. A Chinese colleague of mine who had traditional Chinese education—which is now extinct—had a science degree from a famous western university; he knew an astounding number of textbooks and monographs in his field by heart, cover to cover. He could not converse about it, and he finished his academic career (as an assistant professor) without having performed any research: all his vast and detailed knowledge led to little understanding of his chosen subject, although he was an eminently reasonable and delightful conversationalist on politics and on diverse arts.

How much of the understanding of a subject, or of its mode of reasoning, is a matter of memory? Evidently, some understanding depends on memory: we can easily find people who once understood an argument or a proof but who now forget it. Strangely, most teachers, educationists, learning theorists overlook this fact, the ability to forget an argument, even though it accords with the received theory of learning. The only person who has discusses this fact is Sir Karl Popper, and even he did that only in his lectures, not in any published work of his that I know of. The fact is nevertheless of great interest and of practical value—for the following reason.

We have an intuitive view that contrasts memory and understanding a bit too excessively, with the result that high-school students get confused and desperate about their mathematics and other fields of close reasoning. We all feel that when you have an understanding of some point you need not memorize it since you can reconstruct it since you understand it: if you need the product of a specific multiplication but do not understand what multiplication in general is, you can hardly use a multiplication table to find it out. If you know that multiplication is a reiterated sum and you know your addition, then you can add and find out the product that you need. Here understanding renders memory superfluous. J. J. Gibson and his disciples have shown empirically that most items we think we remember we reconstruct from rudiments of the item that we do remember.

Two errors play an important role here, one minor and one major; and having corrected the minor error, we often assume that we have put everything in order, overlooking the major error. This causes most of the subsequent memory troubles—especially for students.

The minor error is simple. We have said that if you understand what is a product of two numbers you need not remember what the product of two given numbers is since you can calculate it. We should have said, when you remember your understanding of what is a product. For, you can forget not only the product of two given numbers; you can also forget what the product of two numbers is, namely, how to multiply. The name for the method of
calculating a product is an algorism or an algorithm. We may learn an algorism and forget it. We may learn by heart a multiplication table and we may learn by heart an algorism—and we may forget either. With this correction, everything said thus far falls so beautifully into place that one need not wonder how the traditional theory of learning was so successful in captivating so many great thinkers for so long. It is a simple theory—I shall call it the drill theory. It reduces both learning and training to one act, the act of reinforcing associations by repetition. All one has to add is the corollary of levels of understanding or drill and of transfer of results of learning. Let us go into that now.

The Homeric problem is, who was Homer? It is hard to know since the early versions of the Homeric texts are preliterate: they were memorized. Milman Parry has thrown an exciting new light on the Homeric problem by locating in Homeric texts traces of mnemonic techniques that he reconstructed. These are kinds of algorisms, more or less; illiterate bards had to remember exceedingly long poems, so they memorized not only poems but also which lines, even sections of poetry, are possible to reiterate on given kinds of occasions: they even knew what standard lines they could insert to give themselves time to refresh failing memory. This is very similar to any other higher level memorizing or training that may be useful, such as learning to drive not just one car, or having learned to drive one kind of car you learn quickly how to drive another kind; not just one musical instrument. Moreover, having learned to drive one kind of car you learn quickly how to drive another kind; having learned to play one kind of instrument, you learn quickly how to play another kind; this is so partly because the two have much in common. It is possible to learn some general features common to all cars and their varied implementations in different cars. Driving the second car is easier than driving the first, due a transfer of knowledge; garage-hands go one step further as they apply a general algorism of sorts. In both cases, drill is the source of the dexterity, and the novelty of the application is not quite a novelty—what is novel in a partly new item, one has to acquire by further drill. What applies to mathematics, poetry, playing a musical instrument, and driving a car, applies generally.

The drill theory of learning is very attractive, and for various reasons. It goes very well with the inductivist theory of learning, with the theory of learning as inductive. It is the theory of scientific research. Locke has worded it thus: scientific theories are generalizations that rest on experience. Memorize information, then, drill yourself in certain associations, and then you can generalize these associations into scientific theories. This is Locke's theory of science. (The problem of induction as Hume has posed it is the question, is it possible to validate this theory? He proved the negative answer to it. For those who reject Locke's theory of learning, the problem appears by reference to the newer theory of learning that they advocate—except for those, like Einstein and Popper, who deny that such a theory is possible.) Similarly, the drill theory goes very well with Locke's theory of perception; I will ignore it here, as it is utterly passé and as it will take too big a digression. Finally, a factor that makes the drill theory popular today: it is operational. The operational theory of learning, operationalism, is the (false) theory that identifies knowledge as familiarity with some rules and it identifies that familiarity with the ability to act in accord with them. Operationalism thus reduces knowledge to skill—to a variety of verbal skills: the ability to calculate or recite or answer a given question or anything else. Any item will do, as long as the claim to have it
is easily testable.\textsuperscript{16} Before coming to the major error of the drill theory, let us see how it raised difficulties, and how any act of recall became a subject of interest though the drill theory includes the tacit premise that only storage may be problematic, not recall.

Freud revolutionized the theory of memory. This renders his work comparable in historical significance to those of Descartes and of Locke. I find the gap between Locke and Freud hard to comprehend. Locke’s theory was thoroughly inductivist. Inductivism was subject to the severe criticism of Hume and of Kant. The theory of knowledge that Kant developed to overcome Hume’s criticism influenced generations of psychologists, from Johannes Müller and Helmholtz to Külpe and his followers, Bühler, Kohler, Koffka and Popper.\textsuperscript{17} Kant had said first that theories are modes of observing the world, pigeonholes or rubrics and second that they are inborn. At least the Gestalt psychologists endorsed his opinion that modes of observation are inborn, though they concerned themselves with modes more primitive than those that Kant spoke of: whereas he referred to Euclidean geometry and Newtonian dynamics, they referred to everyday experiences like observing-a-person-sitting-in-a-chair: they declared that it is one indivisible unit rather than a (Locke-style) combination of sense data. Kohler expressed strong hesitation on the question, how much the results of his study of the mentality of apes—especially his observation of how apes acquire new information—is applicable to the mentality of scientific investigators. (He was an inductivist, and his view of induction he had inherited from Locke. This inconsistency was—and still is—a ceaseless source of confusion.) New psychologists cannot answer the simplest questions concerning learning and memory; their results were not useful for grade-school teaching. There was only one, poorly planned effort, to use Gestalt psychology to facilitate learning to read—by teaching reading prior to teaching the alphabet. The results of this experiment were officially declared unsatisfactory. What exactly happened there is still not clear, at least not to the experts whose published works I have consulted.

Kant and the Gestalt psychologists failed to answer a simple question concerning memory proper: why do our inbuilt modes or theories have to await discovery? How does discovery happen? How is it at all possible? Popper asked these questions in the context of Kant’s theory of knowledge, although already William Whewell tried to answer them a century earlier. This is strange, since already Plato (or perhaps Socrates) advocated the idea that all knowledge is inbuilt, and already he has asked this question in general: how then is learning at all possible? His answer was—you will be surprised—that learning is the process of overcoming confusion, since confusion is the stumbling block for recall! The world had to wait for Freud before these obstacles to recall re-entered the study of memory.

Freud was never interested in memory, whether storage or recall; even his most detailed studies of memory are devoted to something totally different, and it is the techniques of facilitating recall by overcoming one obstacle to it; his concern was the nature of that particular obstacle. He took it for granted that recall is by association (following Locke); he developed his theory of suppression and repression of memory (repression is the single act

\textsuperscript{16} The testability of claims for skill is notorious. Its expression is the ancient adage: \textit{Hic Rhodus, hic Salta}. (We can challenge one who brags about having performed a difficult jump: jump here and now!) The identification of knowledge with skill and skill with the ability to follow a rule here-and-now is the most basic idea in the later philosophy of Ludwig Wittgenstein; it is a major reason for its popularity as well as for its barrenness.

\textsuperscript{17} See John R. Wettersten, \textit{The Roots of Critical Rationalism}, 1992, for enlightening details.
of transferring a given item of information from the front-conscious to the sub-conscious, and suppression is the repeated act of preventing it from coming up each time it tends to emerge)—as means of avoidance of the unpleasantness associated with it. (Pierre Janet and) Freud had the idea that free association may elicit repressed items. He added that the semblance of accidents (in dreams or in slips of the tongue and of the pen) might also release a suppressed association. This is, indeed, his most popular idea.

In this discussion, I have skipped mention of the particular item that Freud said we suppress, since it is irrelevant. Just in case you wonder what it is, let me mention it: we try to repress one item, he said: our having wished to sleep with our mothers.18

The most striking premise implicit in all of Freud’s writings on memory with no exception is that memory is perfect: healthy brains restore all of its input with no loss; all the troubles that people have with remembering concern retrieval, he suggested; hence, in principle it is possible to recall absolutely anything we have experienced, and in practice this depends on free-associations. This, to repeat, is only tacit in Freud. It is of the utmost significance and we owe it to Freud: it diverted attention, at long last, from problems of retention to problems of recall. It is a problem, Freud added, not only to the neurotic, but to us all: it is the *Psychopathology of Everyday Life* (1901). This and computer science led to a revolution in library science “The organization of knowledge for efficient retrieval of relevant information is also a major research goal of library science”, as Google words this. We should thank Freud, together with the computer engineers who followed him. (Information retrieval is a sub-discipline in computer engineers.) In libraries, recall was always a problem, as librarians knew that a misplaced book is lost. This is why librarians request readers not to return books to the shelves and why librarians regularly look for misplaced books. A library, said librarian-poet Jorge Luis Borges, is the best place to lose a book. This is how even a manuscript by Bach or by Mozart could turn up not so long ago in a very famous library, and a book by Archimedes or by Menander.19 Nevertheless, until recently librarians did not discuss then problems of recall. (Their early discussions related to the recall of books on loan, not on shelves.) Though they still center on retention, and though the new modes of retention, such as microfilms and digital electronic memory cells create new problems of recall (e.g., how do you skim through a microfilm?) that have seldom been studied. At least the ice was broken.

The potential of Freud’s theory has not yet been tapped. He meant to apply it to the memories of events significant for the individual in question. Does it apply to the memorization of poetry or of telephone numbers? Does it explain the use of the drill method for memorizing a poem? Why are most people able to recognize a poem upon hearing it a second time but not to recite it after a first reading? Do people with total recall avoid repression? It is not clear whether Freud’s theory applies to all this. If yes, then it opens new vistas of the possibility of endowing everybody with total recall. This is too exciting a possibility to overlook, however slim it may be, and despite the observation that

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18 Heinrich Gomperz reports in his autobiography that he had told Freud he always remembered what Freud was insisting that he had forgotten. Freud ignored this. This is an amazing story: it speaks of humans as males with only their mothers as females. Remember that most of Freud’s early patients were female. He discusses the sex act only once—in his *The Id and the Ego*—and only as a male experience! The generality of Freud’s explanation has raised the hostility of anthropologist Malinowski. See his *Sex and Repression in Savage Society*, 1927.

19 Some of Menander’s works were found in the *papier-mache* of a mummy case!
total recall may be a curse rather than a blessing. This depends on the answer to the question, how does drilling help memorize? How does the ancient idea of mnemonic tricks work? If recall is the problem, then it may be easier to recall information from a book, and so open-book exams should replace all school memorizing! Those who understand a book and know how to use it need not memorize it! The standard answer—inasmuch as there is an answer at all—is that memory facilitates both the use of the book and the understanding of it.20 How? What is understanding and how does it differ from memory?

It is time to discuss the major error of the received theory. The minor error, you remember, was that we failed to notice that we could memorize algorithms and equally that we can forget them: the drill theory identifies understanding with the ability to apply algorithms, logical, mathematical, and any other. Is it correct to identify understanding with the ability to apply an algorithm? A mathematical proof is logical—there must be no mystery about it. Hence, it allegedly use an algorithm; so says the theory implicit in the drill theory. It is false. The drill theory makes learning as obvious a procedure as possible; allegedly this makes it rational; hence, the popular folly of identifying the operations of computers with rationality. Hence the justice in the strong plea of the once very famous existentialist philosopher William Barrett (Irrational Man, 1958) to flee from the Laputa that science permeates. He does not equate rationality with algorithm on his own; he says, if the rationality of science is as algoristic as everybody claims that it is, then let us search for a more human kind of rationality.21

Is Barrett’s view of the general opinion correct? Do people identify understanding with the ability to calculate? Do experts? You always face this kind of question when you criticize a popular doctrine. You may quote the highest authority, Professor Jerome S. Bruner Himself, to say it is popular among his peers, among educationists of all sorts, and people will say, this proves nothing, at least not that the doctrine you are attacking is popular. Therefore, the claim that a doctrine is popular is always hypothetical, even when limited to experts. You do not like it. Forget it, then. Let us replace it by a much more interesting one: the doctrine at hand (understanding = the ability to calculate, to manipulate an algorithm) is popular in high schools. This is Popper’s hypothesis.

Practically all those high-school kids who develop mental blocks against mathematics do so because they look very hard for the algorithms that are not there. Here is an empirical fact: armed with this observation of Popper’s you can remove—with patience and with a gentle touch, but with no difficulty—any such mental block if it has not aged and caused so much havoc that the student is totally disoriented.

Before going further, let me mention a useful moral from what I have told you thus far. If

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20 Frances A Yates, Art of Memory, 1966, refers to many mnemonic ideas. She was concerned not with mnemonics but with its role in the hermetic literature. The mnemonic network is memorized in accord with the drill theory, but its idiosyncratic character make it special. The drill theory cannot explain idiosyncrasy (least of all idiosyncrasy of past associations: these are negligible as compared with the drill of the—arbitrary—network itself.)

21 Paul Feyerabend too sounds more irrationalist than he is: he ends his 1987 Farewell to Reason with: if this is reason, then farewell to reason.
you start a lecture by asserting its thesis in one sentence and explain its importance;\textsuperscript{22} if you repeat that sentence—verbatim—somewhere in the middle, and if you end the lecture with that sentence, you improve its chances to be remembered. If you prepare the lecture course properly, you begin writing an abstract of it. Make the abstract comprise of thirteen sentences (for a one-semester course), with the first being an introduction and the last a conclusion. Your students will remember the abstract. Do not make it original: make it signify to them. Some original thinkers are so frustrated by their peers’ persistent oversight of their important innovations that they make these the center of their teaching activity. This is obviously unfair to their students, as they obtain a lopsided image of the whole field to which their professor’s research belongs.

Back to my story about the mental block that we impart our students by teaching them logic or math unexplained. Rational argument is deductive. Any given deductive process is largely arbitrary and depends on intuition: the deductive character of an argument seldom rests on an algorithm; it rests on its obedience to the rules of logic that are not obligations but permissions.\textsuperscript{23} Often a proof-procedure starts with an assumption; indirect proofs always start with assumptions, and even with false ones.\textsuperscript{24} This perplexes students, since the assumption is unfounded and we are often told to avoid unfounded assumptions. This blocks the ability of readers to reproduce proofs; understanding, you remember, is remembering not the proof but the algorithm that reproduces it. So poor students are caught in a net quite unaware; they struggle against something most elusive. We teach them the drill theory on the silly assumption that we drill in them truths that we prove. Students conclude from this that teachers have an algorithm by which they arrive at their assumptions; students also assume that teachers do not bother to explain the algorithm in use because it is too obvious, that hence students must find it, that anyone who does not is behind.\textsuperscript{25} Eventually, they volunteer to become blocked, since it is the only thing they can do to save the logic of the situation. Like the accused African native who admits an accusation—he had become the lion that had killed his neighbor—to be punished accordingly.\textsuperscript{26}

Were proofs dependent on algorithms, we would not owe gratitude to our great predecessors for their having conceived them. Euclid used no algorithm to prove that there are infinitely many prime numbers. We can see that every step in his proof is logical, we can see that it arrives at the intended theorem. Each step in the proof has infinitely many alternatives to choose from, and almost all of them fail to lead to the desired target. By luck and ingenuity,\textsuperscript{27} as well as by who knows how many unsuccessful or partially successful previous trials, one arrives at a proof. To expect a student to reinvent Euclid’s proof is monstrous, yet confused students often think this is what they should be able to do. Some confused teachers, we

\begin{itemize}
  \item \textsuperscript{22} Instead of a summary sentence, people often offer a descriptive phrase—because unlike a descriptive phrase a statement can be false: they wish to appear infallible, no less.
  \item \textsuperscript{23} This is far from obvious. It is the subject matter of the marvellous book of Jacque Hadamard, \textit{The Psychology of \textit{Invention in the Mathematical Field}}, 1945.
  \item \textsuperscript{24} This is far from obvious. It is the subject matter of the marvellous book of George Polya, \textit{How to Solve It: A New Aspect of Mathematical Method}, 1945.
  \item \textsuperscript{25} This is far from obvious. In the marvellous \textit{Proofs and Refutations} of 1976, Imre Lakatos complained that math professors expect students to absorb the missing items that in truth even they lack.
  \item \textsuperscript{26} Michael Polanyi, \textit{Personal Knowledge}, 1958, 1973, 290.
  \item \textsuperscript{27} Bacon already insisted that induction does away with the need for both luck and talent. Inductivists leave no room for talent, at least, in their theories of discovery. Talent came into the picture with Einstein. See my “Genius in Science”, \textit{Philosophy of the Social Sciences}, 5, 1975, 145-61, reprinted in my \textit{Science and Society}, 1981.
\end{itemize}
remember, have invented the discovery method that demands that of them. Alas! No matter how well you understood Euclid’s proof once, if you forgot it clean you are unlikely to rediscover it.

The error is so deep-seated that even high-level mathematics students suffer from it, especially when teaching differential equations. There is no theory of differential equations to speak of, and no algorism in any way akin to the algorism by which we solve algebraic equations of the first or second degree in high school. Some groups of differential equations have been solved, and others can be approximated by various algorisms, but one never knows in advance which algorism, if any, helps to come close to solving a given differential equation: one can only try the various techniques and hope for the best, or pray for inspiration, or give up after long, futile efforts. This information is almost never available to students who enter differential-equations courses, although it is implicit in almost any textbook. Differential equations are often more useful than interesting—especially in physics. Hence, students in courses of differential equations are more likely to be physics students than students of mathematics. Oddly, they suffer less from the said confusion.

To sum up an essential point without further discussion and examples. First, Popper agrees with Freud that there are psychological difficulties concerning studies, but the ones he centers on are ones that (as a Baconian) Freud could not see: their direct source is not moral; they are associated not with childhood experiences but with the inability to master the curriculum, much less to criticize it—often due to a high degree of native talent and sensitivity to the subject. These qualities should enormously facilitate study; under better conditions, they would. (The sight of previously poor students who got rid of blocks is often most delightful, because they blossom tremendously, just because often their very talents have led to the blockage.)

Some memory work—whether memorizing or being able to look up the literature—is unavoidable even when the material studied is largely deductive: no memory is secure, not of an algorism and not of an ingenious trick. It is possible to facilitate memory, however, by facilitating understanding—in two very closely related yet distinct ways. First, sheer economy. We can pinpoint the part that we have no choice but to memorize. Second, by fitting the remembered item very well within the general understanding of the problem-situation, the problem at hand, and its solution. (General familiarity with the field facilitates looking-up.) Moreover, by developing a critical attitude in class, not only the standard causes of distress, but also other difficulties that students may sense, will be not deterrents to study by further stimuli.

All teachers, including inexperienced ones, know that most students will forget much of what they study. Query: why do they teach what students will forget? Were it fun to go over such a material, the problem would be academic; but it is agony to all concerned. Were it a matter of experiment, it would be highly justifiable; but with a notoriously conservative curriculum, occasionally even teachers complain about stagnation. So why do we teach what will be forgotten? The few who have faced the question have also dismissed it with ease—in one or two standard fashions. The first answer is, there is a transfer from the forgotten material to other affairs so that not all is lost. This allegation is apologetic: not a single empirical study support it. The transfer theory itself, being part of the drill theory, is in a shaky state, as learning-theorists may admit under pressure. There is not a single design of a
sané experiment to test the hypothesis that any material learned in school and forgotten is transferred. To my knowledge, the only empirical study of what is memorable in any course whatsoever is the immensely popular R. J. Yeatman and W. C. Sellar *1066 And All That* (1930). This hilariously funny book claims to contain all that middle-class English high school graduates remember from high school history classes. It is not to take seriously. Still, in truth we do forget much.

The second answer is, we do not know what is memorable, and we cannot expect complete effectiveness. Concerning effectiveness, some research on it has led to some attempts to cut the material down to the bones, especially in auxiliary courses, whether of geometry in vocational schools or of biochemistry in medical schools. The trend started, I think, with traditional navigation for naval officers. Their instructors assume that they are too dumb for Newtonian mechanics fully fledged. The trend then developed with statistics for students of social sciences, since they are often utterly incapable of absorbing the standard statistics course and yet professors consider statistics essential for proper social studies. Thus far, the experiment is in no proportion to the need and it already meets an insurmountable difficulty: some experimental courses cut materials down to the bones; as experts view them with contempt, as a rule they delegate them to wretched teachers. Even cutting down the courses to the bones results only with minimizing agonies, not with the required presenting the material as enjoyable. This is a pity because there is no need to cut: most of the regular standard curriculum is highly interesting; it is the education system that makes it boring. All that is necessary to render school interesting is students’ readiness to cooperate, and this is easy to elicit by presenting the interest of the curriculum material and its significance. For this, however, teachers must be frank and present the shortcomings of that material too.

The right structure of a course renders merely marginal the difference between the full course and the one cut to the bones. To be well designed, a course must have a structure. If you wish to interest your students in it, you must describe and explain that structure, its significance, its chief problems, its general background ideas. The more successful or high-level a course, the richer it may become—much pending on the occasion, the students, the atmosphere, its various causes and factors. The natural starting point, however, is the structure. I am speaking from experience.

If you intend to provide students with a preview of a course and to air the problems that they may have, most of present-day problems of instruction, in high school as in college, would be manageable and memory-work minimized: most of what students will have to be remembered they will remember with ease they will be able to look up the information that they forget with ease. I am no utopian; I know that your teachers and colleagues will not follow my suggestions—although I do hope that my suggestions, and better ones, will be commonplace by the time you retire. Meanwhile, there is a lot you can do for yourself in that direction. There are top-notch easy introductions to various subjects, such as Charles Darwin, *Autobiography*; A. H. Fraenkel, *Abstract Set Theory*; Courant-Robbins, *What Is*

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28 I say “as a rule” because a good teacher may undertake it out of real interest, or a good teacher may be penalized or underestimated and so forced to do it. I have witnessed a course in mathematics for biologists that an under-estimated young instructor taught; some of the best mathematics students around slipped into his class and I followed them. He soon won a fellowship and disappeared to a leading university. Let me add to this that many private teachers for matriculations are famous magicians, experts in cutting courses to the bones. Their teachings are remembered, though as sheer bonus.
Mathematics; Otto Toeplitz, *The Calculus*; Galileo, *Dialogue on the Two World Systems*; Einstein and Infeld *The Development of Physics*; Schrödinger, *What is Life?*, David Hume, *Essays, Moral, Political, and Literary*; Adam Smith, *Wealth of Nations*; Léon Walras, *Elements of Pure Economics*; Paul Samuelson, *Foundations of Economic Analysis*; Edward Evans-Pritchard, *Lectures on Anthropology*; Plato, *Symposium*; Bertrand Russell, *Problems of Philosophy*; Karl Popper, *The Open Society and its Enemies*; Ernst Gombrich, *The Story of Art*; E. M. Foster, *Aspects of the Novel*; Raymond Chandler, *The Simple Art of Murder*; Charles Ives, *Essays Before a Sonata*, and many other delightful and profound books that are great eye-openers on any level of scholarship and grand works of art to boot. You can also read survey material wherever you can find it: prefaces, introductions, and conclusions of certain monographs, book-reviews and review articles and essays, and encyclopedia articles—use the eleventh edition of the *Encyclopedia Britannica* (of the nineteen-tens) whenever you can. On the whole, try to tackle your material in the not-so-up-to-date better literature, whenever you can find it, whether in professional works written a generation ago or in encyclopedias for teenagers: whenever the encyclopedia for adults and for kids are at all comparable, you can be sure the latter will win hands down: it is written for a purely voluntary audience not yet versed enough in the mystiques of scholarship and the rest. Once you are somehow coordinated you will be surprised how relatively easy it will become to update your information—perhaps with the aid of the old pros and the more talented friends and colleagues, but much more cheaply by the use of the internet.

Yes, I do mean it: doing very well on the introductory level, however elementary (indeed, the more elementary the better), will enable you to ignore much dead wood and redundancy as well as to remember with ease the details you have to. Somewhere, sometimes, you must have heard the saying about the wood and the trees. I guess it got lost among so many other sayings you have memorized in high school. I suggest you pay a special attention to it every time your professor takes you for a walk in the *Petrified Forest*. For further details go on reading.

Yes, I do mean all this not only for students and for young colleagues; nobody has to get lost among the dead wood. I confess I have given up hope of helping my established colleagues; I intend these pages for young people with glittering eyes on their way to academic careers. You may be a student and worry about exams: how, you say, can one have time for all the extra-curricular reading here recommended when there are so many exams on so many details? In the following section, I shall show you how you can try to fit the details in simple dialectical schemes and so make them highly memorable without having to memorize them. I confess it is not so easy and sometimes simply impossible. Yet this I say to you right now: if you develop with ease a good grasp of the structure of a given course, and remember only the details that stick without effort, your teachers may dislike it no end and even condemn your conduct; they may bar you from receiving the highest grades; but they will not be able to flunk you, and they will consider you promising. Being able to pass a course cheaply without fear of flunking, even with the chance of doing very well—for some of your professors are nobody's fools, even if you overlook this fact—seems to me to be quite a bargain. The real bargain, however, will be that you will enjoy study and develop intellectually much better than your hard-working classmates: teachers’ pets do not show half as much exceptional talents when they go into the world—especially into the ivory tower—as their grades promise. Indeed, as I keep telling you, once you graduate, your grades lose all significance. Or, are you a new teacher? I recommend then that you discuss in class the
structure of your course—in the first meeting, in the last meeting and on any other occasion. It is much better for you—especially in your first few years—to cut your course down to the bones and repeat it, and encourage students to raise all the difficulties they may have and air all their blocks. This way you, too, will benefit. You will have more time to plan your courses and your lectures since you will not need so much time for preparation by the way of studying up-to-date pointless material and by the way of stuffing your course with pointless details. Also, announce in your first class, and repeat it endlessly, that you will have an open-book exam, or still better a take-home exam in essay form (if the authorities permit it), to ensure that they will not spend time memorizing. Remember the professors from whom you learned most, and notice that you have learned from them least in detail and that they always had time to labor the obvious in a free and easy manner at the request of the dullest and slowest student in class. Note that it is easy to imitate them, now that you know how.

To conclude, the more meaningful for you an item (‘cept’ is students’ jargon for it) is, the less necessary it is for you to memorize it—for exams and more so on other occasions, when you can look things up—and the more you will be able to use it intelligently. The dull items in the standard textbook are often easy to liven up. I shall soon tell you how.

Before going to the next section, I feel an urge to tidy up a point concerning memory and its shortcoming. The drill theorists have assumed tacitly that recall is unproblematic; they centered on storage. Freud said the exact opposite—also tacitly. What is missing in both theories is a reasonable view of the understanding and its role in memory. There is such a thing as overall understanding, as well as the understanding of the place of a given step in a general discussion or of a given item in a general picture. The understanding of problems invites study too. Gestalt psychologists should have noticed that, since already Kant discovered it; some of them indeed have, to this or that extent. Inasmuch as they have offered a theory of intellectual Gestalts, it is Kantian and static. An improved version of it is possible: it requires a modification of Kant’s theory, a recognition of our ability to alter our Gestalts as we face new criticisms, new problems, new aspirations. This modification of Kant’s theory is Einstein’s or Popper’s. As a theory of memory, this is a part of the research of the great J. J. Gibson and his followers; my favorite among them is my former student Edward S. Reed. I still grieve his early demise.

Memory may distort, yet we cannot do without it: we need it for a sense of proportion. Take for example the standard distortion due to the view of criticism as harmful (even though it is obviously beneficial). The memory of some terrific criticism that took you off an embarrassing path is the best cure for the misconception. However, notice this: criticism is not only for personal benefit: it is also publicly very useful. This is the use of public memory: history. Think of criticism of ideas of dead thinkers. Only some of these are remembered—possibly together with the criticism that has rendered them obsolete. The value of the criticism depends on the value of the ideas criticized and is indifferent to the question, is its originator dead or alive? Although the knowledge of the value of criticism for learning is ancient, Popper has observed, leading learning theories systematically overlook it.

4. Training in Dialectics, the Supreme Art of the True Scholar

Dialectics, the supreme art of scholarship, is open to diverse techniques. This section
concerns the diverse techniques. You can test my recommendations on them by trying to apply them. If you find them useless, give them up or try to improve upon them. The role of dialectics is to criticize: dialectic is the attempt to disprove a given approach, view, idea, theory, observation. The essential prerequisite here is to choose an item worthy of criticism. To this end, it is important to know quite a few things. What is the question/problem/issue at stake? Is it important? Why? What is the specialty and strength of the way of tackling it?

All this comprises one point: you must learn to be appreciative of the object of your criticism. I advise you most emphatically to express your appreciation clearly and in the very opening of your critical discussion. It is advisable to open with a description of a problem-situation, conclude it with a statement of a problem to be studied, followed by the statement of the extant solutions, followed by naming the ones that deserve criticism and explaining why (Collingwood, *Autobiography*, 1939).

Before starting, here is a terrific piece of advice. It concerns a common error that you should avoid: when your opinion is under criticism, you may encounter a piece of criticism that you cannot answer; that ends the debate. I have witnessed many cases of violation of a simple rule here, to my shame some of them by myself: you simply let the critical debate die naturally. This should never happen to you. Never. As the object of criticism, you must always, always have the last word; the default option is, “Thanks”.

4.1

Dialectic presentation renders disagreement somewhat abstract—more objective than otherwise. I never attack people, said Friedrich Nietzsche, only the opinions that they represent. If you wish play safe, dialectic is not for you. In any case, safe or not safe, this is no to the point: dialectic debates are seldom about you or about your convictions. If you choose to discuss an opinion that you advocate and that you strongly believe in, that is fine; if it is an opinion that you do not advocate, that is equally fine—as long as you value the opinions you are discussing. If you do not value an opinion, do not put it to a dialectic debate. Some people oppose this and say, some opinions are valueless but need discussion because they are popular. This opposition merits attention, but in the present context it is irrelevant, since we are discussing here your benefit, not your (political) duty to your society. Nevertheless, let me take this point up, as briefly as I can.

There is all the difference in the world between playing and training. When a coach and a trainee play, the coach is teaching and the trainee is learning. They do not play. When you argue with anti-Semites, you try to teach them, you are not engaged in a dialectic debate with them: a dialectic debate may surprise, arguing against antisemitism is a real bore. Your argument with the anti-Semites may also not qualify as teaching, since your opponents did not ask you to teach them. Your activity is political, and the name for it is propaganda. Do not confuse dialectic debate with propaganda: they are both honorable and valuable, but they follow different sets of rules.

Nor are dialectic and propaganda the only kinds of conversation. When you wish to convince, say your heart’s desire to marry you, you are engaged in still different an activity,
and I wish you luck. Let me add, if I may, that this activity is not dialectic (although it may involve some).

The supreme rationale for playing the game of dialectic is the idea that the exposure of error is progress. This makes commendable the relinquishing of (seemingly) defeated positions. Hence, the rationale of dialectics in general is the recognition of ignorance. More dialectic cannot contribute. Arch chemist Lavoisier said once, let those who disagree with me attempt to criticize my doctrine—they are most heartily welcome to it. Since my theory is true, their criticism will have to fail. Their very failure will convince them that I am right, he said. As it happens, Humphry Davy criticized his doctrine effectively (by claiming that halogens that oxidize are elements, contrary to Lavoisier’s claim that only oxygen oxidizes and that therefore chlorine is a compound).

The position of Lavoisier is questionable, yet he was a prominent dialectician, a master of the first order. If I were concerned enough about the present study and the impression that it made on you, I might scrap the last paragraph altogether (and no matter what an author tells you, to be any good, authors must learn to scrap a lot). I will not scrap a paragraph that exposes a weakness in my view.

Here is my view of Lavoisier for what it is worth. He was a magnificent critic of all his predecessors. Regrettably, he was contemptuous of them—following seriously Bacon’s condemnation of the publication of erroneous ideas. He consequently allowed his wife to burn ceremoniously the leading book of his arch target, his great predecessor, phlogistonist Georg Ernst Stahl. A leading Lavoisier opponent, Richard Kirwan, wrote a major work against him, his Essay on Phlogiston and the Constitution of Acids (1787). In response, Lavoisier, had the work translated and each chapter published together with a detailed critical commentary written by a leading French thinker (himself included). Even mathematician Laplace had a hand in the work, but this was more of a political than of a dialectical move. Yet, this political move too showed how seriously Lavoisier took Kirwan. The translated and expanded book appeared then in English retranslation. Kirwan capitulated—very honorably and equally honored by his contemporaries, as all evidence available indicates. Lavoisier died (he was beheaded during the Revolution) before Priestley and Davy sufficiently effectively criticized his doctrine. As a private letter (written a generation later to Davy’s pupil Faraday) testifies, there were serious attempts to suppress the French publication of Davy’s criticism of Lavoisier—even threats to use police force; though there was no difficulty for any historian of science to lay hands on that letter and publish it, it was an amateur historian of science who published it—myself.29 (No worry: some professional historians of science dismissed my paper with the aid of many sophisticated arguments.)30 Lavoisier would not have suppressed criticism of his views. It is to the credit of his followers that their resistance to Davy, though unpleasant, crumbled within a few years and totally disappeared: the incident the letter relates took place in 1811; during 1814, in spite of the war, Davy was a guest of honor of the French scientific community. Scientific dogmatism is like this. In all of its variants, it comes with some efforts to do justice to opponents. Hence, said Popper, open-mindedness in the scientific community is a social phenomenon, not individual: the

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scientific tradition neglects dogmatic texts (except as items to explain).\textsuperscript{31} Most of the rank-and-file have little occasion to change their minds. They defend Newton one day, Einstein the other, and Bohr afterwards, but these occasions are rare, and so they can safely follow the same idea: parrot the leaders; the less you comprehend them the more you should conceal that by vociferous expressions of loyalty. Just so. Thomas S. Kuhn has placed them on the map by calling them normal,\textsuperscript{32} their defense of dogma normally collapses fast.

All this does not render the publications of the rank-and-file useless; research-work is only mostly useless (especially in these days of academic empire building and publication pressure). Inasmuch as new research is useful, it is so because the leadership accepts new ideas, together with the new frameworks within which new researcher results appear. Research cannot always stagnate as much as the leadership would want it to. (Leading philosopher and historian of science Thomas S. Kuhn said, the leaders of a science are always right when they decide to declare a paradigm shift. This should have given him some peace of mind. It did not.) Once Einstein's relativity won acceptance, there was a lot of work to do: it was necessary to translate much from the old Newtonian framework to the new, some requiring work of giants like Paul Dirac, some offering smaller but still important challenge that rank-and-file researchers could handle. The same holds for Malinowski's work, and that of Morgan and of other trailblazers. (Already Laplace noticed this as he humbly viewed all of his trailblazing work in physics as mere implementation of Newton's achievements; and this despite his tremendous, amply justifiable pride!) Alas! Some leaders in science are dogmatists of frightening dimensions. Yet even they bend before powerful criticism—or else they simply lose their leadership (Polanyi). Hence, things need not be as bad as they sound; some criticism may cause change of framework to permit further change.

This explains how Einstein's severe criticism of the views of scientists about what they do is no warning sign that science may be dying. The popular expressions of contempt for the critical attitude is costly, but they do not endanger science: look at their critical attitude in action! The reason I am fussing about it rests on my wish to save you the cost of this contempt. I do not know how much my academic success allows me to put myself as a model; for what it is worth, however, let me report this: without my dialectic writing abilities, I do not think I could have such an enormous and successful output. I hope with my aid you will do better.

4.2

For what it is worth, in my opinion you can be a good dialectician without knowing and even ambivalently, but you can be quicker to learn the tricks of the trade better and become more efficient, if you shed your ambivalence and approach matters aware and self-critical. After all, most researchers have learned a formula for research—inductivism—and their practicing research seemingly show that the inductive formula works. You can easily learn the formula, by reading summaries of works by Bacon, Locke, and others. I suppose it is just


\textsuperscript{32} Thomas S. Kuhn, \textit{The Structure of Scientific Revolutions}, 1962; what he called normal science exists only since World War II. This is a systematic defect of his philosophy: although his examples are historical, his ideas are not: his description of science is distinctly contemporary.
as easy for you to learn the modern variant of inductivism. As a student or as a young
colleague, you will find little antagonism to either your attempt to follow that formula or
your declaration of faith in it. I suppose that this is what your professors and senior
colleagues expect of you. I suppose you are frustrated and bewildered; well, try the dialectic
formula and see if it does not fit your work better. It may be just what you want and it may
be furthest from your thought. If you will not try it, you may never know.

That is all for the time being. Later on, someone may say of you that you were only thinking
you were applying the rules of dialectic and then propose to you better rules. If we are to be
scientific, why not improve our views of science just as we improve our views of electrons
and nucleic acids and democracy? There is one difference, however, between the natural and
the social sciences, and it is simple: electrons follow the same laws regardless of our views of
them and of our experiments on them, but those who experiment in order to create and
follow better rules, may become better at democracy or at scholarship and research.

To lend the importance of theory for chemistry, Lavoisier tried to show first how much it
explains—especially that his theory explains better all that his predecessors had explained.
This he did magnificently; but then he sank into apologetics, though not for long, as he died
young. Phlogistonism was the theory that combustibles contain phlogiston (= the matter of
fire) that they exude, which is the process of burning. This explains why coal ashes are
lighter than the initial coal. Yet the ashes of metals (rusts) are heavier than the initial metals.
Phlogistonists took coal for granted and wondered about metals. Lavoisier turned this
around: he took metals for granted and tried to explain the loss of weight of coal: he trapped
the gas that the burning coal emitted and measured its excess weight. At the time,
researchers deemed phlogistonism a tremendous success as it included formulas that
describe processes. These still dominate introductory chemistry books. Yet in the initial
formulas phlogiston moved away from the combustible; Lavoisier replaced this loss of
phlogiston with the gain of caloric. In the path-breaking theory of heat-machines of Sadi
Carnot of 1824, heat-transfer was the transition of caloric as a fluid from high places to low
ones (= from hot bodies to cold ones).

Carnot too was a master dialectician. He considered the strongest criticism of the theory of
caloric the observation of Benjamin Thompson (Count Rumford) that friction is an
inexhaustible source of heat (1798). He even showed that in the same process (it happened
to be boring cannon pipes to make them extra-smooth) the more friction causes more heat.
He said, the calorist assumption that heat is matter means that creating or destroying it is
impossible. (Physicists took this for granted; they gave it up only when Einstein’s equation of
mass with energy replaced it.) Carnot said, friction raises temperature because it is a means
for moving caloric around; like other fluids, if flows only from high places to low ones.
Although his study was very successful, he was sufficiently self-critical to worry about Davy’s
(thought) experiment: friction in isolation in vacuum still raises temperature. The situation
was baffling because Thomson and Davy held a baffling competing theory: the theory of
heat as motion. Historians of physics declare them in the right, thereby perpetuating the
confusion. When Carnot’s successful theory underwent successful translation from the
caloric theory to an extended version of the motion theory (that obeys the law of
conservation of energy), the result was the theory of heat (not as motion but) as the
concentration of motion. It is still the received opinion despite its problems (the
thermodynamics paradoxes).
If you happen to be a physicist, then I assume you see that the gross outline of the history of classical chemistry and of classical thermodynamics as an ongoing dialectic process facilitates presentation tremendously. It is also easy to fill details here as raw material for either a text for students or a historical paper for some scholarly publication in the history of science. If you are a physicist and you do not like this, I wonder how you have arrived to this place in my book to read these paragraphs.

4.3

Criticism is not enough for progress; for that, one wants fresh supply of ever better theories to keep dialectics from stagnation. We have no theory about the generation of theories. We have no theory about the frame of mind conducive to the production of good theories—except that one needs problems to solve with their help, and that criticisms of past theories furnish such problems. Some people might refuse to become researchers if they thought their ideas might be superseded one day: Newton himself seems to have been such a person; and Freud too. This led them both to enormous waste of mental energy. They had enough of it to waste; you may have to be a bit more economical.

You can start your lessons in dialectical economy straight away. We have been discussing the piling of facts in the standard textbook.—Sheer inductivism; why not scrap it all?—Not so fast; try to translate it into dialectics if and when you can. It is not so easy, and sometimes requires more historical knowledge and training than you have; but sometimes you can. Indeed, sometimes you do—and meet with penalties as a result. Let us start there, where you have already arrived, concerning an achievement of yours for which you have already received your penalty.

Have you ever argued with your elders and betters? Do you remember the incident? You were beaten in the debate, I dare to assume, even by fair means—certainly not always, but let us concentrate on the better instance. The defeat had a moral for you: do not argue—not yet, at least—and before you master your trade, keep silent; eat a humble pie; chew dust; do as you are told. Let us take a more specific case. Suppose you have advanced a theory, perhaps one you have heard one way or another during your early days. Suppose now your elders and betters remind you of fact x on page y of your sacred textbook and use it to disprove your pet theory. You are humbled; with agonies, you try to put away the silly theory—even. Memorize the textbook instead.

What? Has it never occurred to you? Or did their proposal that you forget it work so well? One way or another, perhaps this book not for you. Perhaps you never dared pester your elders and betters; perhaps you never had any idea with which to pester them. I recommend you to stop reading this book for a while and remedy this defect. You can come back to this book later if you must. First, have it out with your elders and betters.

Meanwhile we continue with those who have pestered their elders and betters and were told to forget. Well, I say, do not. Do remember the theory you have heard or invented or reconstructed; it comes together the fact that they used to criticize it. You are therefore free of the need to memorize that fact. When you become a teacher, your list of dry facts will be reduced by one: you will be able to present the theory and refute it with the help of that
same fact—with no trauma and so with no scar. This is very useful.

You can make a method of it. Start with your high school if you study in college what you studied already in high school. Otherwise, start with some of what they call folk science. Express each of the scientifically-rejected theories as clearly as you can. Find in the textbook the facts that refute it. Very easy. Very instructive. Nothing to forget. Little to memorize. Real bargain as far as it goes.

Take a subject not taught in high school, such as politics (civics) or economics. Everyone is a politician of sorts and an economist of sorts. Before you came to college, you followed the value theory: you only bought a thing if the price was reasonable in the sense that you got the value for your money. In your elementary economics textbook, they start with preferences and with indifference-curves and budget-curves and supply and demand curves; and they give you no idea as to how these relate to your purchase of your jalopy last fall. Now try to word your pre-college value-theory and find in your textbook criticisms of it. The theory of supply and demand that comes to replace it will make much better sense to you then, as will the theory of consumers’ preference.

It is not all an easy exercise. You may find it helpful to consult your encyclopedia—under value-theory or under Ricardo, David—or you may wish to consult the text of your history-of-economic-thought course (try the terrific Robert L. Heilbroner, The Worldly Philosophers, 1953). Ask your instructor for help—there is always one around willing to help a bright fellow, and following the kind of suggestions made here is the bright fellow’s way.

The same goes for politics. Take the latest political dispute you have engaged in. Ask yourself, what problem were you and your peers debating? If you do not know the answer, just try out any conjecture. You may change your question later on. In the meantime, stick to the question for a while, list as many answers to it as you can, and try to defend each of them. This should raise the level of the debate sufficiently above the standard level to make it more interesting than usual. If you continue this way, you will very soon find that you need some simple items of information. Stop the discussion for a while—notice this: it is always legitimate to ask for time out—and look it up. When you want to look up some broader questions, you will find it particularly hard to find the right text to consult. Take it slowly.

The method is easy in some cases and very difficult in others. Try to ask your teacher in learning-theory how he explains repression. Nothing to it: it is negative reinforcement. How exactly? Shut-up; we are busy now in some other work. All in good time. In other words, it is too tough even for your teachers in learning-theory. It is useless to pester. Let us leave them and the task at hand for a while. You can come back to it later.

4.4

The standard dialectic discussion concerns the possible disagreement between theory and observation or perception of facts. This is no small matter since it is seldom obvious whether theory and observation are in agreement. Do not despair if what I am going to describes has never happened to you: I do not take you for a genius. Perhaps you tried to measure the sum of angles of a triangle to see if it really equals to two right angles. Maybe
not. Maybe you never bothered about your high school geometry. Maybe they taught you the
new mathematics and no trace of Euclid. It does not matter. All that matters is that
something or other bothered you about your high school geometry textbook, about its
content, form, illustration, print, or color of cover. Or about something else that they taught
you in high school. I assume you have not found much about it and that you have forgotten
it until now. They say growing-up is growing out of such uneasy feelings. How sad.
Growing-up is not growing out of any unease, but learning to articulate unease—this may be
and indeed often is quite precarious, and so it should read, learning to try to articulate unease
in alternative manners—and learning to tackle it dialectically: you may try to solve the
problem articulated and then try to criticize your own solution, or to generalize the problem
first, or to replace it by a more interesting and significant one. Experts call repression the
growing out of an unease or forgetting it, whereas they call adjustment the learning to
articulate it as a problem and perhaps solving it. There is a methodological defect in Freud
(who was an ardent inductivist) that shows up as a defect in his theory, since articulating the
unease as a problem and solving it is an adjustment in a sense that his theory overlooks.

Thomas Mann’s 1903 *Tonio Kröger* is a literary application of Freud’s theory. It is a schematic
story in three movements—a problematic infancy, its development in manhood into a form
of neurosis, and its resolution through the hero’s return to his childhood scene, noting that
his plight had been of a half-Italian living in a parochial German community. Poor as it is we
can learn from it. When you come to college, your mind is full of ideas and full of
misgivings. If you express all these as clearly as you can, you will find both greater peace of
mind and much of the textbook helpful and thus making better sense; perhaps you will have
to use not only the textbook but also some auxiliary material, such as historical sketches and
cyclopedia articles. In any case, this process is cheaper and more fruitful than agonizing or
memorizing.

Textbooks contain much material confirming theories, old or new, not only criticisms.
Confirmations, they say, are accords between facts and theories. This is very vague and
somewhat dangerous for a beginner dialectician, for two distinct reasons. First, if the logic of
confirmation is not clear it is harder to understand it, and second it is harder to see problems
that might nonetheless cause unease. Popper’s criticism of the popular view of confirmation
is simple: it renders painkillers the best cure for cancer, since most of those who use them
are free of cancer. This displays the poverty of the inductivist theory of confirmation
currently most popular among philosophers of science. To see what confirms what ad why,
you need to see what a new theory explains and how it changed the scene: what was
problematic before, how much of it is now better explained. Notice that we have good
explanations and poor ones, and that only good ones are testable and thus confirmable. This
is Popper’s view. Apply it to Thomas Mann’s novel. You will look for cases that look un-
Freudian, that may fail to fit Freud’s theory. If you describe it in detail, and then explain how
it fits Freud’s theory nonetheless, then you have a *tour de force*, an achievement.

Take a simple example. Physicists calculated from their theories the strength of metallic
crystals; the result did not tally with known facts: by the calculated results, pig iron should be
much stronger than even steel happens to be. However, inspection shows that pig iron is not
quite a crystal: it is a heap of crystals. So with some effort physicists succeeded to
manufacture some sort of metallic crystals (whiskers they are called) more like the theoretical
crystals and less broken or distorted than the usual. Their strength does accord with the
theory much better.

Many physicists take this as a part of the success story of science and leave it at that. I hope they are happy. Good dialecticians they are not. For, although the strength of certain unusually constructed metallic crystals is successfully explained, the strength of usual pieces of metal is still not. For this, further studies are necessary, and some indeed were undertaken. These studies are much more advanced and still highly incomplete. They are essential, say, for aircraft engineers, who need results that are both confirmed and applicable. They are legally forced to limit applications to ideas confirmed in accord with highly specified procedures. The confirming cases may be special and leave much not understood. Nobody suspected that brilliant dust dancing in the sunbeam offered a criticism of Newton’s theory of light until almost a century after the demise of this theory—when Lord Rayleigh showed that only a wave theory of light explains it. Maxwell theory of electromagnetism (1865) explained the wave theory of light (1818); he was convinced that radiation of hot things is explicable by his theory; Rutherford disproved him (1904). To overcome this difficulty, his student Niels Bohr developed quantum theory (1919).

Take a different example: Mendelism (1866). When you cross-breed a trait AA with a trait BB you get a mixed breed AB—heterozygote—and when you breed these you get one quarter AA, one quarter BB and one half of the mixed AB. The mixed breed may look in-between—say, gray if A and B are white and black—or it may look like the one that is called dominant; the other is called recessive. When a mixed breed of certain mice showed one third and two thirds it looked like a criticism of Mendelism; balance was restored when the missing trait—one quarter—were found as fetuses that die in the womb early in pregnancy. This is confirmation indeed, but it raises hosts of new problems, not all of which are solved. Also, there is the failure of Mendelism to apply to humans skin-color. (Almost all African American so-called are mixtures of skin-colors). Powerful researchers tried to apply Mendelism to the breeding of cows with high yields of milk and racehorses. Thus far, few of these efforts are successful. Yet quite a few historians of science say, as Mendelism is obvious, all of Mendel’s predecessors and contemporaries were prejudiced.

There are many such cases. To take a conspicuous example, historians of science allege that early nineteenth century chemistry has proven Dalton’s atomism. His proof was the law of multiple proportions. (Thus the ratio between the weight of a molecule of oxygen, O₂, and of ozone, O₃, is 2/3.) They ignore all evidence that conflicted with it (such as solutions and amalgams) and that explained why many researchers disagreed with Dalton. But just look at the latest table of elements and see how many facts do not fit simply and invite special theories, some of which are truly impressive, but without the ability to close the issue. Still another example. The theory of the cone of colors is an impressive success. I looked at as many books on it for the color brown. They do not mention it. Although it is a tremendous achievement, the theory lacks much. Consider the different shades of white, especially silver, and specific colors such as oxblood, brown and khaki, as well as burgundy and beige. Studies of colors that display the cone do not mention this. That conflicts with the rules of dialectics.

The social sciences are murkier. Popper showed that much of the reasons for Marx or Freud having considered their views scientific are poor. They are untestable; also, they do not explain what they are alleged to explain.
Ask the contemptuous of Freud, how do they explain Freudian repression? Easy: negative conditioning. Ask for details. In the best instance, they will give you a list of publications to look in them for an answer. You need not bother about such cases. They are all run-of-the-mill. Articulate them, use them as best you can in your present work, or lay them aside for a rainy day. They do bother you because you do not know what exactly to expect from your professor or your textbook (they systemically try to refrain from telling you) and subsequently you expect them to give you more than they can. If you are as submissive as required, then this comes off nicely; if you are clever, you expect to receive what you think they can deliver; when they do not, you feel troubled. To release this sense of trouble, you may increase your critical aptitude. You need not exert yourself; try to get more than the average student at your stage gets. The fruits of novelty may come later, with perseverance and with luck. Right now, we ignore your need to coordinate and to achieve some peace of mind.

I am wary of your becoming hypercritical when you discover weaknesses in your syllabus, textbook, professor, or senior colleagues—especially when they obviously mystify a point to conceal weakness or ignorance. Hypercriticism is an inverted uncritical attitude, a variant of cynicism and bitterness, itself a variant of broken but not destroyed naiveté. Also, it is the mark of the crank—sometimes rightly so. For, being hypercritical, being scandalized at the existence of established and respected defected items masqueraded as perfect, amounts to the faith in perfection, in the hope that one day the hypercritics will right all wrongs.

I do not know how Lavoisier made his first great discovery, his real breakthrough. It was a fact and a conjecture. The fact was that not only metals but also other matter might exhibit the same feature: Lavoisier found that, like dregs of metals, dregs of phosphorus are heavier than their origins. The conjecture was bold: perhaps metals display the rule and charcoal is the exception! He worked feverishly trying to prove this conjecture. He was stuck. He then heard Priestley on his discovery of deflogisticated air (that Lavoisier later called oxygen), and it came to him in a flash: the dregs of a combustion are partly ashes partly gases, and hence their combined weight must equal the combined weight of the combustible and the oxygen it consumed. He was so excited he thought it only just to view himself as a co-discovers of oxygen. Posterity decided to view his conduct as plagiarism. This, however, is an unimportant exaggeration. Posterity is more likely to be just because the recognition that plagiarists usually seek is immediate, although some great thinkers too fall for this pathetic weakness.

Our perplexity about priority is evident every time a civil court is asked to decide whether some text is plagiarized. (The same holds for the fine arts, but there it is inherent, as there a sharp criterion for plagiarism is impossible.) The paper mills—the organizations on the margins of Academe that write for students what they need, from semester papers to doctoral dissertations—are expert in plagiarizing with impunity. Boston University sued such an organization and won. Had the judge asked me for my opinion, I would have said, a professor who cannot distinguish the real from the fake deserves the fake. If you ever suspect a text to be fake, do not fuss; invite its alleged writer to discuss it with you. If such a discussion leads to the improvement of the text then the improved version is an achievement.

So back to the real thing, to genuine research, to our example of it from Lavoisier. He never
solved all the problems and difficulties he faced, and he frankly and boldly stated so—though with the inductivist naïve conviction that one day research will surmount them all. Hence, Lavoisier displayed ambivalence toward dialectics. And so, much as he played being scandalized at his predecessors’ errors, he did so only when he was assured of victory, when he was playing to the gallery. Until now, it is all right for an established person to be scandalized—especially at the paucity of experimental work, of a genuine spirit of research, and at other maladies. Before you are established, do not practice indignation! When you are established and indignant, you are avowedly performing your duty; when you are not established and indignant, everyone suspects you of trying to establish yourself the easy way: without doing your honest share. Cheap.

No; indignation is never to recommend, especially not in Academe. It is a poor substitute for compassion.

4.5

Approach your studies critically, but make no fuss about your criticism. As a student, use your critical abilities and the results of your dialectical activities not for professors and not for fights but chiefly for yourself and possibly for you close friends—as therapeutic techniques to avoid unarticulated displeasure at what you study and as means of absorbing your curriculum intelligently, with ease and with pleasure.

Writing a paper or a report or a dissertation—for any purpose—you may be able to use the dialectic technique explicitly. Your professors may force you to avoid it. I had a friend who could not write his doctoral dissertation. He had to pile up his empirical evidence from which his theories should have emerged, and he got himself lost in the details. He was desperate because he had a deadline. He asked me to help and I trained him to write dialectically. As a normal intelligent citizen who had taken part not just once in political and other debates, he was no novice to the game. He had a real horror of expressing in writing a hypothesis he disowned. In desperation, he yielded to my suggestion and wrote down a false hypothesis hoping to erase it after parting my company. I then advised him to write that the hypothesis was false and bring the evidence against it. The spell was broken. He went home and wrote in this fashion a sufficiently large part of his dissertation—and quite a dissertation it was—in a surprisingly short time. His professor was impressed with the content but dismayed at the style. My friend was not disheartened. He deleted much of the explicit part of the argument, suppressed most of what was left of it, multiplied his information, and added a dash of irrelevant data, and he got his Ph.D. It became his style for a lifetime, he told me decades later, to write dialectically and then retouch the outcome inductively.

Popper told me about his early days, including the story of his becoming a friend of John Eccles, then a young academic but later a Nobel Laureate in physiology. Eccles felt grateful to Popper as he encouraged him in his efforts to refute his own hypotheses. Popper advised him to submit to the leading British scientific periodical a paper in the dialectic style. The editors accepted the paper on the condition that it be recast in the inductive style. This is impressive. Later on, I too received such letters. I never yielded on this, although my policy was always to follow editors’ detailed suggestions as much as possible. One famous scholar-cum-editor helped me rewrite a paper again and again before he had it published. It
remained dialectical, although rather softly so.

The day will come when it will not be necessary to retouch a paper, when it will be possible to publish a closely reasoned piece—I suppose it will be a survey. It still is possible to do so today, before you will become an established academic. Colleagues, especially in your department, may be slow to realize this fact; it should not worry you: do whatever you like and enjoy your robust activity; write as dialectically as you can, book reviews or surveys, and achieve recognition as a published academic. This will facilitate further writing, in accord with what Robert Merton called the Matthew effect: the published have the better chances to publish more. Editors are cowards; they fear punishment for the publication of the wrong stuff more than they covet praise for the publication of the right stuff.

4.6

Book reviews are usually commissioned. Find someone who will recommend you to an editor for it. (This is not easy: editors may expect reviewers to express semi-official view of the book’s author and you should stay ignorant of this.) When you obtain a book to review, examine it to see if it deserves a favorable review. If not, return it to the editor pronto. Negative reviews are harder to write than positive ones. Next, see to it that you have some familiarity with the field to which the book belongs. Do that before you study the book, but do not spend too much time and effort on it. Then write the review. Try to read as little of the book as you can, while guessing its contents as best you can. Then check your guesses. When you failed, try to explain to yourself your failure. Never hesitate to throw away a draft and write another. This will teach you to write fast: writing many versions is faster than writing the first draft as final. A version is final when you decide that it deserves careful checking of details. Do that as much as your patience allows. If the book appears in a printed version, get a digital version too, as this helps refine your checking.

A book review should include a summary of the book’s contents, the praise for it that is the explanation for its right to a review and a critical discussion of its contents. You can also add your impressions, a report on your experience of having read the book and so on. And write it with a specific graduate student in mind—as if it were a personal letter.

A survey of a literature is a multiple review. It requires a good controversial question, a discussion of it, a list of available answers to it, good bad and indifferent, and critical discussions of them. A survey can be of answers and it can be of books that present these answers. Here room for variations is as wide as you wish. If surveys of the question you have chosen exist, this is a cause for celebration: a survey of surveys is plainly exhilarating. Let us then move to teaching and lecturing. If you are the lecturer, then the simplest is to deliver book reviews and book surveys, with some background material as needed. Things are different if you are a listener. Sitting in a classroom and hearing familiar material, you may find boring no end. A simple trick will change that—for a while, until it wears off. Do not sit there like a student, but like a colleague; a supervisor even: do not study materials delivered but the people who deliver them, their choices of material, their modes of delivery. Why does the lecturer teach this, do that? How well does the lecture catch the listeners’ attention? In particular, how much dialectics the lecturer employs and how much profitably? Could I learn from all this? If a lecture is too dull even for that, you may spend your time
more usefully leaving the lecture-hall or, if this is impossible, thinking to yourself about your own work. (Students often use their laptops during dull lectures.) If we dare not whistle or throw tomatoes at a lecturer, there still is the right—to say nothing of the duty—of the audiences to express themselves.

The duty to deliver a dull lecture is worse than to listen to one. First thing, tell your audience that you have to deliver it and explain yourself properly and honorably as an adult in adult company. Some students may giggle—ignore them. Then discuss the reasons that make those who think you should deliver the lecture consider it important. Your dull lecture may thus become at least entertaining and also interesting and instructive. The rule is simple. Try to avoid dullness at all cost. Do so primarily by presenting other people’s views, by questioning the claim that the activity is dull, important, both, neither, whatever is on your mind. The way to become a dialectician is by playing the game. Playfully.

4.7

You may dislike all this. You may think it is too much of a concession to the Establishment. If so, then possibly you may consider too submissive the very acceptance of an academic job. In which case this book is not for you: you are better off not on your way to an academic career.

I think this view is an exaggeration: in a modern civil society, doing your job as best you know how need not be submissive. Take the task that seems to me the least moral: passing your grade-sheet to the administration. If you want as much justice as possible, you check your grading against given criteria and check your results. You may want to consult colleagues, perhaps. What many professors do is not clear even to themselves. They cannot tell you why they grade this way or that. Professors can easily put you off students who complain about grades. This may be frivolous, but hardly avoidable: the just grading of one class properly and critically may easily expand into a lifetime task! So professors do their bit in order to avoid feeling guilty. They read, they worry, they reread, they survey the list, compare grades, regrade, reread—until the record office cannot take it any longer and tells some poor secretary to get the grades from you on the pain of some penalty. The professor feels it is more unjust to the secretary to go on working on the exams then it is to the students to stop it; so the process comes to an end and thank God for having postponed the inevitable breakdown for another semester. The professor rushes off on a holiday or on what is left of it.

The moral from this true story is that professors read exams and essays and other assignments not in order to be just but in order to avoid excessive feeling of guilt. Yet the method leading nearer to justice requires less reading than they do, not more. For some purpose, multiple-choice exams are better than written ones. Otherwise, the justice of an exam depends on its objective. A well-structured essay on a familiar topic one can read at a glance—unless it is very new material (for the reader); this one can spot easily and read more slowly and with pleasure. If the lecturer takes care to describe clearly the objective of a course and students know what they should do in order to achieve it, then the examiner should be able to tell in a glance the quality of the exam papers. Spending more time on reading them can only confuse.
A student once came to my office and stood at the door clumsily. I think he was a footballer, as he filled the door’s space. I looked at him inquiringly and he said apologetically, I want you to read my essay. That is not true, I said. The fellow boiled inside; his shoulders and back straightened and you could almost hear the door’s frame crack. Relax, I said, and take a chair. I shall convince you, I added, with one sentence that you are mistaken. He looked as if I hit him on his head; he slumped into a chair, his eyes fixed on me as if we were on the sports field. I said, you want me to comment on your paper, not to read it, but you think I cannot comment on it unless I read it. He was utterly bewildered. I showed him that I could comment on his paper without glancing at it. He was thrilled. I could do so by questions and answers, of course. You can learn much about a paper by learning about any point in it that you choose: choice of topic, preface, intended audience, structure, dialectical give-and-take. You can compare the answers about the paper to your set standard answer. What thrilled that student was that he was actively engaged in intellectual activity. Evidently, the paper was not a case of such an activity. I discussed it with him and we agreed that he should rewrite it and come for another discussion. He did not. Instead, his coach came to tell me he had dropped the course. College footballers have to play, not to study. Pity.

Since I am retired now, I can sum up the success rate of my performances as a lecturer. I did have some success, but I had more failures than successes. Failures come for diverse reasons. The commonest in my experience were intrigues: colleagues sabotaged my work systematically and in many ways, some quite creative. Partly in ignorance of what I was doing and partly in baseless fear of honest competition. I say this, however, just to satisfy your curiosity. It has nothing to do with my purpose, which is to offer you my best advice to help you plan for your academic career. The best way to face any intrigue, I keep telling you, is to ignore it. This has its opportunity cost, of course, as every choice does. It still seems to me the best policy. I know. I could have increased my success rate by offering straight lectures rather than argue with my students. It was my choice to act as I did. Looking back on my career, I do not regret it, much as I lament the cost of the intrigue that some of my students had to pay.

One final point. Training in dialectics, like any training, requires constant feedback. So students do need grades. It is the school that does not need them. This not only accounts for inflated administration. It is downright an insult to students as it rest on the assumption that they need prodding in order to study.

5. Personal Adjustments on the Way to Becoming a Dialectician

Il Sodoma was Leonardo’s major disciple. Judging by his paintings in the Florence Pitti Gallery, he outdid Leonardo in the techniques for which Leonardo is so famous, yet he lacked Leonardo’s subtlety and delicacy. He is an almost forgotten artist of past renown, and even in the Pitti Gallery, which exhibits many second-rate works, his pictures are nowadays located in relatively obscure places. I dare say most visitors there have more than enough first-rate masterpieces to watch rather than notice him.

The San Bartolomeo a Monte Oliveto Monastery that lies on the serene Tuscan hills outside Florence, is not a particularly famous place. It shelters an obscure fresco by Il Sodoma, The Last Supper, it is in a very poor condition. Being a fresco, it does not suffer from the excesses
that reduce the value of his oils. The fresco’s composition is daring: Judas sits with his back to the spectator, looking, however, not at Jesus but away from Him, so that his portrait is central. St. John “the beloved disciple” sits sweetly behind, resting his saintly head on Jesus’s shoulder; the contrast between these two faces is striking: the one is pure sweetness, the other a most impressive mixture of a villain and a saint—the only convincing Judas I know. I suppose the whole composition emerges around him. If I am not mistaken it is a self-portrait.  

Anyway, it is intriguing and very moving.

The record of Judas Iscariot is intriguing: he was the arch traitor and thus the vilest character imaginable, yet we know about him details that matter so much less. These speak to us, perhaps more than his betrayal of the Son of God, in what looks an utter loss of all sense of proportion. St. Matthew uses these to render him human: he praises him as an efficient treasurer, and reports that before he hanged himself he returned the fifty pieces of silver that were the reward he received for his treason. St. John differs: even as a treasurer, he reports, Judas showed his vile character: he helped himself to the petty cash. I suppose St. John found irritating what the fresco of Il Sodoma came to illustrate: we find it easier to empathize with Judas than with the other Disciples; perfection is too remote from us to have a direct, live meaning for us (Bernard Shaw, Preface to his St. Joan, 1923). This section, about personal adjustments on the way to becoming a dialectician, deals with one’s readiness to devote one’s life to research that fails to dwarf personal quirks. To portray Judas as vile St. John ascribes to him a permissible goofing, not only mere treason.

What role do personal characteristics play in the life of Academe? Some professors will claim eccentricity at all costs (The Man Who Came to Dinner; Mr. Belvedere); others will rather die than be considered eccentric. There is something deep-seated here, something as deep-seated as that in Il Sodoma is fresco that is so moving. We could go on discussing what exactly all this is as long as it sounds fascinating, but useful it will not become—not in any way that I can see.

5.1

How much of our personal characteristics can we ignore in our life in Academe? How important to us are they? Freud showed how much childhood experiences, almost accidental events, might contribute to what we consider our real selves. Yet without notice—a strange and exciting intellectual oversight if there ever was one—he declared that character solidifies (not in infancy but) in transition from adolescence to adult life. At that stage, he noted, some of us outgrow childhood traumas, some of us sublimate them, some never attend to them and become neurotics or worse. This is thought provoking, yet Freud, who stated it more than once, never worried much about it—perhaps because he had enough work on his hand even while ignoring it. Yet it was an error. For one thing, it implies that there is no child neurotic—at least not in the same sense (as Melanie Klein has noticed). For another thing, it

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33 There is a well-known self-portrait of Sodoma. It is an earlier fresco in the Benedictine Abbey and Monastery of Monte Oliveto Maggiore south of Sienna. It is not central and not striking and he is surrounded there with animals—for the sake of identification in accord with tradition, for which see E. H. Gombrich, The Uses of Image, 1999.

34 The experts say, the Gospel of St. John is the latest among the four Gospels.
 rais the question, how much the past and how much the present determine whether a
given adolescent will become neurotic or adjusted: it tells us that the neurotics are those who
have missed the opportunity to shake off their childhood traumas. In adolescence, we are
most obviously unadjusted—sensitive to other people’s pain, Freud discovered the pains of
adolescence just as much as he discovered the pains of infancy (and alas declared both
unavoidable). We are sensitive to our smallest failings then as if we wish to be saints; but
only as-if: our reaction-pattern is scrambled. If we remain as sensitive and as vulnerable, we
remain unadjusted. If we lose sensitivity, we become coarse—vulnerable or invulnerable, but
course. We may, however, remain sensitive but reduce our vulnerability—especially in
congenial environments. The simplest way to strike such a feat successfully is to show
concern for others, especially for their sensitivity and vulnerability.

Inadequate adjustment and the problems it raises have caught up with respectable
psychology—less with students of abnormal psychology than with students of growth
psychology, education psychology, or learning theory and the study of transfer of skills,
adequate and inadequate.

An example. One of the deepest reasons for the almost universal inability to imitate native
pronunciation well enough is transfer, or an inadequate mode of adjustment, as E. H.
Gombrich has observed (Art and Illusion, 1960). The reason for this is the reluctance to
improve modes of adjustment. This is partly clinging, shyness, or fear of change. Partly it is
the fear of sounding phony. (Drama schools may set their students free. Yet some artists
imitate natives well only on stage.) Partly this is due to the lack of readiness to prattle as
children do when learning to speak.35 These are all due to inadequate modes of teaching,
especially of foreign languages, rooted in a strong inhibition against imitating children. (Try it
in company and see what tremendous displeasure this elicits.) All children are painters; child-
psychologists rightly worry about the mental development of children who do not paint.
Most adults are inhibited even from doodling. This, too, is the success of our education. If
you can bring yourself to doodle again, I greatly recommend it. It will improve you in many
unexpected ways. I am speaking here of the rules of intellectual conduct that regularly find
their way into Academe and cause inhibitions.

A simple example: “do not interrupt!” Why should one speaker avoid interrupting another?
Obviously, it is at times very useful and conducive for the proper development of intellectual
discourse to suppress the urge to interrupt; for the give-and-take between teacher and
student or between scholars on equal footing. Equally obviously, the same is at times useful
for the opposite purpose: do not interrupt me! Say, bores who go on endlessly making
sounds without having anything to say but feeling immune to your impatience. Bores should
not worry us: we meet them and discover soon enough that they are bores, and we use all
evasion techniques in the book to prevent their assaults on our precious
time. It is tragic to
see interesting scholars interested in each other’s work being too polite to make the most of
their encounter, simply because of the inadequacy of the rules of polite conversation that
prevents interruptions. The most useful interruptions I know are these. Sorry, I have asked
the wrong question; allow me to withdraw it and ask again. Do skip this item.

35 See my “Can Adults Become Genuinely Bilingual?”, in A. Kasher, ed., Language in Focus, 1976, 473-84;
Sensitive people are able to interpret all sorts of silent interruptions—such as facial expressions. A scholar’s face can easily convey vital interruptions, even without notice: go on more quickly, says a thoughtful open face on a strongly nodding head; go more slowly here since now I can barely follow you, says a concentrated face, with a hand embarrassedly rubbing chin; I must put here an obvious objection you overlook as if I know your rejoinder to it but I do not, says a grimace, perhaps with a hand rubbing hair for energetic emphasis. And so on. This may sound unusual to you. It is common. Consider the difference between a lecture delivered once to the microphone in an empty studio and once to an energetic audience. A good lecturer is open to constant feedback while lecturing. This is why lecturing to a public is more tiring than talking to microphones.

Study silent cues—from interlocutors and from a listening public alike—and learn to respond to them fast. However interesting a monologue may be, it is easily capable of boring audiences unable to help speakers adjust. However important such modes of audience tacit interference with the speaker’s activity are, they are very limited in scope. A listener indicates being lost because of an obvious objection; the speaker obviously thinks the listener knows how to answer it, but the listener does not; perhaps the listener has no idea how to answer the objection; perhaps the listener knows of a few lines of defense but is unable to guess which one the speaker favors; perhaps none of the existing lines of defense are favorable and the listener must know how the speaker copes with the situation; and there is always the option of breaking the thread of the conversation for a while so as to handle the objection, or to ask for one’s listener’s credit and postpone the objection to a more appropriate part of the discourse, and no a priori rule can tell which procedure is more advantageous since that depends on many circumstances and many peripheral factors.

How can sheer grimace express so much? It cannot. Therefore, very often the speaker who observes such a grimace has to make a snap decision, whether to ignore it, divine what the objection is and take it in stride, or other. Speakers may easily goof. Pity; for the simplest, easiest, and sanest procedure is to invite interruption. The rules of polite conversation thus wavered, the discussion can go on peacefully. Once you realize that, you learn what interruptions are useful, what are obstructive, and what are redundant. When in doubt, consult the speaker. Moreover, you can always request an interruption before embarking on it.

It is my habit to begin my public lectures with a request for interruptions. I always try welcome interruptions by stopping talking, no matter what I say, and how important it is. This, admittedly, may cause a loss of important item, even to the complete loss of thread. This last event may happen even without interruption. When you talk, privately or publicly, and you feel that you have lost your thread, or that you are going to lose it, or anything like that, do not hesitate: start the discussion or lecture all over again; at once. The right opener is, we were discussing the question, what do gremlins like for breakfast? Remember, when you are going to lose the thread of your discourse, your audience has probably lost it already.

An old hand I knew was a first-rate expert in divining reactions. For years he was unfailingly a most delightful dialectician, whom one could easily guide with sheer facial expression, and he would go fast, slow down, pick-up objections—all in perfect accord with his listener’s tacit wishes. Then his audiences changed with the change of the climate of opinions in his field. All of a sudden, he could become a bore; he became handicapped and limited in his
A similar old hand I knew spoke to an audience of listeners educated in the Chinese tradition. They were unable to comprehend anything he said. They misled him all the way. He said he enjoyed talking to an audience that was so sympathetic. When this was going to happen to a friend of mine, I warned him that this might happen. To test my claim, he injected a joke to his lecture with no hint at it; no one laughed. Without missing a beat, he started all over again and won my admiration.

Occasionally, one may see a small group of scholars engaged in full-speed high-powered conversation. A younger fellow stands on the periphery, gets naturally excited, and joins the activity. Naturally, the novice is prone to goof. A remark or a question in violation of the rules of the game or touching a point familiar to all the rest may irritate. It is a moment of minor crisis: to stop and debate what to do is out of the question since it will utterly ruin the atmosphere. One member of the team obviously has to make a decision—either to lower the level of the discussion and introduce a tone of patience, or to disregard the youngster—by a momentary facial expression. Any peculiar way of being dismissed, the youngster is bound to feel slighted; and often enough this will breed severe inhibition. Pity. You should take such a goof in your stride, and take it up again the next time you meet the individual who has slighted you.

In my classes, lectures, or seminars, I always encourage discussion and interruption, and much of it to be able to select the better and more pertinent remarks to pursue the set discussion. I do not take all interruptions on equal footing. I am particularly anxious to explain to a student whose remark is not fully taken account of that it should not make anyone feel letdown, that it is better to think of an improvement of a poor remark and repeat it on the next occasion. At times, this is helpful; at times, however, it reinforces the inhibition. This causes me great trouble because in every class there are a few uninhibited fellows—not always the better students—and they soon become dominant in class and reinforce the inhibition of their inhibited classmates; and this is a real nuisance: I do not want to inhibit the dominant members but their dominance has to be curbed, even when they do happen to be the brighter fellows in class, since they reinforce the inhibitions that I do not know how to overcome. True, no matter how shy and inhibited, when in the company of a willing teacher or colleague, students eager enough to learn will sooner or later come forth with questions, objections, and ruminations. Yet the opportunity does not always present itself. This is a pity, since any victory over an inhibition may yield spectacular results. There is no rule here that I know of, and no guarantee. Still, some guidelines may be useful on occasion. For example, the dominant students may not notice that they inhibit their shy peers; it is possible to draw their attention to their being bullies. At times, the bullies instruct the shy ones. You should stop everything and discuss their instructions with them openly: this may yield spectacular results.

5.2

The inhibition of developing one’s interests comes in a variety of ways, not least important among them is the inhibition of free and enjoyable reading. The inhibiting rule is—read a book thoroughly, cover to cover; never skip: especially do not skip a passage that requires hard concentrated work—it is good for your soul and it is good for your intellect! Only God
knows how many students suffer so deeply and so unjustly from their inability to finish reading the textbook. The reason for this so very common malady is obvious and common. The result of conditioning, the student aims at completing a job; like most conditioning, it rests on threats of penalties for failure, especially through overgrown senses of guilt, incompetence, and frustration. Yet the job is impossible. Textbook writers are usually at least as neurotic as their readers are; they, too, undergo conditioning to do the impossible. Writing a textbook these days may mean giving up all hope of making a name as a researcher, as a fully-fledged able-bodied academic. Only top dogs can write textbooks and retain their academic status in their colleague’s eyes. Textbooks must then reflect then their authors’ ability to keep investing mental energy in research while writing a top-notch textbook. They try then to show that they know everything worth knowing; they are up-to-date in two (interconnected) respects. If they wish to be didactic on top of this, that is their added task. What a big task this is, you have no idea. I have met a few textbook writers who said frankly, had they known what a headache the venture was they would not have started it. A compromise is the obvious way out; and the simplest and easiest compromise is having the textbook begin as teaching material and end as results of research. The last part of the book thus aims not at the common reader, but at colleagues—for showing them that the author has not lost touch while wasting time on a mere textbook. Fortunately, this is not always so. Some authors are educators: they consider it good for their readers to see how much they are behind and how hard they have to work in order to become experts. Intended or not, the result is torture.

Dependence on teachers is a heartbreaking phenomenon and a spreading disease. Allegedly, the opposite of dependence is independence. The great idea of inter-dependence is thus out of consideration. Not learning the art of cooperation, you find it frustrating and humiliating and depressing to be dependent and become increasingly dependent the harder you try to follow the accepted prescriptions. The independence they teach you is a romantic ideal. You need super-human resourcefulness, it says. You try hardest. You then bump against widespread taboos. Breaking then isolates you. This is a trap to dodge: be resourceful in simple things: in the choice of courses, teachers, colleagues, and reading material. Trying to choose reading material, glance at diverse materials, invent some techniques of your own; examine classic texts in your field. And, above all, find partners in study.

Romanticism is strict conservatism with a modification: rarely, we need revolutions, for utterly independent geniuses to conduct them. Beware of this idea of (utter) independence. It is dangerous, since its intended thrust is to discourage almost all. The exceptions aspire to be independent at all cost: to that end, they pass ordeals: they stay in the desert for forty days and forty nights with no food and no water, and, worse, with no company. To become independent one must be a Moses, an Elijah, a Christ: geniuses avoid their own societies; they forge the rules of new ones. By the rules of the old society, a genius is alienated (crazy), to find vindication by the rules of the new society. (Romantic philosophy is relativist.) Nobody is that independent: not even a Moses. Independent people have independent company to support them, especially in a tough moment, or after a big failure.

5.3

Romanticism divides us to the submissive and the original. Your trouble is obvious: a
budding academic, you do not want to be submissive and you do not know how to be original. This is a dilemma to dodge: choose what to study and enjoy your studies.

For a budding academic, the most important choice is of a teacher—of a mentor, really. It is both personal and intellectual. Of the personal aspect of the choice, I say nothing. You either like people you associate with or not. If not, you need to change your lifestyle. Of the intellectual aspect of the choice, you need an interest and you need to skim the easily available current literature for a potential teacher. For this you need an interest, a dominant one. If you have none, my advice to you is, get out of Academe as fast as you can. If you have one, begin by looking for current texts on it that you like.

How can one choose a text? If one knows what it says, one need not read it, and if not one is blind! The generalization of this is Socrates’ paradox of learning (Menon):36 if you know what you wish to learn, you do not wish to learn it, and if not, how will you recognize it when it comes your way? Even if you feel satisfied, how do you know that you have met your original quest rather than another one? Some philosophers think this problem is not serious, since we often know what we want to learn—electrical engineering, say—and achieve it. These philosophers could just as well say, there is no problem how sea turtles and salmons know their way to their breeding grounds or a way back to the open, since we know that they do arrive. Indeed, just as most biologists think sea turtles and salmons have inborn knowledge, so did Plato (or was it Socrates?) who thought all human knowledge is inborn or a priori (namely, prior to experience, namely, logically independent of it).

Philosophers rightly dislike Plato’s solution. Yet they have no other solution. So they tend to pretend that the problem is not real. Without much ado, I shall give you the two other extant solutions to the problem, how do we know what we want to learn.

Bacon’s solution is ingenious. We do not want to know anything in particular—we just want to know the truth, the whole truth and nothing but. We collect facts most indiscriminately and let them guide us wherever they will. Unfortunately, however, he was fantasizing: one cannot collect facts indiscriminately, and facts do not guide. Bacon’s solution is historically most important. He was aware of the problem he was solving; he used his solution of it as a major argument in favor of his view of learning as utterly passive: Nature does not deceive: the faults for our errors is ours. There is a pragmatic aspect here: faith in passivity—at least yours—is rampant. You are clobbered into passivity and you must be creative: just acquire some simple information, and then you can be off on your own quest.

Popper’s alternative exhausts the list of solutions to Socrates’ paradox of learning. As long as learning is fun, it does not matter that what we learn is possibly not exactly what we have initially wanted. We have a question. We want the answer to it. Perhaps we will never know the true answer, but we do recognize answers to our questions. Once we find an answer, we put a new question: is this answer true? If it is false, how can we show it to be false? After showing a given answer false, we may look for an alternative to it. This is a possibly endless job, and it is fun; hopefully, it is progress, but never mind this now: this section is personal, remember.

Part III: Prescriptions

An example. You take a dull course with an unreadable reading-list. What should you do about it? Do not read dull material. It is harmful. There are ways of replacing dull reading with exciting reading and ways of trying to liven-up material. And do not prepare for an exam unless its outcome determines your fate.

Exams—yes, we must digress a bit—are not ends but means; means for professors for finding out whether you have done your homework. The sanest exams I know of are driving tests. These have a clear end: to get dangerous drivers off the road. It is empirically found useful this way. Testers wish to know that candidates operate safely under normal conditions. For that, their presence should have a minimal effect. So candidates should ignore their testers altogether, except for listening to their instructions to turn right here, left there, reverse to parking position. If scholarly exams are to be sane, they must be of the same ilk. Students are told to write their exam papers for their instructors. This is utterly insane as it is utterly abnormal: normally students cannot instruct their instructors. Supposing you can instruct your instructor, you should conceal this fact, since examiners show no gratitude for such an affront. Such cases are rare: in my whole career, I met two undergraduates who unwittingly instructed their instructors. They did not do well. This is terrible injustice, but it is relatively easy to avoid. As an examiner, your instructor is peering over your shoulder while you operate normally. What then is the normal operation? Explaining the material to your peers or to your juniors as best you can. If you studied well, and if you are versed in writing, you need not worry about exams. This is how things should be and can be. They are not. Largely because preparations for exams are usually confused. There are exceptions. In practical exams (laboratory work, singing, occupational therapy) and in rigorous or computational exams (mathematics, social statistics, mathematical physics) students produce in the exams samples of what they were doing during the courses. This may also apply to other kinds of cases, perhaps creative writing, or musical analysis. Most courses on Campus share one most incredible incongruity: students are supposed to read for written exams.

This incongruity usually requires memorizing. This is the chief reason for the fact that so many students try so very hard to remember as nearly by heart as possible: the end of learning by heart is the ability to repeat; and if you know a text by heart, then it is equally easy to repeat it, reciting it or writing it down. That memorizing should so control studies merely because of the incongruity in our examination system, is monstrous. Professors do complain that students repeat to them what they have said in class. This never ceases to amaze me. They force students to memorize, and so it is not surprising that students wish first to remember and then to forget. Now students know that exams are futile. When a student contests the grade of an exam, nothing is simpler than repeating it. Yet both parties reject this solution. Increasingly many students support their complaint with the aid of lawyers! There will be no improvement of the system until the purpose of exams will be clear and operative. This is most unlikely, because in practical matters, to repeat, the problem scarcely arises and in other matters the purpose of exams is not clear; it is merely to justify inequality, to keep some clubs exclusive (Steve Fuller).

This concludes this digression into the traditional system of exams. I have placed it here for a purpose: my recommendation to you regarding preparation for exams is the same as my recommendation to you regarding reading during the course: take care to avoid boring yourself. Do not prepare for exams: failing them is less costly than harming yourself by
depriving yourself of the rewards of the love of learning.

A few more technical points. Reading and writing should intertwine. It is all right to underline a good passage in a book, especially, as students do in the U.S.A., with magic-markers. However, if you leave it at that, it is pointless. You can always build a short essay around it; say, write the question it comes to answer, praise the question and then praise the answer: why is it cogent? One way or another you must write daily. Like letters to your Aunt, two or three clear and friendly pages. Of course, she is interested in what you do, so it is easier to write for her than for a learned journal whose readers are too busy to read and too learned to be instructed—but you can start with a sympathetic audience; the techniques for capturing hostile audiences are not necessary for beginner; you can develop it later on if you must.

Introductions to textbooks usually address teachers; students habitually skip them. That is regrettable. Read the introduction carefully. Look the author up in Who’s Who or in the Dictionary of American Scholars or in the Dictionary of National Biography or in the Britannica or the Americana or Larousse. (They are all on the Net.) Write to your Aunt, if you can, or to your roommate if you prefer; explain why this or that scholar has invested years in the project of making just the textbook that your professor has prescribed for you. Try to empathize with that scholar and with your prof. Try to find the chapter, the page, that the author very much wanted to write and why it appears in this textbook. Choose between two options: to study this page or to ignore the book.

Make writing a good habit. You can take exam questions from previous years—the departmental secretary will have some, or your instructor—in the very beginning of the course, choose the questions that appeal to you and strike your fancy, and answer them at once. Of course, you do not know the answers, but write what you can. Use your books freely to check what you have written and rewrite it. Of course, you cannot write well and clearly. Use an audience, and ask your volunteer readers to tell you (1) what they did not understand, (2) when has bored them and (3) when they felt they had an objection you should have handled but did not. Correct your essays accordingly. This is an easy kind of exercise—except that you may be inhibited, in which case breaking the inhibition is of supreme importance for you—and it is profitable for you—as a student and more so as an academic. It is the best way for launching a joyful academic career.

Well then; why have you chosen this course? Why does the system impose this course on you? Try to write an essay on this. Look it up in a general introduction or in an encyclopedia or in the biography of its originator. If it is an old subject glance at an old introductory text, an old encyclopedia, Britannica or Americana or Larousse. Write up what you have found or what has occurred to you while reading. And try to write regularly questions, answers, and criticisms.

Look up various texts; to begin with, do not read any of them; glance into them, appraise them, write about the ones that appeal to you and then check what you have written by further perusal. Then read carefully what you have chosen to read—and do not forget to stop well before it bores you. As usual with many problems of choice, a standard optical illusion makes them more difficult than they are: take care to notice the options to avoid. After weeding out the unacceptable, you can choose any way you like and change your mind.
Part III: Prescriptions

Weeding out is often next to impossible, however. Only one in one hundred books is worth reading carefully, and of those only one in one hundred suits you right now. Hence, you must make a job of a search for it. Go to the undergrad library. You will find there a score or two; give each one five minutes at most; this means an hour or two; give two to four another fifteen minutes each, reading a page here, a paragraph there, consulting the table of contents and the index, absorbing the preface or the conclusion; this means another hour or so. After a morning’s work, you come up with the one out of a dozen or two books, the one of them you like best. Write an essay on your experience. Do not worry: you can always throw to the wastebasket any essay of yours that you dislike. (It is an important empirical observation that the writing inhibition comes together with the inability to throw away a written page. This is why the computer is very useful for the inhibited: the delete button is a great relief.) Read only the books that appeal to you. You can also pick up your essay from the wastebasket and read it carefully, with a red pencil. Do not blush! We are all stupid! You can pretend you are an instructor reading an essay by some unknown student. It is great fun. You may find it profitable to rewrite the essay, or to argue with it, or to burn it quietly. Do as you wish. It is good for you. It builds character.

If the undergrad library does not have a single text that appeals to you, do not worry. The task was worth it nonetheless. Go to the main library and do the same. Perhaps there is no good text on the subject; try an anthology; try the learned press. Struggle as long as you find it fun to do so.

No, there is no guarantee for success. Try hard as I can, I have never succeeded with the exercise I am suggesting to you when I applied it to the most popular topics in contemporary philosophy. I have executed exercises of this kind, and I have published some, in a dozen different fields. Although they led me to little, I found the all enjoyable and fruitful, whether in education, in the social sciences, in the history of science and medicine and art and culture, and in branches of traditional philosophy; some of these are published in leading periodicals and have been cited over decades. I have little training in physics, and I have almost never written a survey of up-to-date material in any science proper, but I am going to—I have written on one topic in physics that excites me and as soon as I am done with you I hope to return to it and write a survey on it and if I see any success, I may try to publish my results. That will please me no end.

In principle, there is no difference between the work of the novice and that of the established, except that it is harder for novices than for the established, since they are learning and acquiring scholarly techniques. Novices have much more fun when they discover new and tremendously exciting things almost every week, whereas the established progress much more slowly. The best scholars I knew did not develop half as fast as some of my students did. It is consoling to observe them grow fast. Why should a novice not play the same game as the scholar? Why is it permissible in chess and in tennis but not in learning? In music training much time was spent on five-fingers exercises; a growing consensus now joins Debussy and Ives and Bartók in finding these more harmful than useful.³⁷ Not so in

Academic Agonies and How to Avoid Them

scholarship that still awaits its Debussys and Bartóks to write exercise that are not boring. Why? To this, the answers are ideological and psychological. A novice tennis player learns how to lose a game; a novice scholar learns that every lost game is a disgrace. This is why. So forget all about disgrace and study for fun.

5.4

Scholarship more than any other activity is a matter of trial and error. You have goofed, you do goof, you will goof. So do not worry about it, just try again. Find your interests and pursue them regardless of anything you can possibly disregard. Use books, letters, conversations—anything—if it may advance your interests. Be resourceful and accept your failures gracefully. The way to do it is by never concealing past errors. Also, the simplest way to avoid finding yourself stuck is to stop whenever you fear that you may find yourself in that situation. If you suspect that possibly you are getting into a quagmire, stop. Stop well before your work gets dull and oppressive; try different approaches, try some changes; consult anyone around; random changes are better than being stuck. Better stop too early than too late! This is sheer hygiene. Stopping too early may be losing an opportunity; not so in matter scholarly: you may hope to return to an interesting study later.

The standard response to this advice is that following it gets you into total inaction. People who say so suggest that it is so obviously true; there is no need to explain it. I have one difficulty with this answer; you can follow my advice for a day or two, even a week or two, and then forget it and no harm done. Yet these people often refuse to try this advice even for a short while. Do they fear that it will work?

Personal this section ought to be, but I do not know you personally and so I am constrained. Perhaps you are eager enough and pliable enough so that my advice thus far will suffice for you for a while. Perhaps not. Perhaps you are already in some disruptive habits. Perhaps you are a pedant. Perhaps you are ambivalent about your work. Perhaps you cannot work except in utter silence, but some noise accompanies you wherever you go. Perhaps you cannot get exams out of your head yet do badly in exams out of the very fear of them. There are a thousand and one idiosyncratic agonies and I cannot even list the more frequent and important among them. How then shall I help to you?

My apologies. I never thought I can advise everybody, and I discussed this point with you extensively in my introductory part, surely you remember. If you have skipped it, then perhaps you would care to glance at it now; perhaps I should have placed it here instead of in my introduction. Sorry. I can give you only some general idea here, and let you hope for the best.

One of the worst symptoms of bad habits is the strong propensity to play with fire. I should say the propensity to test one's ability by putting oneself in the fire. This too is not quite the right wording. We are ambivalent about our ambivalences, Freud has taught us. Hence, we do not even know whether we want our idiosyncrasies altered or not; so we do not quite plunge into the fire. In our ambivalence about exams we do not just take too many; we go where too many of them are likely to be imposed on us. If you must have silence for studies, you are drawn away from both noisy places and utterly quiet ones; you find yourself in places
that might be quiet but are not and you get irritated with the world for its noise and yourself. This is the pattern of neuroses, said Freud.

5.5

Getting rid of our neuroses may be too costly. We can learn to live with them. Mental hygiene may be sufficiently effective for that. Mental hygiene is important both as a preventive and as a start for a cure: never allow yourself to be under pressure, and see for yourself! The reason you waver is ambivalence. We justify our ambivalence by a false theory of the will. It is this. You can will to have a strong will. Once you have the will to have a strong will you decide to exercise your will until it strengthens. The essence of the exercise is to provide yourself with ever-harder tasks and master them. So much for the false theory. It is as vile as it is silly, yet is it most popular and widely spread. Ignatius Loyola, I suppose, was its best advocate; the excuse for him is that he lived before Freud. Moreover, he meant it; rather than play with fire, he plunged into it; and he created institutions that force you to plunge into fire—on the assumption that the fire will harden you or melt you. That he was successful is still evident in his organization; that it cost dearly we will probably never know: there are no statistics of dropouts from Jesuit colleges (the training takes a full ten years) or of breakdowns within the ranks of the order. Theoretically, you can say, Loyola excluded the middle grounds: when you work so hard and contemplate hell every day for a stretch of half-an-hour at least, you are hard—perhaps until you collapse.

Loyola was consistent, systematic, and pre-Freudian. Most people are neither. The better schoolteachers often display an approach that is more effective than what most western people do. They do not expect their pupils to have strong wills, powers of concentration, or any preoccupation with these. They often try to create circumstances and incentives leading children to voluntary actions that help them develop. It should be nice and easy—indeed, if it is not that then you have to change your approach. This is not the Loyola way, but it is as near to it as a soft approach can be.

Approach yourself as if you were your own schoolteacher. If you think it childish to be a teacher and a schoolchild simultaneously, then you are mistaken: it is detachment, and detachment is the very symptom of maturity. This holds also for the ability to be your problem-student (be that yourself or someone else) and for the ability to consult others about it. The difference between a child proper and a college-kid is that the one and same problem signifies differently for a school-kid and a college-kid: the one has an undeveloped response-pattern whereas the other has an inadequate one; it is one that handicaps. Disregard for inadequate response-patterns is of no use. It is built-in to a purpose and it is cleverer than the conscience that tries to suppress it or fight it—with a strong will or otherwise.

Now I have done it: when I spoke of you as both a teacher and a student, I have not quite recommended splitting your personality, not more than the split between active planning and preparing spontaneous reaction. When I speak of your conscious battle with your sub-conscious I did (follow Freud and) split your personality—claiming that you (your ego) have one aim and your sub-conscious another. Freud also compared the conduct of the
sub-conscience to that of a pupil thrown out of class, knocking on the classroom’s door and disturbing the peace. Some people did not like this analogy; they frowned at Freud and scolded him. He took it lightly and said, this criticism is not serious: having two conflicting ends, we suppress one, thus, figuratively speaking, becoming two distinct persons. What of it. I dare say, in this case he was right in his taking a criticism lightly.

I take his metaphor even more literally: neuroses are internal police officers. Now always do the opposite of their instructions; this will force them to commit suicide. Freud distinguished between three parts of the self: the super-ego, the moral convictions as accepted (uncritically!) from the environment; the ego, the coordinator’ and the id (or the it), the (animal) motive force. This, however, is a different story. It does not accord with his distinction between aims and co-ordinations that are conscious and those that are sub-conscious. To allow for them, we have to note that each of them partakes in all three levels: super-ego, ego, and id. In particular, when we have a sub-conscious propensity to punish ourselves, its motive is a morality, not an animal-instinct. This, incidentally, is the criticism of Freud that his disciple Alfred Adler has voiced. Freud resented passionately him and all of his output. Shame.

The sub-conscious that prevents you from being a good scholar rests on old-fashioned theories of morality, inculcated in you throughout childhood and adolescence by parents and teachers and relations and family friends. They all recommend drills and traumas. The “real you” is your internalized version of your oppressors. They humble you because a scholar should be humble; they force you to learn long boring tracts by heart because a scholar do that. By Freud, your sub-conscious is cunning and effective but stupid. You have to beat it on its own ground. When your sub-conscious forces you to be humble, kill it by bragging excessively. If it interferes with your studies in any way peculiar to your specific case, just lay everything aside and go read a novel or watch a movie or something. Correction: do these things five minutes before the assault of your sub-conscious (upon its preparation, to use fencers’ jargon). To this end, you need some familiarity with the behavior pattern of your unconscious self.

Freud or no Freud, the pressure-system in high schools and universities make no sense. Forcing a kid to study and instituting penalties for watching a movie instead is the admission that movies are more enjoyable than studies. The exclusive choice between entertainment and study is similar to the exclusive choice between junk food and health food. Old-fashioned educators recommend flogging kids who want to live on sweets alone; most contemporary ones will say, let them eat sweets until they come out of their ears. In principle, they say, you are right, and it is our job to make you right in fact; but it takes doing. Kids, they say, naturally prefer comics and movies to books and discussions and we must make them develop good taste. Left alone, they say, kids will never choose serious studies.

This argument is not serious. Reporting evidence that refutes it will be of no use. Even statistics to that effect will cut no ice. Arguing against them is tiresome and useless. There is a kernel of truth in what they say, and they will cling to it. Our elders and betters will see in that kernel a justification of their insistence on their use of cruel medicine. Their picture is incredibly exaggerated, but this is not easy to show. They justify their exaggeration by
blaming our animal part, the one that Freud has called the id. To fight the id they destroy the sense of fun, including the pleasure of doing good and of studies. Alas, scholars share the blame, since they sigh about the burden of their work as they enjoy it and escape to it from all unpleasantness of daily life and its problems and headaches and chores. I never cease marveling at the constant complaints of my peers about the burden of work that they claim they suffer. They are not strictly hypocrites; they are just muddled about themselves and not very brave, at least not when it comes to small matters. The sighs that they release with the regularity of public-relations bulletins do spoil the fun, but this need not interest you. Your interest is to prevent these sighs from deceiving you. The damage they cause is by their destruction or masking the pleasure of study. No matter what, remember: the only good reason for joining Academe is that study is fun. If it is not, do yourself a favor and seek different means of livelihood.

Some schools avoid pressure and thereby disprove the standard argument for it. We may overlook this, but not without debate. We should have public debates about the need to force students to work; we must see that what we administer to them is for a very important purpose and that they cannot as yet learn to do it voluntarily, without pressure. Much of what we impose on students for reasonable ends we should suggest to them with arguments that make the work not a chore but a pleasure. Remember: pressure may cause harm even when justifiable. When force is inevitable, then explaining this to students helps a lot. Moreover, no matter how right we are in administering a necessary evil, no matter how necessary the evil we administer is, it still is evil. Never conceal this fact. Finally, students allowed to do things without pressure and without proper training may fail; this fact the establishment repeatedly offers as justification for putting pressure for boring training; yet failure renders training meaningful and thus pleasant and easy and better understood. They say, the curriculum is heavy so that there is no time for failure. This has met with ample empirical refutation: trial and error is most efficient and its results are the best. Avoiding dull work is the quickest way to high degrees of efficiency!

5.6

What is the training for independence? I said, discussing available options with others. Yet the paradox remains; one needs independence to develop independence. Fortunately, the little independence that normal members of western society have suffices to begin with. Examples: Pretend that you are writing for publication, but do not try to publish until later. Pretend that you are a concert-pianist or a composer for the Philharmonic, but do not try to come out into the wide open. Take this not as playing out ambition, but as playing a game. Children learn to play chess almost exactly as if they were champions. Fencing masters insist that from the very start novices should follow the same rules of the game as those accepted in international tournaments and in the Olympics. That is a general idea. Students who play colleagues are up against their own sub-conscious, their friends, instructors and the university system of rules and regulations. Ignore all this. Play scholarship now—like chess, fencing, tennis, music. This would be good advice, you say, were not the system opposed to it. What can one do if one simply cannot avoid sitting for a multiple-choice exam? What can one do if one must study Aristotelian logic or obsolete computer languages?
You are right. My advice is no magic wand. To answer your objection, then. One may improve one’s score in multiple-choice exam by sitting for them repeatedly—as many times as regulations allow—and by following simple, obvious rules, such as answer a question randomly unless error is penalized. Yet this is not solution to the problem. I suggest that you seek available tools: the system has many hidden latitudes that you will not find unless you ask; a lot of people, from secretaries to department chairs, not to mention official advisers, will help you break various rules and help you find options you did not know exist and create new ones experimentally, but only if you ask. What you have to learn is to empathize with those who made the rules you hate and those who are in charge of imposing them on you. If you empathize with those who has set the rules and see their reasoning, this will give you enough of a start—indeed so much of a start that the vague general knowledge of the subject that you have already should suffice to get you a good C. Generally, what blocks you is the stupidity of the system; its saving grace is the same stupidity.

I have seen too many potential academic careers disappear due to the good will of rigid instructors. It pained me to see how seldom students try to avoid registration to lecture courses that are not to their tastes, how many students do not know of the option of taking reading courses instead, how many students give up studies for easy-to-overcome obstacles, perhaps with the help of a faculty member with a pinch of good will. Doing poorly in exams is an example. As an instructor, you should prescribe writing papers instead of exams. Otherwise, make exams open-book. Prepare them in class. And start the semester by discussing grades in detail.

Why students do not refuse to take surprise exams I do not know. As a graduate student, I had to take a qualifying exam since my second degree was in science and I planned my third to be in the arts. I refused. The academic registrar of the great University of London wrote to me disqualifying me for any degree in his university. I wonder if he remembered this when he wrote to me granting me my Ph.D.—in science, not in the arts. This weighty change made not the slightest difference to my career.

6. Social Adjustments on the Way to Becoming a Dialectician

Educationists do not trust their pupils to understand what the system expects of them. So they drill them and appeal to their fear of the very thought of deviation (Kafka’s *Letter to his Father*, 1952). The success of this kind of education amounts to the loss of autonomy (Kafka’s *The Judgment*, 1913). The received education system is successful: it sacrifices autonomy on the altar of social adjustment.

Common as social adjustment and maladjustment are, central to education as they are, central to the diverse social sciences that they are, they have evaded the eyes of philosophers, even of the commonsense variety. The fill the philosophy of life of many populations. Philosophy of life teaches how to overcome weaknesses so as to improve integration. Its best expressions are proverbs and *bon mots* of all sorts, often incorporated in fables and stories and plays and novels. Highly intelligent as they are, they are often too conservative. It is therefore hardly possible to comment on them with no reference to some social criticism. Socialists have a traditional expression of contempt for people who are critical of the society within which they integrate well: Champagne socialists. This displays a serious dilemma: you
do not want to be a conservative and you do not want to be alienated. The solution to this
dilemma is democracy: abide by the law while making efforts to improve it. How is one to
adjust to democracy? How does everyday life in Academe express its democratic character?

6.1

Academe is an aristocracy—a true aristocracy, an honest aristocracy, a tolerant aristocracy; it
is wonderful. Cicero said, senators are good people; the Senate itself is an evil beast. It is
tempting to say the opposite of Academe: the university is wonderful; some professors are
not. That would make your efforts to adjust easier in principle and harder in practice.
The parvenu tries to imitate aristocrats, to adjust to their roles. The more successful the effort,
the more it earns ridicule. For this, the parvenu blames the aristocrats’ closed shop. There is
truth in this. Academe is still the most open aristocracy. Parvenus always miss the point;
whether they try to be sober as a judge or drunk as a lord, whether they try to be as gentle as
gentlewoman or as well as as brash as a gentleman. The point they miss is this. An aristocrat
does not give a damn about what the parvenu cultivates: impressing others, seeming to be this
or that to the hoi polloi, explaining oneself, one’s actions, one’s motivations, one’s good
intentions, the reasonable of one’s errors. In brief, take the parvenus, teach them not to give a
damn, and you have aristocrats. Even if they learn not to care much, the moment they show
they care they show themselves failures (Maugham, The Razor’s Edge, 1944).

Throughout this volume, I told you repeatedly that Academe offers terrific opportunities for
good life and that too many academics miss these opportunities for fear of ridicule. So this is
my point in this section, about social adjustments on the way to becoming a dialectician:
ignore the ridicule. My personal disposition is to speak with new acquaintances about the
fields of their expertise. This exposes me to their ridicule, and yet their corrections of my
worst errors helps me familiarize myself fastest with their field of expertise. So all I want to
tell you in this section is that you should not care a damn. That all sorts of small pressures
will be put on you for your own good, that your teachers will be deeply disappointed in you,
that your colleagues will view you as ambitious and insolent, that your students will be
miserable and bewildered, that your administrators will find you unmanageable—all just as
soon as you make the first attempt a becoming a dialectician. Yes, dialectic is the root of
most academic hostility. I should know. Think of the up side. If you are a dialectician, you
will be left alone with the very minimal duties subject to your kind approval and consent and
correction, your teachers will be proud of you, your colleagues will be happy to enjoy your
eccentricities, your students euphoric to be allowed to be registered in your courses, and the
administration will blow the horn every time you go to town. This is so obvious, how can
one write an interesting section on it?

There is only one small point to add. Concerning transition. When you are a trained and
acknowledged dialectician you will have your problems and tackle them dialectically—more
successfully or less successfully but in your own way and while learning from your mistakes
and while consulting friends and colleagues critically. Today, however, you are not only
poorly trained, not only you do not know how to pose as an aristocrat—a dialectician—you
have a plebeian reputation to shake off. Not that you care, but that you want the proper
treatment. For that, you should never care about fashion. Do not ever take it seriously; in
particular, try hard to avoid arguing against it. And see to it that peers who draw your
attention to the latest fashion should know that they are wasting their time on you. This is not easy, especially since it leads to the unwanted reaction of all the friends and relations of the plebeian going aristocrat: they try to return defectors to the fold—for their own good, need I say. It is very important for defectors to avoid yielding an inch to pressure while show understanding and empathy toward those who exert it.

Change of location may help; even travel may; but it is too costly. How many times, remember, you hoped to move to a new place to turn a new leaf to no avail. Yet it is true: if you know how to turn a new leaf, then going to a new place may be nice. It is hardly ever necessary, however: once you succeed in turning a new leaf, they will all let go of you. Kafka said, people often refuse this friendly treatment (The Castle).

6.2

In the meanwhile, here are some simple suggestions.

First, cut out as many old commitments as you can without being irresponsible. Begin with those that are for your own good—like that departmental seminar on a useless item. If your professors can and will argue with you, ask them why you should attend it. If not, just tell them that you will pass. For this, it helps to know the rule on talking to plebeians: talk to them in their own language. Talk to all people in their own languages. A dialectician can talk several languages and often uses them simultaneously, making every significant statement twice—make it once in your own language and once in that of opponent. (Joseph Priestley’s writings are delightful: he talked phlogiston and anti-phlogiston equally fluently and did not care about terminology. As a teacher, he reports, he taught his students to argue for the views that they opposed, and as honestly and as forcefully as they could.) Dialecticians may prefer to ignore the poor-in-spirit; yet when speaking to them—for any reason—dialecticians invariably use their language.

Your guides and mentors will be deeply hurt when you cease letting them help you. Make it as easy for them. One way of minimizing the pain of separation is to shorten it by resolute action and by being impervious to all bribe and to all pressure. They will first think you are raising your stake and they will raise their bids accordingly. You should be sweet but adamant. They will try to catch you where you are vulnerable. When you goof as a result, admit it but do not yield. They may threaten and even apply sanctions. Ignore it all. Above pettiness, true aristocrats ignore penalties.

This leaves many problems open. You will soon handle them like a dialectician: with ease. A dialectician often meets uncritical peers—those who cannot be interrupted, who cannot change a subject even when you plead with them, who cannot let you go when it looks as if you are holding the upper hand in a debate even though you tell them that the hour is late and people are waiting for you somewhere else, who cannot answer a simple question simply, who repeatedly answer with yes-and-no, who plead with you to be nicer in a debate and not be out to kill, who use too many ifs and buts and who waiver otherwise, who complain about your misunderstanding of what they meant. And do not enter a debate if you do not enjoy it; if by mistake you have, apologize nicely and stop as soon as possible. How to do it is a matter for your private style. Cut them short. Plead headache. Plead
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ignorance. Ask them to tell you about their hobbyhorses (Disraeli’s gambit was “and how is the old complaint?”). Tell them repeatedly that things are not simple. Tell them you are much slower than they are. (I hope this is true.) Tell them it is too late. Invent your own style. They will be peeved all the same; but if they are willing to let you instruct them, then it is your sacred duty to do so.

Intellectual honesty is not synonymous with honesty. Poor wretches who do not know how to play by the book are not wicked rascals. Be gentle with them if you can, but do not try too hard or you will waste your life on it. When you argue, whether with a true dialectician or a prospective one, never allow yourself to be defensive and never care about impressions. Do care about helping the other fellow. If on occasion you goof on such matters, apologize and hope that your interlocutor forgives and forgets.

6.3

Here are three errors about misunderstandings and wrong impressions.

First, concerning fair or neutral terminology. It is customary to require neutral terminology. However, to expect neutral terminology from opponents in debates is to expect miracles.

Things are harder to manage in a public debate where rhetoric may sway audiences. A clever demagogue may start a debate with the use of neutral terminology and sway nuance and overtone at a crucial junction of the debate. The particularly clever will do so at a point where your protest against it will sound particularly piddling and unconvincing and defensive and apologetic. Do not protest. Do not protest under any circumstances. If your opponent uses words in a way that may matter, there is a very simple way of handling the situation, and it is just and humorous. Let your opponents have their say; be patient about it. Do not disturb them in any way. Smile to the audience knowingly. When the opponent has finished, wait for them to look at you triumphantly, then gleefully to the audience, then mockingly back to you. Start slowly, weakly. Restate the point they have just made as best you can, either in a neutral terminology, or in yours. Explain the last barrage of your opponent as sympathetically as you can, exhibiting an apologetic feeling towards their demagoguery but not commenting on it. Before you even start commenting on what you have just reported, you have won the victory of an honest-speaker-bulldozed-by-a-demagogue-to-no-avail. Do not believe me; try it for yourself, or watch others who can do it and see how honest and how winning this is. I do not know if honesty is always the best policy, but here it is.

Second misunderstanding. Leading questions. A paradigm of a supposed leading question is, “have you stopped beating your wife?” If you say yes or if you say no, your answer suggests that you are a wife-beater. This is in poor dialectical taste. In proper debate, you answer clearly and ignore suggestion. The opponent may articulate the suggestion: “so you admit you have beaten your wife” and there is the place for your denial of the suggestion. Otherwise, your opponent is a bad dialectician. Do not argue with bad dialecticians. Withdrawing from a debate may suggest that you have lost the debate. This should not bother you: whatever you do and however you act, some fool or another is bound to have a bad impression of you. Perhaps so much the better: they will leave you to enjoy the company of true dialecticians.
Formal situations are different. In a law court “have you beaten your wife?” is not a leading question: a leading question is not one that feeds you with an answer of certain overtone but one that feeds you with a certain information and leads you to answer the question the way that the one who asks it wants you to answer. When the representative of the party that has invited you to testify asks you a question, do not hesitate. In court, the representative for the other side tends to ask you a question worded to give a bad impression. This should not bother you; give your answer straight. Then your representative has the right to question you too (this is a sacred rule). The question may be, to follow our rubberstamp example, “why have you not stopped beating your wife?”— “Because I have not yet started.”— “Do you intend to? “No”. End of story.

(Your attorney may be a poor dialectician and neglect asking you the question that dispels the poor impression. You can to nothing about it: lose the case or replace you attorney.)

We give poor impressions all the time, no matter what we do. Otherwise, we are saints. This gives a terrible impression in a different way. If you worry about the impressions you give, you give the (correct) impression that you are pathetic. You should not care. Some questions are more interesting and more useful than this one. Do find them.

My third and last point concerning misunderstandings and false impressions is more technical. Perhaps I should postpone it to another section, but I am nearly there already and it is a pity to waste an occasion to make such a central point just because it is less dramatic and more technical. It is talking at cross-purposes and genuine misunderstandings proper in honest argument. Much of the distaste for argument is based on the true claim that many debates are at cross-purposes and consequently futile. Hence, popular opinion goes, it is better to avoid argument whenever possible; and then confine arguments to ones between experts; they clarify and define terms. Not so. If you do not argue you do not learn, and if you do not learn you do not become expert, and clarification is an endless process, especially by the use of tedious, dry-as-dust formal definition.38

6.4

Most arguments fail because people regularly break the rules of debate. They often are unable to agree about procedure in advance. One argues for a thesis without having first asked one’s opponent whether the opponent will give up their approval of it upon finding a counter-example. This is a very widespread folly. Experts in dialectics can do with little knowledge better than muddlers can do with much. Bertrand Russell has observed this when noticing that at times—not always—scientists can make better sense of politics than politicians can.39 Most people do not concentrate on the question at hand, from ignorance of what it is, of what debate they are conducting.

38 For more see JA and Abraham Meidan, *Beg to Differ: The Logic of Disputes and Argumentation*, 2016.

39 *Portraits from Memory*, 1956. Unfortunately, Russell says there, the source of their ability is in their detached terminology. In a letter to the *London Times* defending Ernest Gellner’s attack on Oxford philosophy, he advocates a better view: biased terminology and malice—alleged or real—are of no importance; the concern of a critical debate is with the justice or injustice of a given item of criticism.
This leads to a discussion about clarifications of poor debates. When you attempt to put a messy debate in order, you are bound to hit upon essential obscurities. You may be angry with those whose arguments are obscure; you will then be unjust. They cannot clarify every point and they do not know which point needs clarification, or which clarification might turn up as essential. The rule, however, is simple: when a clarification is missing that turns out to be essential, explain this point to your interlocutor and go back in the debate to fill any necessary gap. When interlocutors do not cooperate, gently but firmly close the debate. When not knowing what step to take, try different alternatives. The general rule is always the same: treat an argument as if it is plain and clear unless reasons to the contrary turn up, in which case it is advisable to take time out for clarification. When an argument turns out to be less clear than one assumes, one may go back a step or two or three and try to clarify what seems obscure. The worst pest is the one who does the opposite; who systematically leaves room for further complication. There are many such techniques, but I shall mention only one—my pet aversion. “Have you stopped beating your wife?” you ask. “It is not the case that all beatings of one’s wife is culpable,” answers the pest. After half an hour or so, feeling a need for a retreat, the pest reminds you that your question was never answered and that you have only surmised an answer—wrongly, of course. My sincere advice to you is to avoid arguing with such a pest—or, if you must, insist on an explicit answer to every question of yours, and for that you must choose your questions carefully: avoid irrelevancies. If you do ask a wrong question, take it back as soon as you learn this. You may say, I surmise your answer is such-and-such; am I correct in my surmise? The pest may evade answering such a question and give a speech instead. After the evasive speech of your interlocutor is over, say again, I still surmise your answer is such-and-such, am I correct in my surmise? Do not lose your temper with a pest; it is much healthier all round if pests lose theirs. Repeat your question until the pest terminates the debate. Still better, terminate it yourself and pay the price. Best of all, do not start a debate with a pest unless you are obliged to. Otherwise, apologize and terminate the debate nicely.40

The previous paragraph rests on observations within a limited culture. Better and livelier descriptions you may find in Plato’s early masterpieces, Protagoras, Gorgias, Euthyphro, Symposium. These are top-notch and unbeatable masterpieces from every possible angle, including the literary and the philosophical. If you drop this volume right now and go for these books instead, then you see my message. After a while, you can go back to the next section. It will wait for you there; meanwhile enjoy reading Plato.

In all cultures, all arguments, all cases of give-and-take, whether in commerce or in friendship, they all rest on agreement. As debates usually display disagreement, they sound as if they are unfriendly. This has led to the response that only extreme cases of disagreement are unfriendly. It led to the adage, you cannot argue against principles. (In American slang this is, you can’t argue with a commie.) Not so: the readiness to argue is agreement enough. When you refuse an offer to argue, then you refuse to cooperate. Even this you can do in a friendly manner: respectfully. Even when you are respectful, however, some may consider your refusal unfriendly. It be a rejection in Freud’s sense; this is sad on many accounts; it also confuses good will with respect. Your cooperation or its absence has nothing in itself to

40 For more on this see John Rajchman and Cornel West, eds. Post-Analytic Philosophy, 1985. See also my 2018 Ludwig Wittgenstein’s Philosophical Investigations: An Attempt at a Critical Rationalist Appraisal, for Wittgenstein’s resolute decision to eradicate metaphysics.
do with respect. Respecting people while rightfully refusing their friendships—justly or unjustly—may sound humiliating. Our society has not rendered enough of the teachings of the open society as explicit as it should. We still view indifference with censure, and the termination of a partnership or a friendship as treason. Almost no one has yet sung the praise of the great virtue of indifference—towards anything but evil. Be respectful to all and cooperate with chosen friends or partners. The only cooperation that is required of you is in fighting evil. (Professors who ignore injustice to students are culpable.) When the cooperation is dialectical, you can be and should be as choosy as an aristocrat is; and, as a true aristocrat, have no disrespect in any refusal of cooperation—unless you deem them evil—and you need not explain.

Recognition and public acclaim do not make one an aristocrat. Aristocrats determine their positions inwardly. Others may recognize them and make them powerful rulers or leave them as eccentrics. People may persecute aristocrats; failing to understand the indifferent manner with which aristocrats try to shake off hostility, the hostile may get infuriated and become vicious (Joseph Conrad, “The Duel”, 1908). To no avail: true aristocrats just cannot be bothered with pettiness, including recognition and acceptance and what people may say; they do not mind.

Academe, the home of eccentrics, of the unrecognized aristocrats, have recently gained spectacular recognition. It has rendered some true eccentrics a fine aristocracy: they partake in politics in their spare time, somewhat indifferently but honestly and a bit intelligently. Recognition also pulled in the boi polloi and these created its cream, its middle classes and its upper middle classes. Their puritan quest is for competence and for efficiency. They want to teach their students as much as possible and train them as widely as possible in order to enrich their reaction-patterns, so that they are not stuck in some predicament or another.

There is nothing against competence and efficiency. Rather it is not enough: you better aim at being resourceful—like a lord or like a tramp, but train yourself to be resourceful rather than prepare yourself for an eventuality. The first step is to avoid consulting your intuition about how you should react and rather try some different reaction-patterns and let all hell break loose. Moreover, do not waste the day for the morrow that may never come. Do not prepare too much for an eventuality or there will be none. Enjoy your studies now and leave the future eventuality to your future resourcefulness; or leave it untended.

Striking a balance between enthusiasm and cool-headedness is hard: the cool tend to be indifferent; enthusiasts tend to exaggerate. Plato indicates this in his early dialogues. It is no excuse for me, I admit: I should not be carried away. If they want competence and efficiency, let them. If you do not want to enjoy life now, why should I care. I hope that at least the last paragraph can serve you in some way in case you are struggling. For, it is honest struggle that wins a general enthusiastic appreciation. Look around and find struggling people everywhere; help them: do not argue on it, especially not with pests who replace dialectics with competence. Argue with those who will not be peeved when you stop the debate for a while to examine whether it follows the rules of the game proper: they are the

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41 Some say, aristocrats are inefficient in principle, so that a true blue law student should aim at a “gentleman’s C”. This is sheer snobbery.

42 Commentators often wonder why democracies are never sufficiently prepared for war. It is that sufficient preparedness endangers democracy as it favors military dictatorship.
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(potential) aristocracy. Like you, I hope.

Now do go and read Plato’s early works.

6.5

I have promised a discussion about ostracism. I do not think you need it, since it will take you years and years before you may meet the risk of ostracism and since I have already given you sufficient advice to immunize you against this risk. Still, there is here an interesting point, impractical though it might be. For, if my view of Academe as an aristocracy is true, then ostracism in it is impossible in a definite sense. Therefore, I seem inconsistent when I propose the aristocratic view of Academe while endorsing Daniel Greenberg’s sensitivity to ostracism.

It is the expansion of Academe and the rise of its technocracy and meritocracy, you remember, that has led to the invasion of the *hoi polloi*, of the *parvenu*, of the middle and upper-middle classes, with their petty award systems and sanctions and neuroses and demands for the up-to-date and for excess competence. For them ostracism is real; it is the two-edged sword that rotates over the gate to the Garden of Eden (*Genesis* 3:22). The two edges are, the fear of ostracism and the ability to join those who ostracize. If you think you may face ostracism, then you are probably right. First, you must be a somebody, however. If you think you can help ostracize, it all depends: ostracism is by ignoring colleagues and thus penalizing them. Doing this to a true aristocrat is futile.

Consider ostracism as a phenomenon. Its source is an authoritative verdict that everybody who is anybody (what an ugly expression!) knows. The name-dropping *parvenu* says, I have heard Feynman myself, assuring me that there is absolutely nothing in the charges of Alfred Landé against the physics Establishment. Landé, a physicist of nearly half a century of peak reputation, met with ostracism. What did this mean in practice?

Breaking the sacred rule—avoid public expression of disagreement with colleagues—risk ostracism. You may welcome ostracism, as it saves you the effort of avoiding the company of colleagues whom you should avoid without quarrel or insult. As soon as it becomes clear that you are incorrigible, they will give you up: they will make you an exception to the rule. If you have aristocratic tendencies, you should know: this is the moment you are recognized. Official verbal recognition you will receive only when you are an old fogy, ripe for serving as a national treasure. The recognition that ordinary academics aspire to is the stonewall of silence. Knowing this prevents a lot of heartache.

Ostracism means that a dear father figure has fallen from grace. They have to look away when they see a Landé walk along the corridor, but they smile in a friendly and appreciative way when they see a Feynman. A sociologist with a flare could sum up all this with a long list of status symbols and status manifestations and status ascriptions and status hiatuses.

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43 Karl Popper asserted in a radio program that Oxford philosophers were ostracizing him and they vehemently denied it. When later on Imre Lakatos published mock-criticism of Popper, the same Oxford people made song-and-dance about it, thus admitting openly that he was a worthy target for criticism.
Colleagues assure you that these items matter a great deal; I do not know why and what for and in what respect. They say, if you have no tenure, keep your nose clean. Perhaps. Granting tenure is a complex quasi-democratic process; few people have studied it. I do not know whether my own tenure refutes the received idea of it or not: we need some statistics for it and we have none. Rumors has it that the departments whose members care about their scholarly reputations will offer tenured posts to scholars even if they are not famous for savoir-faire. If so, then you should brush up your scholarship more than your manners. For my part, I doubt it.

My explanation for the fear of ostracism is this. The drive for recognition is the fear of rejection. This is a part of the sociological theory of the mentality that fosters and inculcates neuroses that drive people to work harder for emotional remunerations than for financial ones. Hence, ostracism cannot touch an autonomous person like Landé: he suffered his high academic status with ease and was slightly relieved when he lost it.

What ostracism does curtail is broadcasting of one’s ideas. (Economically, academics are well off one way or another.) Broadcast, however, has two aspects, petty and adult: that I want to be heard is petty; that I would like to exchange ideas with people sharing common interests, talk to people who enjoy my jokes, may be adult: overlooking its petty aspect, you can see that the worthy ostracized would find it hard to have worthy colleagues, students, since true scholars are rare in any field of interest. The perennial problem of the ostracized is, how to communicate with peers when the prattle of the hoi polloi clutters the communications channels. This is a serious problem. I shall return to it in a later section. For the time being let me say, the clutter is such that the added burden of ostracism is marginal.

Once you start lecturing, some channel is all yours. No matter on what level, you become an educator to your captive audience. This is a heavy burden. Beware of passing your defects on to your charges. They do not need them: they will find their own defects. Remember the supreme liberal rule: do not try to until you meet with an explicit request. This is very hard but terribly important. You may offer help, but giving it unasked is usually immoral. It is easy to hear a request for help implied. Do not. Under no circumstances. Violating this advice raises untold risks to both sides and no benefit to either. I will not repeat this. Incidentally, in writing you may provide advice: all handbooks do that. Yet the written page never imposes itself on readers the way people do in personal encounters.

Communication channels are so cluttered, that we would have lost all sense of proportion regarding them—many of us have already lost it—but for the fact that there are preferential treatments: some channels are given priority and some individuals have privileged access to them. I shall not digress to this important sociological point right now. Whatever the reason for which the Establishment offers a person privileged access, it may withdraw that access; this is how ostracism starts.

The problem of communication blockage is particularly bothersome to the ostracized who has a message to the public—like Landé, who battled the mystique of the standard quantum theory as appeared in the university courses of the time and that to an extent it still does.

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The problem is universal. Nor is it solved by privilege access. Einstein, the most ostracized big chief, never lost his privileged access; yet top-notch physicists did not study some of his latest publications. These turned out to be failures, or else the Establishment would have lifted the ostracism posthumously.

Bernard Shaw faced the problem of communication channels squarely. He decided, relatively late in life, to become a dramatist in order to have privileged access to the theatre as a highly unused channel (*You Never Can Tell*, 1897). His audiences enjoyed his jokes but failed to receive the messages (*Devil’s Disciple*, 1897 Preface) except on rare occasions (*Androcles and the Lion*, 1912 Preface). My way of joking is to tell the truth, he declared. It is the funniest joke in the world (*John Bull’s Other Island*, 1904). The audiences merely found in this *cri de coeur* an additional witticism. He gave up his ambition as too high (*Major Barbara*, Preface, 1907) and went on writing from habit and for fun (*Too True to be Good*, Preface, 1932). He collected high fees to ensure audience appreciation (*The Millionairess*, Preface, 1936). He poked sarcastic fun at the crowds, chuckling all the way to the bank—a glorious, delightful failure.45 You can do likewise. If and when you have a message, just broadcast it, and as appealingly as you can, but do not evangelize. (The evangelist, a frightfully middle-class sort of a fellow, is the one most prone to ostracism; Shaw, *Parents and Children*) If you want to implement a reform, go about it intelligently. The best way to implement a proposal is not by evangelizing but by creating a small circle of sincere and brave and intellectually alert and agile people committed to it (Margaret Mead). When you have such a circle, you are immune to ostracism. Even when the members of your circle are intellectually not so top-notch but supplement this defect by devotion.46

This story is uncommon only because it can occur among uncommon people—the true dialecticians who have old friends wherever they go. Among those, the story is so common you would expect it to leak out. Once people are ready for such an eventuality they would approach old friends with just a little bit of caution—not because of estrangement but because the time gap may harbor all sorts of small misunderstandings that should not be allowed to swell—and then any problem that might arise is under reasonable control.

Now what I have just said is not common knowledge, as the communication channels are full of noise. You will have to learn to adjust to the noise too—by designing sufficiently good filters. Go and read Plato first: you must know how to communicate with close associates before you can tackle large tasks. You cannot be a large-scale storyteller without being able to hold an audience around the campfire or around the table; much less can you communicate with the learned world before you can communicate with your next-door colleague. For that you need the young Plato; on this he is yet the unbeaten champion. In my long academic career, I have experienced many odd things. Most of them mean very little. The following odd story, however, happened to me three times: liking my style, a beginning editor wrote to me, requesting that I submit a paper. As I find the search for a publication channel an unpleasant hustle, I immediately sent a paper in accord with the periodical’s agenda, to experience yet another rejection, again because of my style: the paper

45 His failure was to the good: his political philosophy was anti-liberal: as he explained in his *Major Barbara*, 1907, in his view liberalism is the mere hypocrisy of the rich. Not it is much more than that.

46 This seems to me the way Popper overcame the ostracism against him. His crowd was called his three knights because, indeed, among his openly-confessed fans were three knighted professors.
looked too offhand: it looked as if I spoke to a recorder and sent it to a typist to type. In other words, the editors who liked my printed page did not like my manuscripts. It is odd that they did not know that to sound conversational takes great efforts. What seems to me the reason for these rejections was that the editors could not read a typescript as if it were a printed paper—for want of familiarity with the art of writing.

The appearance of text written offhand is deceptive. Famously, it takes much training and much sweat to reach it. Moreover, you need a lot of feedback too. Feedback is hard to come by, as readers respond to a paper in identification, not in empathy; consequently, their recommendations render a text more awkward. So assess comments of peers before deciding to accept or reject them. Beware of peers with writing blocks or publication blocks: they are infectious. Remember this when you look for a mentor. Avoid such mentors, especially those who make a virtue of it. You need a mentor with a sense of proportion, with a sense of humor.

7. Learning to Write Surveys and to Articulate Views: Sticking Out One’s Neck

Love what you do and do what you love. Don’t listen to anyone else who tells you not to do it. You do what you want, what you love. Imagination should be the center of your life. (Ray Bradbury) 47

The reasons publication pressure became prominent are no longer relevant; they all have to do with the terrific expansion of Academe, especially in the United States of America, and this has come to an end long ago. This rapid and welcome expansion required easy rules for hiring people; the successful publications of learned candidates was a simple criterion that answers this need. Second, James Bryant Conant showed resolute eagerness to establish Harvard as the top academic institution in his country; to that end, he demanded that all of its academic members should have doctorates. Third, official American organizations offered financial support for publication pressure. All this matters little. What matters is that now the pressure serves no end, least of all the declared end of encouraging research. John Ziman, physicist turned sociologist of science, declared that any bunch of publications selected by any criterion other than excellence will show that most of them make no contribution to human knowledge. He went further: he said he could show with ease that the greatest majority of research projects that academics undertake today are worthless. 48

Research is still the most productive industry. What signifies for you here is the way this affects you: publication pressure deprives academics of their peace of mind, as they wish to avoid futility; they wish to contribute but they often surmise that they cannot. They rightly hate the false pretense that publication pressure imposes on them. They feel trapped. To avoid this trap you may decide that you resist the pressure, yield to it with no struggle, or learn how one can avoid both of these options with ease. Keep reading.

47 https://youtu.be/EzD0YtbVfCs?t=412
48 John Ziman, Real Science: What It is, and What It Means, 2000, 10.5.
7.1

The reform of Academe is particularly problematic. Conservatives oppose reforms since they can cause more damage than progress: as long as the current system works, we should defend it and reform it with steps as small as possible. This may be true of Academe, but not of publication pressure, since it is an innovation. Even important contributions were seldom academic: during the scientific revolution, leading lights were not academics (but courtiers): Copernicus, Kepler, Galileo, Gilbert, Harvey, they were all courtiers. Before World War II, publications hardly contributed to the livelihood of intellectuals. The Royal Society of London prescribed convention about publication (inspired by ideas of Francis Bacon and Robert Boyle) that granted priority to new experiments. This convention is still operative—now as a parts of academic systems that thrive on experiments in their expensive laboratories. Researchers now are usually trained experimenters; their training contains keeping records of experiments and writing progress reports. These can go straight to the printer, unless journal editors interfere. The proliferation of periodicals does not facilitate the publication of empirical papers, since the way publications gain acceptance today by passing peer reviews. This institution is new and under debate; it maintains the traditional style of scientific paper that Boyle had invented when he instituted the scientific periodical.49 As experimentalists learn to write scientific papers in the inductive style as a part of their routine training, they suffer less than other academics from writing blocks and publication blocks. This does not hold for their doctorates. To overcome the hurdle due to the sacred requirement to obtain a doctoral degree in order to obtain an academic post, these days an increasing number of universities accept three or five published papers of a graduate student as a doctoral dissertation. This strengthens the popularity of inductivism.

Boyle raised questions relevant to his criterion of a paper’s acceptability for publication: what information is empirical, what empirical information is scientific, and what scientific empirical information is new? Boyle offered judgment on the first two: information is empirical if courts allow it as eyewitness testimony (rather than as expert testimony), and empirical information is scientific if it is repeatable. Now at the early modern era, the west witnessed witch-hunts; they disappeared only in the middle of the eighteenth century.50 Admittedly, it was the scientific revolution that has finally put an end to it; yet it may also have contributed to it, since it targeted female healers, barring women from the medical profession (for three centuries). The scientific literature included no criticism of it—or of any other gender discrimination; Boyle wrote as if law-courts rejected testimonies about witchcraft. John Locke, his erstwhile scientific assistant, later offered a rule for which he claimed infallibility—thus dispensing with the need to refer to law-courts. The result is a mess that still reigns. Willard van Quine, the most careful twentieth-century philosopher, still agreed with Locke on this.51


What then makes an eyewitness testimony scientific? This is the only methodological rule that the scientific tradition has never allowed to contest; it is Boyle’s most valuable contribution to the scientific tradition: all and every observation is scientific if and only if it is reported by two independent sources and is declared repeatable. What renders two sources independent of each other? This question is not serious and it is seldom raised. For, those who questions it can try again. What happens then when an experiment is refuted? To this, the answer is Newton’s rule: a refuted observation invites its properly qualified restatement.

This leaves matters in reasonably good condition. Not so the following question: what scientific information is new? It is very tough since in one sense every event is new and in another sense every event is repeatable. This looks too sophisticated to take seriously. So let me observe that historians of science struggle with it as they discuss a famous trouble: multiple discovery. The paradigm case here is the law of conservation of energy. Even though in the late eighteenth century mathematicians proved that (contrary to Newton’s view) Newtonian systems conserve energy, historians of science name a few nineteenth-century thinkers as the its discoverers. They do not say, who worded it rightly. Our question is, when are two versions distinct? There is a simple partial answer to this: a possible experiment that refutes the one but not the other make the two distinct.

When all this is put together, then we have a good idea of how Boyle’s rule requires that new items of scientific empirical information deserves publication in the learned press. As empirical questions that empirical researchers can answer abound, what Kuhn has called normal science should never cease. (Ziman considered all of them useful.) They should be unproblematic as they are eminently publishable. They are not.

7.2

Whatever we say of normal science, it obviously reduces writing blocks and publication blocks. Still, the problem is broader: it is as old as scientific publications. In Plato’s dialogue Parmenides, young Socrates converses with Parmenides and pokes fun at Zeno who sits there reading and interpreting his own text to some youths. Zeno responds angrily, adding that he had not intended his book for publication but that friends pulled it out of his hand and got it published. In the Autobiography of Collingwood, a prolific writer, he said he was a perfectionist and he obtained much comfort from realizing that no work is ever finished, and that friends pull a work out of the hand of its creator and have it displayed in public too early. Both Zeno and Collingwood used some internalized criteria that they were scarcely aware of. It is better to ask prospective intended readers for comment. For this, beware of those who respond as prospective coauthors rather than as prospective readers. Regrettably, editors, who represent prospective intended readers, are too often ignorant, biased, and frightened. Publishing surveys minimizes the damage that this causes. Indeed, Collingwood published some first-rate surveys. Their advantage is that they offer a broad outlook of a

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52 Writing during the Restoration, Boyle intended to separate religious from scientific testimony and to render scientific testimony fallible yet not under dispute. Achieving this was magnificent. Most philosophers of science ignore this altogether. This assures that their work is scientifically irrelevant.

53 A theorem for experts: the conservation of energy is a first integral of any system of central forces.

54 Refutation is an unproblematic logical concept: an observation report refutes a theory if they contradict each other. Hence, distinctness of observations is context-dependent. This makes case studies historical.
field, thus serving both novices and old hands. Take for example a survey of detective novels. Anyone new to the field who wishes to get acquainted with it will do well to consult Raymond Chandler, *The Simple Art of Murder* (1950), William Somerset Maugham, “The Decline and Fall of the Detective Story” (1952) or some other, later survey. The scene is ripe for a survey of such surveys. Surveys of scientific items are easier to write, since they do not involve taste. The easiest example, and one not easy to contribute to, since it has been studied in enormous detail and with tremendous success, is the survey of theories of gravity that includes a very small set of significant items—Aristotle, Archimedes, Galileo, Newton and Einstein. You can try your hand in it only if you are hyper-ambitious; if you can survey all the extant surveys and if you can add to the list a set of commentators who did not have significant theories of gravity but made significant comments on them, such as Faraday, Maxwell, Mach, and Eddington. My apology for my dropping names like this. I hope this is no big deal, since you can always ignore the details of examples.

7.3

Before that, my recommendation to you is this. Even if you are very ambitious, it is useful for you to learn to write easy surveys and to articulate simple views. For, hyper-ambition writings often express a publication block, ambivalence. (Freud has observed that the famous shepherd who desires a princess simply wishes to avoid the normal, towards which he is ambivalent.) High ambition is often a way to avoid doubt about the possible insignificance of one’s possible output. To resolve ambivalence one may examine it slowly and carefully and aim at output that has much less value.

What contribution is important? That depends on aims. What end do academics wish their publications to serve? Most academic publications do not serve their apparent aim: they do not serve any intellectual purpose; the rational cause of much writing and publication block is this intellectual uselessness of most academic publications. There is literature on how to read a scientific paper, which is very welcome, of course. Only a literature on how to write a scientific paper will make that literature redundant. One sentence suffices to sum up the literature on writing a scientific paper: start by reporting what is your aim in writing it; what kind of reader you want to read it; and why you advise your reader to read it. More briefly, start with a question and the level of knowledge you expect your reader to possess. It is amazing how seldom this happens in the scientific literature when the mathematical literature does it regularly. Studies of readership of scientific papers took place as soon as publication pressure was operative full swing; they occur regularly since.

55 Edmund Wilson dismissed Raymond Chandler, saying his kind of art is not serious. Sadly, Chandler took offense; he should have been haughty enough to stay above Wilson’s snobbery.


There have been hundreds, perhaps thousands, of studies of journal reading by professionals in such fields as science, engineering, medicine, law, social science and the humanities. These studies have many reasons, including the wish to better understand professional communication patterns and the role this plays in their work. Some studies also focus on providing specific information to journal system participants such as publishers, librarians, other intermediaries and their funders. In this article, we present a description of a little used but powerful method of observing reading by scientists. This method is designed to measure the amount of reading of specific journal articles and entire journals to complement
systematically that most publications are simply not read at all.\footnote{This makes it advisable to have them on the net, printed on demand.} Institutions have no aims (Popper), not even the society for the prevention of cruelty to animals. Now publication is a complex institution that serves diverse aims. It looks as if all concerned serve one aim: the advancement of learning, the benefit of the commonwealth of learning, the greater glory of God. True, yet there are subsidiary ends that matter too: editors of periodicals have their own aims, among them the aim of avoiding being subject to peer ridicule. They try to play it safe; so they prefer to miss a hit than to publish a miss: when they hesitate, they prefer to reject a paper. Then you foolishly feel rejected—by people who know nothing about you and who wish to know less.

Ivory tower requires of its rank-and-file that they develop thick skins. They never told you this, did they? No, this they left for me to do. Therefore, I am telling you. On the average, at least nine out of every ten papers meet with rejection. So do not feel unease if you have your paper rejected ten times. It is not that the phenomenon is specific to Academe: it is much worse for authors of children’s literature or for poets not to mention scriptwriters, composers of operas and their likes. Yet the image of Academe as a Utopia that academic public-relations offices reinforce is a serious contributor to publication pressure and to publication blocks and to academic agonies.

I was sidetracked. The question before us now is, what ends does academic publication serve? Whatever the answer is, it also has to refer to the laws of supply and demand: publications are distributions of information and there should be some demand for the information distributed. Does this seem to you a trite hackneyed truth? Well, I regret to inform you that publication pressure has rendered it false: the laws of supply and demand apply to free markets. If the market in ideas was ever free, publication pressure has rendered it subject to the laws of grants and financial support, laws that nobody knows. Free markets do not prevent writing blocks and publication blocks, as is evident from the market in dime novels. What the free market does is draw away from Academe many talents that can start up small, brainy enterprises.

The reason publication pressure worked to begin with is that it has a tremendous financial backing. A grant application needed a host academic institution, and every grant offered to any academic was supplemented with at least half of it added to bribe its host institution. That made all USA art schools and conservatories parts of the American academic system. This source of money dried out long ago. Now often academics have to pay to have their output published. This ensures that the demand for their information does not count.

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\footnote{exclusive observations of electronic journal hits and downloads, transaction logs, limited counts of citations to journals or articles and rough estimates of total amount of reading by professionals compared with total number of articles published.}

\footnote{The leading example for this is what Robert K. Merton has labelled the Matthew Effect: editors prefer established authors: they are hardly interested in their readers because they hardly know what their interest is. Now the choice of authors is an indirect choice of readers. Science readers read out of a sense of duty; popular science still caters for the curious. This makes it excellent.}

Surveys show repeatedly. This is why, as I have mentioned, most papers in the learned press since the beginning of the Cold War are unread. This is incentive for the rise of electronic periodicals fully financed by authors and serve only to fill their publication lists. This is inflation. Keep out of it: you can do better. With ease.

What you need is a better idea of the service to the commonwealth of learning: how is the stock of knowledge piled up?

Robert Boyle, the arch architect of the discussion to which these pages belong to, has recognized the traditional division of contributions to theoretical—metaphysical or scientific—and factual—informative. Before discussing what this division misses, let me discuss it. The hostility to metaphysics of Bacon’s origins rests on his (and Galileo’s) great discovery that observations are theory-leaderness plus the false theory that avoiding it is possible—by suspending all judgment. The right response to this is Russell’s: assuming that one is free of all prejudice is humbug.\(^59\) Correcting this error of Bacon renders pointless much of the philosophical literature, including, say, the whole of the posthumous output of Ludwig Wittgenstein that is still so popular.\(^60\) This makes you despair of so many academics for their inability to move with the studies to which they wish to contribute.

Boyle did not share Bacon’s hostility to metaphysics: he expressed admiration of some metaphysical systems of his time. Nevertheless, he suggested that it is all too easy to develop a new metaphysics and that it is better to invest one’s energy in empirical research. Let us leave this now.

The value of a scientific theory is its explanatory power: any explanation of any theory or information is laudable. William Whewell said, an explanation is an advancement if it covers more than was covered hitherto. This leaves open the case of two theories with the same explanatory power; it is already progress, as it is a challenge for a crucial experiment between them. Most science textbooks add that a new theory has to meet with empirical confirmation. This condemns the important 1924 theory of Bohr, Kramers and Slater, according to which the conservation of energy is statistical: it was refuted at once. The history of biology is full of such examples, but let me leave them now. Einstein and Popper stressed that testability suffices, that the view of a theory as a success should not rest on the demand that its initiator should be a clairvoyant who can foresee the outcome of a test.

The question, is a theory new or not is thus answered. When researchers questioned whether Hermann Weyl’s unification of field theory was new or a mere conjunction of two older field theories, this required devising a crucial test. No one could judge this matter then. Not that it is essential: soon Einstein constructed his unified field theory in a way that makes it obviously novel, yet, regrettably, ad hoc. There was no crucial test for it.

The novelty of a theory is thus much more obvious than that of information. Bacon had said, a new fact does not follow from an established theory, since one that does follow from a theory is not new; it is then either scientific or it should be dismissed as prejudiced. Whewell disagreed: a fact can depend on a theory and be new: the theory may be a new


hypothesis. Bacon had opposed all new hypotheses as prejudices. Whewell disagreed: he said, rigorous tests of will insure that a hypothesis will not become a prejudice, and having new hypotheses is essential for scientific progress, since we observe a new fact only when we have some expectation of it. This idea of Whewell is a strong hypothesis (of perception theory) and its confirmations refute Bacon's hypothesis. So does the more common phenomenon of counter-expectation. Oddly, however, although the history of science is full of all sorts of counter-expectations, this class of events won attention only after theoretician Karl Popper described it. I have two amusing examples for it; I hope you indulge me telling them.

My first example is the debt that Darwin owed to Malthus. He stressed this fact but could not explain it as fully as he liked. The reason is simple: to explain it is to show that Darwin's theory of natural selection is a correction of the population theory of Malthus. But this only shows that a discoverer is in debt to the inventor of the theory that the discovery refutes. Malthus was criticizing the economic theory of Adam Smith. He found out that Smith assumed that all natural resources are unlimited. Against this he said, they are exhaustible. To show this he argued that human populations grow geometrically whereas food grows arithmetically. On this Darwin commented, observing that all populations, human or animal or plant, tend to grow geometrically but natural selection checks their growth. For “all organic beings in the world” it holds that allowed to grow naturally they will grow geometrically, he said (The Origins of Species, 1859, Introduction) in clear disagreement with Malthus with no mention of him.

My second example is more intriguing. Admirable Dr. Joseph Priestley was an ardent Baconian. It made him prejudiced in favor of the theory of the phlogiston that he had contributed most towards its demise because he adhered to Bacon’s view that there can be no revolutions within science. (This is why Einstein put an end to Bacon’s philosophy. Its popularity shows how backward public opinion is.) His contribution that ended the scientific career of the theory of the phlogiston was his discovery of the gas Lavoisier later called oxygen. He insisted that his discovery was accidental. He discovered the gas—deflogisticated air, he called it—by putting a candle into the container that was full with it and watching the light brighten. That was it. To prove that the discovery was accidental he added, the candle was there by accident. Had it not been there he would have missed the discovery. To prove that the candle was there by accident, he added the information that he had not expect the candle to burn more. Indeed, he added, he had expected it to extinguish.

This is Priestley's report on his discovery. It leaves open the question, where did the expectation for the candle to extinguish come from? Why did he not report it? The answers to these questions are easy to reconstruct: he was testing Joseph Black’s theory of fixed air that historians of science (mis)identify these days as carbon dioxide. The reason he did not say so is that Boyle had decreed it impolite to state explicitly that a certain theory is refuted. Embarrassing researchers is disincentive, and since they are amateurs, they may drop out. This argument does not work for professionals. It reinforces itself, however, as one professor found a personal insult the criticism of his ideas by another professor; this turns dialogues into personal mudslinging. This custom reinforces itself as editors still take amiss and suppress all friendly open criticism. The way they still do it is simple; one praises the targets of one’s criticism and asserts failure to agree with them all the way. This is sufficient when the logic of the controversy is easy. When it becomes somewhat sophisticated, the rule
Part III: Prescriptions

to hide it hinders research. What we gain from the disregard for the rule—you have to be gentle as you break a received rule—is that the novelty of facts becomes transparent when you criticize a received idea.

I do not expect you to be able to do that. I do not assume that you are a genius and that you can make a big name for yourself soon. I suggest that you write a critical survey of a literature around a given, fairly famous problem that has a literature devoted to it. Possibly, though not very likely, there is already such a survey, or even more than one. This discourages some researchers. Wrongly. There is no need to ignore it, as it is much better to comment on it. Whatever is the problem, if it is a serious challenge, the need to have a general view of the situation is all the more urgent.

Here then are some practical lessons for you. Writing and publication blocks differ. To write with ease, be explicitly critical. I greatly recommend this. Take a popular theory and try to refute it, or take a popular question and survey answers to it. To publish with ease you should subdue your criticism. I do not recommend this. I recommend that you struggle in efforts to publish in your own way. You should be ready to accept criticism of what you write and to change and rewrite as often as needed in order to reach a reasonable standard of presentation. But do not yield to fashion.

7.4

Boyle ignored the role of surveys, even though he wrote important ones, especially his magnum opus, his 1661 The Sceptical Chymist. Similarly, as Popper has observed, although Hume’s 1748 criticism of methodology and of theology were of extreme importance, he had no discussion there of the importance of criticism. Popper suggested degrees of criticism, the highest of which is the empirical refutation that a theory has to be prone to if it is to earn the lofty status of science.

Let me mention two defects in reporters of research that are optical illusions of sorts and that inhibit work and causes blockages. The first is the reluctance to acknowledge debt to others that is the eagerness to achieve recognition as original. It is childish. Acknowledgement may help one reach recognition, not the other way around. The second defect is the fear of sticking one’s neck out. We admire those who do so and we fear being caught doing so. This makes poor sense. Inhibited writers often publish works that do not say what their intended message is. Reading such works is like chewing dust. If you want recognition without the use of power-struggle and intrigue and all that, then you must be reader-friendly. For this you must state the aim of your publication. For this you must be ready to stick out your neck.

Detour upon a detour: I am a bit unfair to those who report the fruit of their research the traditional way. Their reluctance to acknowledge is often rooted in ignorance of the role of the very institution of acknowledgement. It is protest against the diffusion of acknowledgements that most likely movie star Hilary Swank expressed as she delivered at the

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61 Hume’s path-breaking 1742 essay “Of the Rise and Progress of the Arts and Sciences” is amazingly refreshing: in it, he speaks of criticism in a most favorable mode. Why did he never take it up again?
2000 Academy Awards Ceremony a long (three minutes) acceptance speech, making one acknowledgement after another. Now the cinema does not have established rules on that; the commonwealth of learning does, and the reporters of research should know it: required general acknowledgements are of priority of publications of new observations or ideas; the required specific acknowledgement is to people who have helped that author in writing the specific work in which the acknowledgement appears (including names of ones who have read it in draft). The rest is optional and the default option is to omit it. End of detour. Back to our topic: the supreme demand to be reader-friendly, the demand for clarity and openness.

There are many ways to be obscure. Young Ludwig Wittgenstein demanded absolute clarity while referring to one sort of clarity: the meaning of words and of sentences. What cannot be said clearly, he pontificated, one must not try to say; one should remain silent about it. The book in which he declared this, his *Tractatus Logico-Philosophicus*, is famously obscure. Indeed, the book becomes clear when its aim is made clear. The trouble then is that this step—making the aim of the book clear—makes it clear that the book misses its aim. In conversations Wittgenstein admitted this when he declared war on metaphysicians, calling them slum landlords.  

Now, when uncritical readers notice a failure of a book, they tend to assume that they have misread it. This is a serious error, especially since the criticism of any text may be answerable: you cannot discuss this as long as you worry about your having understood the book correctly. If you have misread a book, the best way to correct your misreading is to express your criticism of it and be shown that it is invalid. If the book is important, then this exercise is important for you. If it is also important for others, then publish it.

I need not discuss all this here, since it is a detailed philosophical issue. It is a particularly controversial philosophical issue whether Wittgenstein’s first book is a success or a dud. The answer to this is, we can learn from this that Wittgenstein was mistaken about clarity: nothing contributes to clarity more than knowledge of what the speaker’s background information and concern were. Whenever you write, try to be clear on this.

7.5

For the importance of background information for clarity, it is best to glance at some contemporary philosophical texts. Mentioning some relevant background information, they take it for granted that you know it. This is referential opacity: they are opaque on purpose: they want to avoid sticking out their necks. When you criticize them effectively, you can bet that they will deny that you attack their views, since your surmise about some of their background reference was erroneous. Proof: you have shown them wrong when they are right.

Your mistake, it seems, was to criticize them in the first place. If you must do that, offer alternative readings of the texts that they refer to and refute their assertion on each

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63 Briefly, Wittgenstein used their modern logic to present a compact version of neutral monism. This is an important lesson from his book. See the previous note on Wittgenstein.
alternative. If the exercise is too complex, then just give it up. The moral of the story is simple: you have a choice: write obscurely or write clearly and risk being shown in error—we are all fallible. If you want to count, you must either write clearly or partake in power-struggles that make you important enough to have you obscure writings count. In any case, there is no guarantee that what you write will make commentators discuss your work, or even pay attention to it.

When the aims of writers are not clear or when the background information for comprehending them is not known, then their output is likely to be useless. The first prerequisite of clear writing is the choice of readership: it is characterized by two qualities: their interest and their background knowledge. And background knowledge comprises the degree and the kind of knowledge. Hence, the less informed the intended readers, the harder it is to write for them. When Einstein writes for experts, he can assume that they are familiar with tensor calculus or he can refer the reader to a standard text on it. When he writes for students, he describes the essentials of that calculus. It is his tremendous ability that makes his text for students no novelty in any sense yet tremendous pleasure to read. (The book served experts too, but that is sheer bonus.) When Einstein wrote to the inexpert who will not acquire even the basics of the tensor calculus, then the challenge he faced was different.

Consider popular scientific writings and textbooks. Consider the best of them, those of Einstein and of Russell. Not meant to be innovative, their having no references is reasonable. Since most academic fields have standard textbooks (Kuhn), such standard texts, popular or educational, are very similar to each other. They compete for clarity and ease of reading. This is fine, but hard to assess: the only clear assessment is the free market: at times bestsellers are the best—except books that fail somehow to reach the university bookstore for one reason or another. Some bestsellers are awful bores.

It is much harder for a beginning academic to publish in the trade press than in the learned press: referees and advisers for the trade press keep its gates open only to the big chiefs. If you manage to write a good textbook or a good exposition of familiar important ideas, or even histories of interesting ideas, a publisher may agree to publish it on the condition that you add to the title page a name of some bigwig as its senior author. I hope you never receive such an offer; if you do, refuse with no hesitation. For, chances are, this will cost you the readiness to allow that senior academic to mess your text up: such people do not lend their names without making some contribution to improve the text that bears their names. Also, it is better to seek endorsements; a few of them may appeal to a publishers better than fake co-authorship.

Publishers of academic texts yield to senior academics who disallow them to accept some texts. For, they cannot combat academic denouncements. Or so they think. Some decades ago, a famous publishing house accepted for publication some rubbishy text and incurred the wrath of a Harvard professor; they swallowed their pride and cancelled the contract. Another publisher accepted it; the scandal that ensued contributed to the books sales. Still, the trade press for popular science and for textbooks is the bonus and the fringe benefits for

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64 A. Einstein, *The Meaning of Relativity*, 1922, is a classic textbook. Arthur S. Eddington, *The Nature of the Physical World*, 1927, is terrific popular science, but it is hard to read despite its author’s abilities. That Jules Verne managed to include popular science in his fiction is awe-inspiring.
senior academics. Do not compete with them. That you can perform a task better than they is alas irrelevant. What you can do is write a survey and get it published; improve it—hopefully in the light of criticism—and increase its scope, and get it republished. The negative side of this is that if you succeed you become known as the expert on one small section of your field. This is no big deal; you can try later to correct misimpressions. The positive side of it is that your seniors will allow you to write a popular scientific text. One of the most prolific popular-science authors was Isaac Asimov. As a renowned science-fiction author, he was allowed to publish popular science. If you have any distinction, you may get a dispensation and write a science textbook or popular science. Otherwise, I recommend writing normal scientific reports and surveys.

Two more obvious options are editorial work and writing articles for encyclopaedias of all sorts. Some publishers may approach you, or some editors of marginal items such as anthologies or suspect periodicals or other kind of marginal items. Generally, if you do not like the idea, forget it pronto. If you do, accept it with no haggling and do not worry about destroying your reputation. It is very hard to destroy one’s reputation; I should know.

8. Learning to Write and Speak with Ease

This section should precede the previous one, but it is easier to discuss ends and then means; they say never put the cart before the horses. I say, always do. So now let me begin with two or three observations that seem to me very pertinent to learning to write and speak with ease. They all concern spontaneity, and they may help you become more spontaneous. I hope so. The standard advice is, collect documented data, read, write. My advice is, do the opposite. You need not succeed. Just try. You will not regret it.

8.1

In speech, a sentence often begins without knowledge of how it will end. You can see that with those who are the exception: they pause between sentences, saying the next one silently before repeating it aloud. Concerning them, then, this observation holds for the silent part of their speech, not for its voiced part. In writing, most people know the end of the sentence before they write it. The reason for this is obvious: it saves energy. You can see this with writing on a rock; before writing a text on a rock one writes it on paper. (Traditionally, they did this on sand: they moved about holding small sand boxes.) My main aim here is to help you learn to write the way you speak: begin to write a sentence before you know how to finish it. As it is common to begin to write an essay before knowing what it will say; to make your writing more spontaneous, my advice is to write an abstract of it. For writing a book spontaneously, one needs also a table of contents, together with estimated numbers of pages for each chapter and sub-chapter. All plans are changeable, and when you deviate from a plan, then you will benefit from rewriting the plan first. It takes some time, but it saves more.

Most activities are spontaneous. They say, routine ones are more so than deliberate ones. Not so: we stop being spontaneous when we decide to act after deliberation. The common idea that spontaneity is the exception is proof of the success of our education system: it is
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intentionally conservative and it comes to impede changes that come naturally. (Its aim is to impede all change, but this is a general point that will take me to a digression. I would be glad to go for it, but as here your concern comes first, I will suppress for a while my disposition to regress.) They say, natural conduct is more disposed to be spontaneous than artificial ones, and writing is artificial. This is outright silly. We do not know what action is natural. Is wiping one’s nose natural or artificial? Is speech? We all hope that we drive a car spontaneously, sing in key and play instruments spontaneously, but we refuse to write spontaneously. Why? Because tradition discourages us: read; do not write. If you must write, write commentaries in margins of valuable texts. To ensure this we will train you in a manner that you will be unable to write more than a page or two of a connected text. Most of your professors are unable to write books. Their lecture courses are often old texts, at times updated. Most of your professors write papers—they have to—and it costs them tremendous efforts and even humiliation. The reason is that they have the wrong training in writing. (You remember that those who are trained in writing laboratory progress reports may write nothing else and even get their Ph. D.s this way.) For example, when they write abstracts of papers they use descriptive phrases rather than sentences (“the mill on the floss” rather than “it was the Dorlcote Mill on the River Floss”). The right way to write is to do write fast a draft and correct it afterwards. This saves a lot of time since first drafts are no good unless you are a genius. And it is much better since it is spontaneous and the sense of its freedom may linger from one draft to another.

Our education opposes this: you better think carefully rather than write a text twice, it says, since words have indestructible powers. By the biblical text (Numbers 5:11), words can test a wife: take a piece of parchment; write some curses on it with some magic ink (made of ashes of a sacrificed bird) and wash it with water for her to drink. Supposedly, this will make her body swell only if she is unfaithful (sotah). Well, I do not know how to break the magic spell of words. It is up to you to do it.

The best way to get rid of the inhibition to write is to try to write the way you speak: write whatever pops into your mind and then read it and then throw it away. If this procedure is too slow, write every sentence a few times. It will feel odd, even silly. Humor me and do it any way. The experience can be delightful. If it is not, you have wasted a few minutes of your life. It is a fair wager. More than fair. If you simply cannot try this experiment, then this book is not for you. So drop it; this will save you time more than avoiding the experiment I recommend here.

If you continue, then first thing to do is to learn to throw away some of what you have written. This is crucial: learn to throw away what you have written: it is not that precious. I apologize for repeating this piece of advice. I have some reason for it. Quite a few people who I tried to advise, mostly graduate students but not exclusively so, wasted much of their time and of mine by efforts to compromise in their acceptance of this advice without telling me. Usually they dumped their manuscripts into a wastebasket and placed the wastebasket in a corner in their cellars or attics, but you will be surprised at the variety of ways to circumvent the proposal to throw things away when you have to depart from them but cannot do so.

No, it does not make sense to me either. I do not know why is it necessary to destroy a
manuscript in order to break its magic hold on us. I do not know what is the mechanism of
the writing block. Nor am I interested: contrary to Freud’s advice, mental blocks need no
analysis and no dismantling; suffice it to learn that fear causes them and that circumventing it
is possible (Joseph Wolpe). It is clear that writing block is a part of publication block.
Indeed, overcoming writing block reveals it, and having written a paper or a book is thus no
guarantee that its author will send it to an editor or be glad to see it published. People who
suffer from serious writing blocks and who learn to overcome it often end up with
interesting, publishable manuscripts that are lost after their demise. I have myself helped
such people write such manuscript, and though they are deceased friends of mine, my
memory of them is not quite friendly: they deceived me and wasted my time. I should have
known that: there is a simple sign for publication blocks: people who suffer from them can
write whole books with no author’s name. The first thing you write on your way to healing
yourself is always to write you name on the page you are using or in the file on your
computer that you open.

We should discuss writing blocks now and discuss publication blocks later; I mention the
latter now in order to show that the fear of the former is the same as that of the latter. My
point now is that to overcome the former you need to learn to throw away some of what
you have written and that to my astonishment hiding manuscripts in the attic does not break
the magic spell that manuscripts have on their authors. The fear of publication is the fear of
exposure: the psychoanalysis of that fear invariably shows that it is a version of the fear of
undressing in public. Rejecting psychoanalytic cure, I recommend overcoming the fear of
exposure without going into the details of its source.

The fear of exposure appears in Academe not only in writing blocks but also in lecturing
blocks. Except that the fear of exposure of a lecturer is much smaller and easier to control
than the fear of exposure of published stuff. A lecturer may be a ham who enjoys exposure
without minding what people will say after the performances as long as it was a success. This
is unusual. Many lecturers have confessed to me that they dread exposure during a lecture
even after decades of practice. Many will not answer a question thrown at them during a
lecture and instead promise to answer in a later session, after due preparation. These
lecturers may succeed in reducing the amount of error within their lectures, but the cost of
this may be too high: they may be dull lecturers; usually they are.

8.2

There are diverse ways to overcome writing blocks. It would not have occurred to me that
dictation is a tool for that. I learned it from the life of leading philosopher Ludwig
Wittgenstein. He dictated his first publication (it was a book review) to a friend; he dictated
to his professor the essay he had to write in order to win his Cambridge University
bachelor’s degree. The professor wrote to him later saying that the regulations require adding
to his essay what the professional jargon calls a scholarly apparatus. Wittgenstein answered
him with a rude letter and thus managed to receive his degree without it. He later published a
book on the supposition that it is the greatest text in modern philosophy. All his life he tried
to reinterpret that text in light of newer ideas he had, says Jaakko Hintikka, one of the
leading experts on his output. Hintikka relied here on the huge material of Wittgenstein’s
literary remains: for decades he dictated much and wrote manuscripts that he left for his
literary heirs to publish. He thus suffered from both writing and publication blocks, but they differed. This then is a glaring case of contrast between publication blocks and writing blocks.

Wittgenstein’s way to overcome his writing block is not the only one. I will spare you stories of other cases of more complicated ways of overcoming it. The way I recommend is the most elegant, provided you do not cheat and do write and destroy manuscripts. This is very healthy: it teaches you that what you write is not scriptures. You should say that you know this and yet have a writing block. I will deny this. The crucial experiment to decide between your view of your writing block and mine is simple: write something—anything; it may be something you work hard on and are proud of or something that you consider outright silly; it does not matter—and then throw it away. You will then look at yourself and know which view of your writing is right, yours or mine.

I mean it. Interesting as this piece of writing of mine may be, I recommend to you to cease reading it, yes, just now, and go and write something or find something that you have written and then throw it away. Really: destroy it irretrievably. And then you may throw away this piece of writing of mine too or come back to read it, now or later as you please. To repeat, I accept your verdict, hoping for your sake that you are in error about your writing block, but I do not insist: I have never met you in person. Still, before declaring yourself right, allow me to suggest that you take time out. Stop reading this book and do something else. After a reasonable pause, you can decide. We will then consider your decision correct.

8.3

So, you are back to this piece of writing of mine. Now let me refine my advice: when you decide next time to throw away a piece of writing, glance at it first and decide which part of it appeals to you more and which less. Later on, you may decide to keep parts of it as you plan a rewrite. If what you write is in paper or digital, the process is different but the idea is the same. Indeed, some people I know learned to write on paper and taught themselves to write on the computer with the result that surprised them: their writing block did not follow them as they moved from paper to screen.

Another proposal. Choose a controversial problem and write all the extant answers to it, silly and clever alike. Now I will stop this line of instruction. My paper “Dissertation without Tears” is on the web and it belongs here, except that rather than reproduce it here I will advise you to look it up on the net. It is available free of charge. If you want my advice from someone else’s pen, let me recommend the 2005 Memoirs of a Failed Diplomat by Dan Vittorio Segre that reports of his having learned to write although he was already an established writer: it served him as means of inducting him into the academic world.

Allow me to give you the gist of my proposal, though. You may need no advice in order to be able to write and speak with ease: for all I know you are already an accomplished writer or speaker, able to read and write with ease. Or perhaps you are able to read and write with ease without being an accomplished writer or speaker. In this case, I hope you will agree with me that it is nice to be a good writer and speaker even if one does not need it. Admittedly, there are advantage to being a poor writer and speaker, especially for people in certain positions.
Here we can ignore them.

It is surprisingly easy to be interesting. All you need is to be ready to make an ass of yourself. I do not know why this is so difficult; I do not know why people shudder at the thought. Bernard Shaw said we want to be perfect in order to win approval; yet look at the perfect people in our tradition, Socrates, Jesus, Joan of Arc: they were killed. Now, whatever is the situation exactly, clearly, if you do not wish to serve the people you address, you better avoid addressing them in the first place. If you do wish to serve the people you address, then what they think of you is less important than that you help them. For that, all you have to do is to address whatever question you think matters to them. You need not be expert to be helpful; you need to report to them the opinions on it and criticisms of these opinions. And you need not be original: reporting items that are in the field will do. Having done that, you have brought your audience up to date. For most audiences this is great progress.

For audiences that are already up-to-date on a given question, you need not address them on that question unless you have something special to say. Your addition may then be open to criticism and your audience may offer you criticism of what you say. This sounds a failure; it is a major success. If you still do not know that this is a major thesis of this piece of writing of mine, then you are wasting your time reading it.

In brief, this is the major moral point of your teachers, assuming that they are of the usual sort: speak only on what you are expert. If you want more discussion in this vein, you are reading the wrong book. My advice to you is better: when you meet a person and you two are able to spin a conversation, take the initiative and discuss what you think the other party knows better than you do. If the other party is any good, you will soon have exposed some of your worst errors in the material under discussion. If you are more interested in giving the impression of a great scholar, perhaps my advice is amiss; if your wish to learn is strong, you will be grateful for the corrections. Then my advice is that you say so loud and clear. If you do so, then you will be surprised to find how easy it is to speak to a public with ease. All you have to do to then to be able to write with ease is to record your speeches as best you can and ask friends to correct them.

It seems easy to find friends to correct your manuscript. It is not. You have to request your friends to tell you where you are not understood and where you cease to be interesting. Friends who do so are priceless. If you try my advice, you will find that the friends will do other things: they will tell you how to rewrite the paper, what to add to it and other things that you should be wary of taking seriously since they serve one purpose and it is to give you excuses for postponing publications. You do not need excuses: publishing is not obligatory and so avoiding it invites no excuse. When publication is imperative, when your department chair tells you that your academic position will not be renewed unless you publish, then you do not need a friend; you need a friendly editor.

8.4

Allow me to brag again. I have lived long and published over six hundred papers in refereed

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65 Bernard Shaw, Saint Joan, 1923, Preface: Joan and Socrates.
learned journals in addition to many books. My papers are often published in highly respectable periodicals in diverse fields of study. Some of them are half a century old and the learned press still mentions them. I wrote them with ease. Moreover, they are written so that readers hear them. If you happen to have studied what the academy calls creative writing, then you may know that some teachers of creative writing lay great stress on the need of writers to write in a manner that sound like recording of real conversations. They may also mention Jane Austen, Ernest Hemingway and William Somerset-Maugham as masters of this art. They recommend that students record real conversations and put them on paper to show that this does not work: ever so often artists learn to create artifacts that look real. I also told you that three editors who liked my style asked me for a paper and rejected what I sent them—a too facile—because they could not read them as published. This testifies to their having publication blocks. The reason they publish anyway is that publication pressure is tremendous. The editors afraid to publish interesting stuff explains why published papers even in leading periodicals are so often so very tepid. Steve Fuller has noted that tepid papers are easier to publish than exciting ones.66

Most papers submitted to the learned press meet with rejection; nine out of ten, they say. Nevertheless, usually researchers take rejection amiss. When possible, I ask a friend in that predicament, do you think the paper is outside the area of the periodical you have sent it to, or do you think it is substandard? I have written in a learned paper that most of my well-cited papers were rejected a few times each.67 F. Scott Fitzgerald, one of the greatest American writers, especially of short stories, had suffered over one hundred rejections of a short story of his before he saw one in print. He obviously advertised this information as a piece of encouragement to young beginners. This means you.

9. Middle-Range Prescriptions: How to Reform Academe

My advice to you is, stay out of all academic politics, be it short-term or middle-term or long-term, and partake in administration as little as you can. There is a limit to this: it behooves responsible citizens to have some idea of the politics of their country and of their group of sociopolitical identification within their country. This means, chiefly, their long-term aspirations. That is to say, we all have the need to identify with our people. For this we need to develop for ourselves some images of our national societies; for this we need some familiarity and affinity with our nations’ mid-term plans. This—some mid-terms aspirations—is what democratic governments often neglect to pay attention to; and this is what Academe too lacks most. All of us except for our professional politicians have to struggle with the problem of how much attention we should pay to national politics, to our aspirations, to our wishes to partake in efforts improve the democracy and peacefulness of our countries. The more elastic our time-table is, the harder the problem. And Academe is as elastic as any employer can ever be.

What holds for national politics holds no less for professional politics. To plan a reform of Academe is harder than to plan a reform of democracy, since the latter is the framework for the former. In brief, the task of writing this section is simply impossible: I am out of my

66 Steve Fuller, The Sociology of Intellectual Life: The Career of the Mind in and Around the Academy, 2009, Ch. 3.
Academic Agonies and How to Avoid Them

depth.

9.1

The problem I have now is with my sense of proportion. It is an unfortunate custom in our society that your friends tend to say to you only good things about you. As Shaw has observed, it is unwise of married people to praise the institution of marriage and for bachelors to speak against it: they should do the opposite—and act as the devil’s advocates. I do not know how right this is. Roman Catholic priests are unmarried yet they often praise marriage. Not always, to be sure, and not always without qualification. After all, St. Paul upheld the institution of marriage only as second best: “But if they cannot control themselves, they should marry, for it is better to marry than to burn with passion” (1 Cor. 7:9). Admittedly, we tend to defend what we like and attack what we do not. Admittedly, this is the established custom in courts, where one party speaks with great bias for one side and the other for the other side. Yet there a judge and a jury are supposed to strike a balance. Moreover, even in courts one side may concede to another. In politics, in particular, no sense of balance is expected and often none obtains. When people argue with no sense of proportion, they do so on the supposition that they speak to a judge. They thus appoint their interlocutors as judges without saying so, and obtaining no assent. This is improper.

The custom of defending only your own opinion and attacking only the one you reject is that it brings about the loss of the sense of proportion. Here I spend much time attacking Academe. Yet I deem Academe the very best institution around. I see two major reasons for this. First, academic freedom: Academe is remarkably free. It is easier for academics to say their minds in public than for politicians (especially about religion). Second, the academy offers leisure. They say it offers also a learning environment. Even to the extent that this is true, there is no need for Academe for it. We can create learning environments elsewhere, except that we need some financial arrangements to make it stable. Every institution that offers such arrangements—mostly patronage and research institutions—has already joined Academe: during the Cold War.

Throughout my adult life, with very few exceptions, I made a living by belonging to one academic institution or another. The task of an academic is to lecture two or three courses or seminars—four to six hours a week one week out of two (Sabbaticals aside)—with ample time for academic intrigues and for the gossip that is essential for keeping up with the Joneses. There are exceptions. Half a century ago, the theory of elementary particles became respectable despite the prevalence of ignorance of some abstract algebra that blocked the ability to comprehend it. To meet this contingency, the United States administration instituted a summer course to which all physics professors were invited. The need for such a drastic measure happens seldom even in the best fields that mathematics and physics are. Something similar happened to certified accountants: when computers entered the market system they needed some computer savvy but had none. They learned to overcome this defect soon without learning to operate computers, though with the aid of some user-friendly programs.

These are wild exceptions. Usually, academics can stay au courant with little effort; normally, listening to gossip suffices for it; in many fields, even this is not required. Very little is. Apart
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from the need to come to the lecture-hall more-or-less regularly and to hand in grades on
time at the end of each teaching semester, and fulfill some light administrative chores,
academics are pretty much left to their devices. This is just wonderful. Not surprisingly, the
demand for academic jobs far exceeds its supply. This situation is stable as long as the
demand for studentships in Academe is on the rise—since the academic administration can
control the size of their student bodies and thus the size of their faculties. What
administrations want from the faculty is to keep the system run smoothly and if possible
raise its reputation.

The defect in this rosy picture is the matter of hiring. When I studied physics, the sociology
of Academe that my peers took for granted amazed me no end. They acted on the
supposition that their intellectual progress guaranteed their smooth absorption into
Academe and their unproblematic achievement of reasonable livelihood there. Since they
were physics students and since this was the early period of the cold war, they were not
disappointed. Around the corner, in the faculty of arts, things looked very different. The
seed of the Battle of the Faculties had then taken roots.

9.2

The university of my student days is gone for good. It had almost no administration and very
few regulations. If I had to register today for the doctoral degree that I have earned in the
college in which I received it (The London school of Economics and Political Science, the
University of London), I would not be able to fulfill all the requirements for it. In addition to
all the formal differences between the requirements then and now, the contents is also very
different. I will skip the detail. The initial medieval university had no fees and no
requirements and minimal rules as to the acquisition of academic degrees. Its professors
were ignorant yet sufficiently learned by received standards; the idea that they must keep up
with the progress in their fields of expertise could not possibly occur to them. They were all
members of the clergy and thus celibate and with no financial worry. In nineteenth-century
protestant England, celibacy was still the rule; academics who wished to marry had to resign
their positions.

Academe was secularized with the rise of the normal liberal democratic nation state—the
United States of America and the French Republic—but it was still largely outside the
sociopolitical system; economically, it was left to its own devices despite regular outside
financial support. In 1830, Prussia revised its academic system and the University of London
was founded. After it the many other universities did (the Red Bricks, they are called). The
nineteenth century witnessed the rise of technical universities. When the Nazi regime
showed its barbarism, Martin Buber has observed, the German academic system had
sufficient power to bring it down, yet it was sufficiently chauvinist to granted the Nazis the
benefit of doubt; very soon it was willing to oppose the Nazis, but by then it was too late: in
three to five years it lost all its influence.

After World War II, the main role of German universities was in the hands of their
departments of philosophy; they had the task of training a cadre of non-Nazi
schoolteachers—under the supervision of the occupation forces. As to the professors who
were in charge of this program although almost all of them had been complicit with the
regime to one degree or another, they were largely confused, since the Nazi ideology condemned failure and the failure of the Nazi regime was uncontested. The post-World War II German and Austrian philosophy professors were almost all Nazi to this or that degree. Some Austrian academics had been anti-Nazi activists; this made the Austrian academic system refuse to employ them; they sought livelihood by establishing a summer school in the Austrian Alps to teach democracy. People like Schrödinger, Hayek, Popper, and Koestler gave it sufficient kudos to make a meager living. It was a success. I went there as the assistant of Popper and met there for the first time in my life Austrian philosophers whom I consider Nazi.

Many European academics could not hide their disgraceful conduct during the war; to relieve themselves of the shame, they reformed of their academic systems. These are of no interest to us here, especially since the reforms of the academic system in the United States of America, dictated by the Cold War, soon eroded much of the European academic traditions. The Cold War is over; the grant system by which the American administration infiltrated and controlled the American academic system is long gone; but the Americanization of the world academic system is an accomplished fact—for better and for worse. I will ignore this here, since this is no survey of the history of the world institutions of higher learning and of scientific research but hopefully a mere manual of sorts—to help as much as possible some young people on their way to academic careers. It may help these youths to know that Academe had a checkered past if they wish to struggle against excessive conservatism.

9.3

The Cold War mobilized all intellectuals—from the academy to the entertainment industry—and they have not fully regained their freedom from the rest of the national system. No matter how admirable the American academic system is, its collaboration with forces of darkness during the early days of the Cold War is a stigma, much less than the stigma of Nazism of many European universities, but still one that does not go away and so is in need for healing. At the time, some academics tried to reduce the damage of their complicity in the atrocities. The idea was to mobilize the new western academic system—the New Left—to the struggle against imperialism, namely, to support the Soviet Union in the Cold War. The most significant ideologists of the New Left were American Norman Birnbaum, Noam Chomsky and Howard Zinn. Although they were individuals with no charisma and no credibility, they led a successful campaign against the Western participation in the Vietnam War. This was a success, perhaps the only success the New Left ever had, largely because the western involvement in Vietnam was a stupid failure doomed to go nowhere ever since the French were defeated there (in the battle of Dien Bien Fu of late 1953). A contribution to it was the stupidity of the Ohio National Guard: in 1970, they shot students on the campus of Kent State University, raising the ghost of the Civil War. It was the beginning of the end of that stupid, tragic war.

The conclusion of the Vietnam War should have counted as a success of American

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68 The big push to the movement came in West Germany, where Birnbaum, an American Jew, fashioned the disgusting slogan, the Vietnam War is worse than the Holocaust.
Academe. It was not. It counted as a success of American New Left. It then only destroyed the traditional view of Academe as a-political that was generally received for ages: no public debate took place aiming at a re-examination of the position of Academe regarding politics, because the academics who ran the New Left thought nothing of lying more than politicians then dared to. This led to the loss of credibility all round, and to political lying of unimagined degree.

These digressions of mine illustrate an obvious point: the very idea of a middle-range reform of any institution should rest on a middle-range projection of democracy that should hopefully be middle-range projection of modern society in general. Planners tacitly assume that the world will be increasingly liberal and democratic, even though we do not quite know what this means. I do endorse this, but I think it needs public discussion. For, in my view, without liberal democracy we are doomed, yet liberal democracy is still powerful. When liberalism appeared, it sounded too utopian to be realist. Nowadays its success thus far is too obvious for words: by and large, the rich countries in the world are liberal and the liberal ones are rich. Of course, this is not as striking as it looks, since the criterion for richness used in this context is liberal: we rightly consider Saudi Arabia poor and Finland rich, even though concerning natural resources the comparison goes clearly the other way.

Nevertheless, the facts are scarcely contestable yet most philosophers around are anti-liberal as if facts obviously support their attitude. If we expect the future of the modern world to be liberal-democratic, then, clearly, in the near future the welfare aspect of the modern state will be strong. The popular Chicago school of economics that advocates totally free market economy and opposes all welfare-state measures. The economists of that school know that their suggestion is just out of question: they have tacitly replaced it with another proposal that is much more reasonable: monetary investments in the implementation of welfare measures are usually preferable to fiscal ones. No matter what these measures are, suffice it that they are both different from the official Chicago demand for letting the market take care of the economy unaided.

The Chicago school of economics also takes for granted current employment patterns and oppose trade unions totally. These abide by the industrial work-pattern that are products of the industrial revolution. Some sectors of the modern population are older. Agriculture is still largely traditional self-employment and Academe rejects the equality of employment that the free market is supposed to impose, with women and minority groups still underemployed, poorly promoted and underpaid. All this is peanuts; it is obvious that the labor market cannot stay in its present form: it is intolerable that every discovery of a new

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69 The myth that universities are a-political has historical roots: mediaeval universities were a separate class. Local police had no authorities on their territories even in central-European universities up to the nineteenth century, when they served then as shelters for nationalist rebels. Later, weighty Max Weber said, it is beneath the dignity of a professor to use the podium as a propaganda tool for a political party.

70 During the Vietnam War, many leftist professors would not fail students since dropping out of college meant induction to the military. This had a tremendous effect on the way Academe integrated in society: no more ivory tower. See my “The Ivory Tower and the Seats of Power”, Methodology and Science, 24, 1991, 64-78.

71 Sissela Bok, Lying: Moral Choice in Public and Private Life, 1978. She discussed there the decline of standards of truthfulness in American politics—and thus of rationality there. If this goes on, then farewell to American democracy. This is possible, but beyond my imagination, I confess.
Academic Agonies and How to Avoid Them

A technique for automation, or any other means for work-reduction, raises new fears of unemployment. Clearly, every such advancement should lead to finding ways to raise the standard of living and to reduce working-time. What should draw our attention is the new, post-industrial employment pattern of the information age. What it is going to be we have only some inklings. As far as we can see, it is having all citizens pensioners of the state. The first result of this rule will be that financial constraints will cease to force people to work. The second is that employment discrimination will thus become very different from what it is at present. The change of employment pattern will reduce significantly the pressure that forces some people to escape from reality into drug abuse and addiction. Even if not, decriminalization of drug abuse is just a matter of time. What by the liberal canon the law of the land should declare criminal, is not drug abuse but doing under the influence of drugs what requires full attention—like driving motorcars. Laws against drug abuse testify to the weakness of liberal democracy: it has many undesired consequences that threaten democracy (since smugglers use the routes of smuggling drugs also for smuggling weapons and money). It rests on the poverty of the democratic education system. Even though education is obviously the best investment, budget cuts always hit it first. This makes no sense. It will have to change sooner or later, and then the place of Academe in civil society will also change.

And so I have arrived to the suggestion as to the topic of this section, which is, I may have forgotten for a while, prescriptions for your activity towards the middle-range reform of Academe. I do not know what we need to do to establish a public forum for the discussion of the future of Academe, and I do not know how we should establish a steering committee for such a body, and I do not know what criteria such a committee should adopt. But I do know that the future of Academe looks more auspicious than ever before. I also know enough about obstruction to know that the future is never assured: repeating silly and defunct arguments comprise very efficient ways to block progress towards any reform. I hope my proposal to be deaf to them will help as better means for defeating them than arguing against them.

Of course, not all ignorance is willful; many ignorant individuals are eager to learn. And then of course it is your civic task to help them as best you can, although without spending too much effort on this task. Moreover, they may have some criticism of what you think is a silly objection to your proposals, and then it is very much in your interest to listen to them carefully. Nevertheless, I say, do not argue with them unless they show you that they share your concern with the future of Academe and that they argue not in order to win but in search for the truth. This paragraph is problematic, and I do not know how to list the problems that this raises, let alone their solutions. I still say, it is very important to avoid discussions with people who sabotage the project while looking concerned, and the difference between them and the serious objectors is that the serious ones do not repeat silly popular objections like the observation that there is no money for your proposed reform, whatever it is. For, indeed, there is never money for urgent tasks. If this were a valid argument, we would not have lived to see this day. The strongest source of optimism is that

73 Condorcet said the future is certainly rosy since people will emulate success and desist from failure. He ignored human folly. See his Sketch for a Historical Picture of the Progress of the Human Mind, Tenth Epoch. Future Progress of Mankind, 1795.
despite the atrocities that humanities proved itself capable of, we have seen so much exciting progress—in science and in technology, but also in social engineering. The future is still open.

10. Intellectual Courage and Integrity

Novelty in philosophy is often a matter of daring rather than invention.
— Harry A. Wolfson, *Spinoza*, ii, 331

Why the rise of modern science required courage? Harry A. Wolfson has explained: modernity was science and magic intertwined. He viewed the three monotheistic religions as mere variants of one religion, and he divided this religion to rationalism and mysticism or science and magic. The rationalists lived in Academe. The mystics had no social base. They were hermits or itinerants; they appeared seldom, and then as courtiers. As courtiers they practiced the secret art that we view alternatively as magic, alchemy, astrology or Kabbalah; they viewed them as one kind of activity: the effort to bring salvation to the world. The Kabbalah is usually deemed Jewish in origin; it was Greek. The reason for this error may be partly due to the fact that medieval physicians were often Jews and kabbalists. Cooperation with Jews was essential for the most famous Christian Kabbalist ever, Giovanni Pico della Mirandola, author of the celebrated *Oration on the Dignity of Man* (1487) that changed the Christian culture from the Talmudic view of us as dust and ashes, as worms and maggots, to the Talmudic view of us as the crowning glory of Creation. That view became the Renaissance idea known as humanism. The label “kabbalist” was changed into the label “Pythagorean” in the writings of the kabbalist Johann Reuchlin—due to his hostility to Jews.  

The Inquisitors in charge of the case of Galileo addressed him formally as Galileo Galilei, Pythagorean. In this they follow his *Dialogue* that was at the focus of the case: on its first page, the Aristotelian complains that the Copernicans accuse the Aristotelians for their lack of clarity when they are worse. The Copernican admits the charge and promises to behave better. So Galileo viewed himself as Pythagorean and undertook to clean his tradition of its mystic fog. His contemporary Francis Bacon was more authoritative on this matter: he demanded to ignore the scholastic tradition and to replace it with a just history of nature, namely with factual reports unexplained and unsupported by any theory. He still was a Kabbalist: he advocated alchemy and magical medicine. Under the influence of Galileo and more so of Bacon, we still condemn medieval thought as confused. We forget that it had its own idea of clarity that was central to it. That idea rested on a philosophy: ancient thought was perfect and that learning should therefore comprise efforts to comprehend it. This, the study of the clarification of ancient ideas, is Hermeneutics, exegesis or interpretation, three terms that we may take as sufficiently close to count as synonyms.

Hermeneutics began in antiquity, with the writings of Philo Judaeus who declared that there is no disagreement between Moses the lawgiver and Plato. Porphyry of Tyre wrote a (*lost*) book called, *The Opinions of Plato and Aristotle are the Same*. The greatest medieval Muslim

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philosopher Al-Farabi wrote *The Reconciliation of the Two Sages, Plato the Divine and Aristotle the first Master*. His most celebrated follower was Maimonides, who interpreted as metaphorical every text that he found unacceptable as it stands. The popularity of this technique grew. The most important example of this is the reconciliation that St. Thomas has offered of the texts of Aristotle and Archimedes on gravity.

The first to break from this tradition was Pythagorean Nicolaus Copernicus. He preferred the heliocentric system to the geocentric system for Pythagorean reasons. What he found objectionable is more important: the reliance of ancient authors as authorities. In his introduction (his letter of dedication of his book to the Pope of that time) he said, since the ancients disagreed with each other, they cannot serve as authorities. That was his greatest contribution to scientific thinking. Next came a Pisan thinker by the name of Francesco Buonamici. He declared that Aristotle and Archimedes disagreed and concluded that Archimedes in error. His student and admirer Galileo reversed the judgment and deemed Aristotle in error. He found in Archimedes an argument for the heliocentric system (as he hinted in his 1596 letter to Kepler). His disproof of Aristotle’s theory of gravity is a milestone in the history of science.

It took great courage to declare Aristotle in error. It led to serious objections that led Galileo to a lifelong battle in defense of his reputation. He was an academic turned a courtier (an Aristotelian turned Pythagorean). The thinkers of the next generation were upper-class amateurs. They needed courage much less than their predecessors, yet they did not possess it. Robert Boyle, the legislator for the Royal Society of London, whose etiquette became general throughout the Age of Reason, decreed that refuting an idea should not be made explicit: the author of the refuted idea will understand; so there is no need to shame a researcher who has erred and who, being an amateur, can easily cease publishing research results.

Some researchers of the Age of Reason were academics; research was not a part of their job description. Thus, Newton left Academe as soon as he could but continued his researches. Leading physicist Luigi Galvani, the discoverer of animal electricity, who was an adjunct academic even though he was married, lost a debate and as a result left his work and went to the Holy Land on a pilgrimage. The fate of Sir Humphry Davy was worse: he advised the Royal Navy, telling them how to improve the speed of boats. His advice was erroneous and he went to exile never to return to England. Yet it was the official dislike of criticism of the Age of Reason that is most incredible. Today it looks bizarre, since Einstein’s success to replace Newton’s theory could not possibly hurt Newton’s reputation. Nor did he intend to, considering him the greatest contributor to science of all time. Nevertheless, in his scientific autobiography he said “Newton forgive me!”

Physicist Freeman Dyson of Princeton Center for Advanced Study, let me repeat, reports in his autobiography that when during World War II he found that the escape hatch in the fighter pilot cockpit should be enlarged to reduce the rate of burns of pilots, some generals opposed his proposal out of personal pride. This is barely conceivable.

There are three cases where this is hardly reasonable to expect. We can scarcely expect a complaint of a prisoner against a jailer to be effective, no matter how just it is. This is no news, since it is a major aspect of a 1951 bestselling story, *From Here to Eternity* of James...
Jones made into an Oscar winning 1953 film directed by legendary Fred Zimmermann and selected for preservation in the National Film Registry by the Library of Congress as being “culturally, historically, or aesthetically significant”. Another famous case of this kind is of a patient in a mental home has a grievance against a physician. Notoriously, such grievances are often right, yet impossible to defend. The same holds—for very different reasons—for a just grievance of a graduate student against an adviser. The just grievance may be against a hostile adviser and it may be against a committee hostile to the adviser of the graduating student.75

This should be advertised, since it means that a graduate student not on good terms with an adviser is better off cutting losses and changing adviser. I know of very few students who graduated successfully despite adviser’s recommendation to the contrary. Overriding unjust graduation committee is much harder, let me report. Still, since obviously a good dissertation is not expected to fail, let me testify that these things do happen, however rarely. Two of the very best dissertations that came my way had trouble to pass, and one failed, whereas dozens of dissertations that I would not have passed as seminar papers were passed smoothly.

The trouble is to do with the coupling of ignorance with cowardice. The ignorance is as to whether a dissertation will pass or fail. It is more reasonable to be able to decide whether a dissertation deserves to pass. Many an academic is afraid to declare a dissertation deserving a doctoral degree since other academics may deny that. Indeed, every department has the right to overlook an expert report on a dissertation if it finds it incompetent. This too requires more courage than is usually available, let me testify.

To expect courage is wrong. By definition: it is not courage if it is not supererogatory, and it is not supererogatory if it is to be expected. But integrity is to be expected; yet it is not as common as it should be. And so when anyone lacks the courage to do what is required to avert flagrant injustice, then one is not obliged to display courage, but one is obliged to show decency and this may require to recluse oneself. Alas, in order to recluse oneself all too often one needs more courage than most can amass. This holds for run-of-the-mill tasks. When the task is necessary but not possible, it is time for a search for institutional reform. This requires even more courage, since it is more outlandish.

This then is an impasse. The many successes of reform movements is a miracle of sorts. So we must grant the Good Lord the benefit of the doubt.

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75 This happened in Yale University to Dr. Joan Bailey. See her “Dungeons and Dragons: A Lesson in Etiquette from Professor Agassi”. In Nimrod Bar-Am and Stefano Gattei, eds., Encouraging Openness: Essays for Joseph Agassi on the Occasion of His 90th Birthday, 2017.
PART IV: PROGNOSIS

1. The Academic and the University Administration

The traditional university was administered by its senate and faculties, with the rector running the senate and deans running their faculties. Senates included all and almost only the university's professors; faculties had all academic staff as their members except for the assistants. Rectors and deans were professors elected for limited periods. Department heads were professors elected for limited periods. They had administrative staff and graduate assistants to help them. When necessary some junior members, lecturers or assistant professors and associate or extraordinary professors helped, especially in running some committees. In old times, departments had often one professor and two assistants competing for the position of his heir and hating each other accordingly.

The English system of Oxbridge has its college system, well described in 1951 The Masters of C. P. Snow. I will not go into it except to say it describes a small college through a narration about its fellows, hardly noticing students and non-academic staff. Colleges and universities must employ maintenance crews, of course. They usually also employ an academic secretary and the staff necessary for the performance of the secretarial duties. The most important and heaviest administrative task today, that of keeping records of students' achievements, was traditionally left for students: every student kept his own record booklet. When I was a student, I had such a booklet. For a time I also worked as a clerk in the office of the academic secretary of my Alma Mater. The whole administrative staff of the university were a handful. I did not mention here the university laboratories personnel, its legal department, its department of extra mural studies, the academic press, the public-relations office and other specialized departments. It does not matter overmuch; the point is that the whole academic administration was very small and today it is very big. They say that today the normal ratio is this: there is one administrator to two academics. Suspicion is that the proportion is of one to one.  

1 I was shocked to find bouncers in the entrance to the hall where I delivered introduction to philosophy lectures who stopped elderly people from entering the hall unless they had proof of having paid to listen to me. I refused to cooperate and this did not go unnoticed: the faculty office mad an unfriendly comment.

Two innovations in the university administration since my student days are most important as threats to academic freedom. One is the general adoption of the system that existed in the United States of America before: the appointment of a president and the board of governors who are together responsible for its budget, thereby gaining control over functions of the university that members of traditional universities would have found an intolerable encroachment on academic freedom. The other most important innovation is the institution of a research authority whose role is to pressure professors to apply for grants. It is an outrage.

The justifications of these innovations are economic and functional: academic faculties have much lighter duties than schoolteachers do, because allegedly they have to keep up with

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1 https://www.huffpost.com/entry/higher-ed-administrators-growth_n_4738584
research and they have to contribute to it. This raises repeatedly the question, what role is more central to Academe, teaching or research? The question is repeatedly dismissed on the ground that the two functions strongly interact: to be a good academic teacher you must do research and vice versa. This argument is refuted by the presence in Academe of both teaching-positions and research professorships. This refutation may be answerable. The discussion of these matters is too poor to raise this objection and the possible response to it. Indeed, this discussion is redundant: the administration has decided that there is a need for a research office—usually run by a dean of research elected by the senate—and the faculty can seldom question administrative decisions.

Things are changing due to the tremendous growth of the system of higher education with the mushroom growth of teaching colleges, namely of institutions that grants no degrees, like community colleges, or only lower degrees, like some open universities. Teachers there are not expected to engage in research, at least not as a rule. Some of their graduates become students in some universities. They were often not up to it. Nevertheless, they have my admiration since they are not engaged in phony research and their students are more often eager to learn, as they do not have the incentive of academic degrees.

The story told here is different. It is about the power structure of the standard university. This is of little import, as it is largely fictitious—not the administrative posts, but the controls that come with them. There is a body that officially runs the daily affairs of a university; it is officially recognized; it is the collection of the holders of the powerful offices: the president, the rector, and a few others. But the governing body may be unofficial. Either way, members of senate hardly know what that body does and even its agenda. Clearly, the modern university or college is financially speaking a substantial organization. A part of its budget is run on fees, and the portion that this part comprises of is a major characteristic of it. For example, the question how important is the university’s football team depends on the question, how much the university depends on fees. The dependence of the university on research grants is similar. These are matters that the administration controls as a matter of course and that it impinges on academic life is all too obvious. This way the faculty has gradually lost its self-administration to the long forgotten Cold War—first in the USA and soon in the whole western world. I do not know how academic life is run in former communist countries or in the Far East.

When discussing the reform of the university, it is worthwhile to begin with the administration. The reason for this may be not very obvious, but it is a good reason: the university can exist with minimal administrative stuff, perhaps not very efficiently, but it can. Yet, obviously, it cannot possibly exist with no faculty or even with very small faculty. When discussing the reform of the university, it is thus worthwhile to check the function of each of its arms, the faculty, the students, the maintenance staff and the administrative staff. Let me skip discussion of the maintenance staff, although I have much to say about its diverse functions from libraries and restaurants to on-campus entertainment (a theatre, a museum, a zoo) and on-campus medical services. The administration has to serve mainly the needs of the faculty and of the students. The question what are these needs is all too obviously a matter of decisions that have little or nothing to do with scholarship; these needs, anyway, are fairly clear, since researchers list their requests for what they consider useful for them. The same holds for other aspects of the academic institutions that are full board, such as the academic institutions of some religious orders and such as military academies with fairly rigid
academic curricula. In any case, these matters are hardly studied.\(^2\) Even the impact of these institutions on Academe at large is hardly studied. I will not go into that. Suffice it to notice that the faculties of engineering and of communication technologies are relatively newly founded and they come to serve a market—as does the faculties of medicine and of law\(^3\) that are as old as the university. The impact of these is obvious. Traditionally legal studies were meant to serve not the market but the community. These days some colleges aim to serve the (alleged) needs of the community, others aim serve those of the market. They all intend to supply as many degrees of all sorts as the market can absorb. As to the desire to study regardless of the possible use of that knowledge as means of livelihood, it is totally ignored. Such people do exist, but planners overlook them, perhaps as they comprise an insignificant minority. As long as university training is market-oriented, market research provides the guidance for training. Now this is not the case, and the paradigm for it is the faculty of arts, as is well known. The question there is, how much is the nation’s economy free-market oriented? I do not know.

In the discussion of the role of Academe, it is very important to beware of hostility. The hostility to market research in matters intellectual is conspicuous. It is the hallmark of a respected school in contemporary philosophy, the celebrated Frankfurt School. This hostility causes much harm. It does not stop market research; it only blocks critical discussion of it, thus blocking its ability to attain high quality. Guardians of some endangered subjects—ancient Akkadian has become the rubberstamp instance of that, I do not know why—protest that market oriented attitudes suffocate them. They may be right, I cannot judge. Only few students will enrol for courses whose texts are largely written in cuneiforms, but these students still need professors and departments and departmental secretaries and all that. Statisticians know that, and this includes the ones who conduct market research. They provide weights to marginal cases (by the method of inverse probability weighting) so that they will not drop out of sight: we do not want to face a situation in which there will be no single living individual able to read cuneiforms. And it is the marginal cases that will be the first victims of the hostility to market research. This is a general rule: whatever can be reached by means of hostility will be better reached otherwise. It does not look that way because in democracy we have to fight prejudices that enlightened dictatorships can overcome with ease. Except that enlightened dictatorship is a fantasy (that the better members of the Frankfurt School spoke against) and we cannot circumvent the need for education as the only means we have to sustain democracy. And so, there is no better cure for hostility than education for the democratic aptitude.

Advisers seldom discuss democratic aptitudes; theoreticians place them in political science and forget them because they belong to applied psychology. Psychologists ignore them as they are elitists and thus they are seldom democrats. The most important and least noticed of these is a sense of proportion. It is often ignored due to obsession. We should never handle these. This makes my present discussion of no use to you right now—at least not until you get tenured and know how to neutralize students’ wrath. For, when treatment of an obsession threatens to be successful, the obsessed penalize their benefactors. This is a shame, because the obsessed about studies may excel in their studies; it will do them no

\(^2\) The natural items to look up are autobiographies and biographies. Next come official reports.

\(^3\) The traditional law faculty was of canon law; the secularization of the university changed this, although canon law is still a legitimate topic, particularly in schools that come to serve religious communities.
good (as Freud has argued, the implementation of an obsession brings no relief, even when it is successful), but they may contribute anyway. Still, leave them alone, at least while you are a beginner. Nowadays you have no interest in the university administration, much less in its future reform. This part of the present work may say little to you. So perhaps you should leave it for later.

2. The Academic and the Economy

The public image of Academe and of academics is intentionally confused, misleading, and hyper-conservative. This is the inevitable outcome of the very presence of public-relations officers whose task is to serve authorities. Public-relations officers and public-relations systems are not at fault; the drive for success unrestrained is. We still suffer the shock that nineteenth century western society experienced during the transition from agrarian to urban society—as described in the monumental literature from the writings of Charles Dickens to those of George Eliot and Evelyn Waugh, from Flaubert, Balzac and Stendhal to Émile Zola and Marcel Proust, not to mention Jack London and F. Scott Fitzgerald and Joseph Conrad and Pirandello and Joseph Roth and Maxim Gorky and ever so many other wonderful authors, not to mention the tremendous contribution of the realist cinema to our familiarity with this painful transition. I am not going to discuss this painful transition, except to say that the most pertinent aspect of it—especially here—is the contribution of education to the process. For me it is epitomized in the story of Thomas Alva Edison and of Wilhelm Neurath, the father of Otto Neurath, the leading early twentieth-century philosopher. The story of Edison is well known, from rags to great riches, all by his own wits. He is larger than life, too fantastic to be a role model. We can ignore him here, especially since he was only once in intellectual society, where he read a terrific paper and was laughed at, never to forget the humiliation. Among his hundreds of great innovations, the greatest scientific discovery he made was thermionic (hot metals emit electrons), and he registered it as a patent (the diode) rather than write it up as a scientific paper. As to Wilhelm Neurath, he grew up in East-European Jewish milieu—poor and pious—receiving the narrow Jewish education traditional in that milieu, and yet he managed to end up a professor of political economics in the glittering Vienna of the end of the nineteenth century, in one of the few universities in the world that expected its faculty to perform research. He was a pioneer: he wrote about the right to work.

Uncommon as such individuals are, they played role models for countless parents eager to see their offspring emerge out of the stultifying poverty to which they were born. This laid intolerable burden on the offspring. Even reading the CV of successful academics is depressing, as they parade successes and conceal failures in obligatory deception. It is bound to cause pain to a young ambitious academic like you. So you should know that a CV is not the place to show that its object was once in your shoes, that by sheer luck and by the tremendous good will of ever so many people, failure failed to reign supreme. For this you may look up honest biographies. You will find some, since encouragement is an essential ingredient for success.

The public image of Academe and of its inhabitants is intentionally confused, misleading, and hyper-conservative. This is not the worst. Public images are not that important.
Physicians for example project a worse image, of faultless life savers. Why should anyone like to appear infallible? The law recognizes the right to make harmful mistakes not due to thoughtlessness, negligence or similarly unacceptable conduct. To assume the ability to be infallible is to forego this recognition, to relinquish, to waive, to give up voluntarily the right to such mistakes. It is to forego the right to admit error, to forego the opportunity to help others to avoid repetition of the error, to foster conservative attitude even in cases that cry aloud for reform. When Ignaz Semmelweis demanded that physicians wash their hands after they perform post-mortem operations, it was a demand for a small and inexpensive reform with great benefit. He was punished severely for it. Fortunately, some years later, two individuals, Joseph Lister and Louis Pasteur, took up the matter; this way they started modern medicine. And still, after all this, physicians still prefer to appear infallible! It leaves me speechless,4 except that some progress did take place here and there. Nevertheless, let me report, whenever I voice some criticism of Academe, no matter how marginal, the very fact that I voice it regularly shock my audience. That shows that they view Academe as a utopia, as an island of perfection. It is a minor, innocuous self-deception; yet for some people it costs too much. Concerned parents who make tremendous economic efforts to afford academic education for their offspring seek the best institution for them. The concerned parents seek the advice of the most informed friend, relation or neighbor or passerby. These take the utopian image a jot more seriously. They advise to send the young victim to an Ivy League school with no concern for their needs and no familiarity with them. This is just terrible.

The free market deviates from optimal operations due ignorance of agents. This is known in jargon as friction. The very use of this word, let me repeat, is apologetic: Galileo’s law of gravity disregards the air friction that causes a feather and a parachute to deviate from it; free market economists see this as license to ignore refutations. Yet Galileo’s followers studied the physics of feathers and parachutes with great success; not so defenders of the free market theory. This holds particularly for the employment market, particularly the market in academic jobs (like the one you hope to acquire soon). Milton Friedman waived the criticism of the free market theory by reference to its success. The economic crisis of 2008 called his bluff.

The public image of Academe and of its inhabitants is intentionally confused, misleading, and hyper-conservative. Consider the pay that academics receive. It is sheer treason to say so, but say so I will: academic jobs are better paid than academics will settle for. My friend Robert S. Cohen was the chair of the physics department in Boston University when the school administration told heads of departments to list people in their department to terminate their jobs. Rather than do this, Cohen managed to have his stuff volunteer pay-cuts to prevent the planned dismissals. This took some doing, to be sure, and it cannot be a standard cure for all economic ills of all academic institutions. Nevertheless, it is a story that does have a moral to it—one that academics prefer to ignore.

They have a point, though. The point being economic, appeal has to be made to economic theory. Yet economic theory, it is well known, has nothing to say about innovation. The assessment of the need for Academe has two components: the training of future

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4 Invited to speak to heads of departments of a reputed university hospital, I began by asking that any one of them volunteer to report one mistake. There was no response and I left.
technologists and the continuation of current research. Now not all research is academic. Thus, universities are active in the market since even before the proliferation of startups. Also, research in startups is mainly private. Nevertheless, the problem remains: how much the ability of Academe to keep up technological research depends on the engagement of the university in the study of dead ancient languages? The answer seems obvious: there is no reason to assume that the ability of the university to contribute to the nation’s ability to keep up-to-date in any way depends on its having a department for the study of ancient languages. This answer is false. It rests on the presumption about future research, which is palpably absurd: its presumptions are commonsense yet all great breakthroughs were causes of radical alterations of commonsense. In particular, any plan to improve the efficiency of research, particularly the commonsensical ones, may be the death of all research. If you are not sensitive to the ability of minor and seemingly irrelevant causes to change a whole system, you should try to immerse yourself in ecological studies for a few weeks.

The public image of Academe and of its inhabitants is intentionally confused, misleading, and hyper-conservative. This need not be disastrous. All it takes is to ignore it as much as possible. The planners of the plans to reform Academe should ignore people swayed by its public image and avoid arguing with them. As a part of the plan to reform Academe, when there will be such a plan, may be a consideration of the public image of Academe and how to improve it.

Meanwhile we should discuss the question, what is the place of Academe in the economy and does it require an alteration, and if yes, what alteration. We should remember, western Academe was a system of sinecure, of priests with no communities. They had no obligations. They used their students as copyists of their texts. By now they do not need students for that: the computer does that ever so much more efficiently. Academics who write essays or books still need their peers and their students—as critics and as commentators. The academy is a terrific learning environment despite the great damage that the system creates to itself by using incentives and other methods meant to force people to study. At the time of the foundation of the western-style academy all of its members were all Christians—faculty, students and all else. The great philosopher Michael Polanyi whom I had the privilege to have met personally, studied in Budapest University in the early twentieth century and he enrolled into the faculty of medicine merely because he was a Jew: other faculties were closed to Jews. When he graduated, he changed to physical chemistry, his true interest. He was sufficiently creative to have earned a fan letter from Albert Einstein discussing with him his ideas. Now Polanyi was lucky to enter university at all. Traditional Jewish students had only in Jewish institutes of learning to support them. Traditionally, Jews had two kinds of institutions of learning (not higher learning: there is no such thing in Jewish tradition): the institute for solitary learning, which was a place with books, and the school where one sought instructors and co-students and where one learned religious law and medicine (as one did in the early universities). The institute of solitary learning was attached to a synagogue; so had no staff. The Jewish house of learning had a chief rabbi and a few helpers to run it, but no budget and no organization. Students were free to stay there as long as they wished and they had the communities to support them or feed them. They were ordained as rabbis or as doctors by examination committees of three that put their hands on their heads and declaring them qualified. They stayed in school until they were invited to perform rabbinical duties or to enter the market on their own arrangements. Christian students had better terms: the Church took care of them on condition that they take the vows. Things changed
little with the rise of Protestantism and more with secularization, and much more so with the entry of the industrial revolution into the university and still more so due to the intervention of the pentagon in academic life. Prior to the American and French revolutions change took place gradually. Afterwards, more than anything else, the new view of higher education as technological training ground made for radical changes. No room since then for ancient Acadia. How it survives is partly due to fashions sustained by exciting public images of glorious antiquity, partly by good will of donors, but mainly by tenacity.

The public image of Academe and of its inhabitants is intentionally confused, misleading, and hyper-conservative. The first thing to do is to kill the myth that Academe is profitable for the nation: this holds, but only when treated as a by-product; designing it to be so will kill it. This is so obvious that the father of the scientific revolution, Francis Bacon, said it of scientific research in general. In addition, we have to consider academics parasites of the system. This will raise the problem, how are we to elect people to positions that need not yield any fruit? This problem will be lessened as the need for employment will reduce. Hopefully, this is around the corner: we may soon shed our harmful, inhuman work-ethic and see to it that citizen will not be forced to work—possibly forced, but not by the threat of starvation. Even if we will fully succeed in this assignment, it will not solve the general problem of induction to Academe. We will need to develop traditions, somewhat less silly than today's induction methods, to help us decide such matters, and we may hope that there will develop alternative traditions that we will be able to compare and help improve through such comparisons and critical debates about them.

The public image of Academe and of its inhabitants is intentionally confused, misleading, and hyper-conservative. And we want to expose its inanity by making public the methods of induction current today and discussing them critically and proposing some improvements. The worst of the current situation is the method of advertising. When I was a graduate in England I was offered a position in my own school, the London School of Economics and Political Science. I enjoyed it, since after my graduation I studied there different subjects and even read papers in seminars in different departments. But for personal reasons I could not stay there. I desperately wanted to join a faculty in my own country, but I had no support there and so I had no chance to get a position there. This changed later on: over a decade later I was invited to Tel Aviv where I stayed to this day. In the meanwhile I applied for jobs in England—in York, Oxford and Cambridge. In all three philosophy jobs were advertised and in all three the advertisement was pro forma: the jobs were allotted for others and I had no chance of changing their decisions in the interviews that were performed just because the law required it but to no effect. This need not be so. When I was offered a job in York University, Toronto, the job was advertised, but with a clear explanation of the situation: people were invited to apply if they thought they could beat me at the specifications of the job that made them consider appointing me as the default option. No one did.

You may wonder what has this to do with the economics of appointments. The answer is, it is the most general idea of the market economy: openness and competition raise efficiency most. Academe can barely have it.

3. The New Renaissance of Learning

“Plan for the best and be prepared for the worst.” Since life is a set of lost opportunities, as any side-glance into history will show, it is hard to judge which is nearer to the mark, optimism or pessimism. These days we face the choice between the real hell of a nuclear winter and a utopia that surpasses anything envisaged by any of our dreaming ancestors.\(^6\)

The future that I envisage here is scarcely a rosy utopia as it rests on two reasonable components. One is the rapid alteration of the current employment policy by totally relinquishing our current work-ethic and by ceasing to force people to work. How exactly this will happen does not matter overmuch. The other radical change concerns study: we should totally relinquish our current study-ethic and abolish all forcing studies of any sort and for any purpose.

Tradition divides life to study, work and entertainment. Our current philosophy recommends that we allow the spending of time on entertainment only as a means for continuing to work and study as preparation for work. This philosophy is both disastrous and stupid, seeing that the very idea of a challenge is missing from it even though common knowledge tells us that we need challenge in all of these three areas and that we can mix them with profit. Education pioneer Maria Montessori built her successful educational system on mixing learning with play. This goes in the right direction, but we must go much further in that direction.

I am speaking of the love of learning. The most popular learning theory still is that of the great seventeenth-century philosopher John Locke, it is a variant of the learning theory of Aristotle of the fourth century BC. It has no room for incentives and no room for the love of learning—the one that both Aristotle and Locke excelled in. What we witness here is not only indifference to the love of learning, We witness here hostility to learning. This finds expression in regrettable contempt for impractical learning, known as tough-and-no-nonsense. This is an irrationalist pro-science philosophy, one that tends towards illiberalism and anti-democracy: it supports the rule of experts. Its best expression is in one of the very best science-fiction novels: Fred Hoyle, *The Black Cloud*, 1957. There is much to say for the tough-and-no-nonsense attitude. When the GI Bill was implemented in the USA its successful outcome led to the popularity of academic education and to the tremendous expansion of Academe, first in the USA and soon the civilized world all over. And the success was conditioned on the success of the absorption into the system of good students whose education was wanting as it was understood then, and the flexibility required for their absorption into the system was facilitated by the tough-and-no-nonsense attitude. Still this attitude remained and crystallized into what may be called anti-poetry.

We have then two versions of the hostility to the love of learning: we may choose between the pro-poetry version of it and the anti-poetry version of it. Now a poetry-addict though I am, I will not advocate the love of poetry. We must be tolerant. Some people are colour-blind, others are poetry-blind, and still others are science-blind; they all handicapped who have a place under the sun. My recommendation is (not that you appreciate this or that item but) that you devote yourself to what you enjoy. Of course, we should see to it that the haters of poetry, and even the indifferent to it, should not be appointed teachers of poetry,

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regardless of whether the schools that are their prospective employers have their poetry courses as obligatory or not. But this is a different matter. All I want to suggest to you is that teachers of x hate x appear unlikely, and that appearances mislead. Look at it this way: many people have chosen as their favorite field of study the field of study of their favorite teacher. These teachers excel: they enjoy teaching what they teach. This would be impossible were favorite teachers not so rare.

I once received an invitation to speak in a museum. I do not know how this came about: most invitations I have are to institutions of learning. My custom is to speak on the subject-matter that interests my hosts. I did not know what to speak of then. It occurs to me that in museums you face the intriguing fact that great art comes often in waves. These are known as golden ages. There are golden ages of plastic arts, of poetry, of music. They are always local: Spanish poetry, Italian-Renaissance plastic art, Elizabethan poetry, Elizabethan music, French impressionism, German expressionism. I decided to read a paper on the question, what makes for a golden age? As is my custom, I looked for literature on the question. To my surprise I found none. After I delivered my paper, I tried to publish it in a learned journal and failed. It is published in a collection of essays of mine. If you are interested in the question, let me save you the trouble of reading it by giving you the spoiler: what makes for a golden age is encouragement.

Today the rule is discouragement: who do you think you are? This remark is never acceptable. Learn to be deaf to it, and ignore the question, who addresses it to whom.

The idea, come to think of it, is not my discovery. An example is Bernard Shaw’s Pygmalion. In that play Professor Higgins meets with an undistinguished flower girl, Eliza Doolittle, and he uses her to prove that offering her the pronunciation of the upper class and adding some social information that upper-class women acquire with no effort make her pass as an upper-class individual with ease. To make it sharper, Pygmalion in the Classroom, 1968, reports that expert whispering into a teacher’s ear that a certain pupil is exceptional suffices to improve that students rate of scholarly achievements. That shows the power of misanthropic teaching.

Notice this: the difference between Pygmalion in the Classroom and the ambitious parents is obvious: the student who is encouraged will improve and gladly so; the student who is pushed to seek approval is under pressure, and pressure tends to create resistance. The reason traditional Jewish education was successful in its ventures is that teachers were supposed to seek characteristics of students that they could encourage. Only when the aim of Jewish education was agreeable were the results agreeable. But that is a different story. What was common to almost all Jewish life was the value of education and the love of learning. Perhaps it began with the commandment to study, but that commandment I do not like. The love of learning is in no need of boosting. Suffice it if it is not suppressed. The suppression of the love of learning is paradoxically due to the liberalism and democracy that it may bring about encouragement of diversity and of criticism: teachers may encourage

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9 Albert Einstein, “Why Do They Hate the Jews?” (1938); Out of My Later Years, 1956.
learning until it leads to possible heresy. Teachers whose love of learning is not qualified will possibly fight heresy, but they will not discourage the learning of heretic material or of taboo material or of any other allegedly dangerous material. It is easy to convey to students disapproval of some learning: a tone of voice or a gesture may suffice. And the outcome is very damaging. Look at the general outcome of education: some people you know are allergic to mathematics, other are allergic to poetry or music or whatever their teachers try to tell them they must study even if they dislike it. Dislike it they soon do. The decision that no learning is to be curbed no matter what, however, leads to a true Renaissance of learning. Remember: opposition to science or to art is not inborn. Yet it is a widespread disease, an epidemic indeed.

The Renaissance is famous for its Renaissance people, for people who excelled in all branches of human culture. The concept of Renaissance people has two versions, that of the Age of Reason and that of the Romantic metaphysicians. The Age of Reason took it for granted that every individual is autonomous. Of course, all individuals have the right to use their own judgment; the thinkers of the Age of Reason assumed that all individuals use this right to the full. They assumed that whatever question one adjudicates on one does so out of the use of the right to autonomy, namely, out of the ability to judge for themselves. So popular books about all sorts of scientific and philosophical and social matters appeared to help people judge for themselves, yet, clearly, these books showed that the view in question is highly exaggerated. Of this genre I like in particular *Newtonian Cosmology for Ladies: Dialogues on Light and Colours* (1737). The Romantic philosophers said, those who can live up to the expectation of the Enlightenment Movement and be autonomous are geniuses. In other words, do not aspire to be autonomous unless you consider yourself a genius. But then, who do you think you are? Both doctrines opted for extreme positions. A sense of proportion should dismiss both.

Whatever the truth is, what matters is first and foremost that the extremist doctrines put tremendous pressure on their enthusiasts and this pressure we should neutralize. To begin with, you should choose to study what interests you and ignore all your obligations and in particular your alleged obligation to receive good grades and your alleged obligation to see to it that you will have reasonable employment when you grow up.

My interest here is not only to help you enjoy the life of a scholar that you should learn to cultivate on your way to your chosen academic career; it is to revive or resuscitate the culture of the Renaissance style of learning. But let me stay with your own career, if you want me to do so. (Otherwise skip to the next section.) First, the popular idea that good grades are essential for a good career is downright silly. At most receiving sufficiently good grade to be able to graduate is essential for professionals who need license to practice—like physicians, lawyers and accountants—and then getting grades has little to do with learning and more to do with learning the system. A friend of mine who was a retired teacher registered for a degree in a university and was once surprised to receive a poor grade on an exam contrary to her expectations. She consulted the professor about the matter. He looked at her exam paper, and in embarrassment changed her grade. She chafed: she did not appeal for an improved grade but asked for an explanation. He was dismayed: she expected the graduate student who graded her exam to see that she understood the material when she did not use the keyword that helped him do his job. She admitted error and left.
All academics have to grade except for the very few research professors who have no teaching duties and no supervision. If you have to grade, it is reasonable to grade students for some homework, preferably essays. If you do advise your students to write essays, demand that they concern a controverted question. If this is too hard for them, let them write a review of a controversial book of their choice. And if you help them write and improve you have no fear of fraud. If you have too many students for that, then perhaps the system can force you to examine the students. My advice then is to prepare the exam questions in class on its last meeting. This may serve as self-examination: if you have conducted your class reasonably well, the students will participate intelligently—non-defensively—in the preparation. And, of course, all exams should be open-book.

If you do well, then the average grade will be above the average. Administrations resent grade sheets that show excellence, and so they harass the academics who issue them. If you are one of these academics, do not yield: administrators are supposed to know when it is good sense to yield, and they will soon learn to leave you alone. I used to revise grades long after the deadline, causing a complaint from the record office. They soon learned to leave me alone. They even befriended me.

For a good job it helps to know how to play the game; this is insufficient: to succeed you must be lucky. But I know you do not want the job that many covet from afar not knowing how tasking it is; you want a job that is reasonably well-paid and reasonably respectable yet that does not take so much out of you as to make you hate work. After all, this is why you aspire to obtain an academic job. The advantage of an academic job is that it allows for independence. To destroy this advantage your well-wishers tell you that you have to suffer before you can enjoy. And they have suffered and lost their capacity to enjoy performance of their jobs. Before taking their proposals seriously ask them, are they pleased with their situation?

I see that you question the logic of my advice. I hear you ask, why should I listen to you telling me not to listen to them? Well, of course, you decide whom to listen to. My standard advice on advice is, keep consulting as many people as you can. This way you will be likely to obtain conflicting suggestions, and then you will have to decide for yourself. The decision may be right or not, your taking your fate in your hand will enhance your autonomy.

Bertrand Russell opens his 1929 *Marriage and Morals* with the question, what is better, to be autonomous and make mistakes or to listen to the right authority and thus be always right? He went for autonomy. We need not judge, since, if the right authority exists we do not know what it is. So we better make our own mistakes rather than those of our priest or fearless leader. The autonomous will err too, but their decisions are varied and open to correction: hopefully, reform is better than stagnation. Dictators often promise democracy; they deliver only at gunpoint.

It is easy to see why people often fail to use their autonomy. Erich Fromm called it the fear of freedom. There is more to it: autonomous people have to meet shaming and appeal to a sense of guilt. My best advice to you is, free yourself totally of a sense of shame and of guilt. Totally. Otherwise you simply invite bigger doses of shaming and more insistent appeals to your sense of guilt. They say this is impossible. Do prove them in error.
4. Specialization and Proliferation

The advocacy of proliferation is fraught with confusions. Consider dual confusion—of proliferation with relativism and relativism with toleration. Its expression is in idiom “my truth”, “his truth”. The truth belongs to nobody. Of many competing opinions, at most one is true; the rest are erroneous. Toleration is not of other people’s truth but of their opinions, of their of their errors; their opinions may be equally legitimate as ours—even if they are not as good as ours. Now the attempt to merge this anti-relativist advocacy of pluralism leads to the opposite version of it: specialization. Let the people who are best familiar with a given field of study / action take control over it and let others defer to their expertise and refrain from meddling in it. Now to be tolerant we may be willing to allow—quite reluctantly, but nevertheless allow—this meddling with no expertise, but we, namely, the ones with the better understanding of the situation, namely you and I, on the understanding that such meddling has no value.

This understanding implies another: you and I are experts, possibly in different fields. In what field? The field in which you and I happen to be experts. This is toleration at the cost of isolation. The toleration of error allows cross-field respectful communication—if and when we share interest despite our differing fields of expertise. This is a totally different view of expertise, one that I have found in publications of arch-philosopher Bertrand Russell: specialization is a necessary limitation. The question that this view raises is then, how are we to mitigate its worst aspects?

This question suggests notice this. No one can be expert in all fields; universal expertise is impossible: one cannot master all the arts and sciences, not even the whole story of one art-form. Hence, to be an expert, one has to specialize in a narrow field. One can know more and more on less and less and less and less on more and more; or one can know more and more on less and less while knowing on the rest just what average educated people do. The second option here is obviously superior to the first, especially as long as the fund of knowledge that average educated people are familiar with is on the ascent. This is under dispute. The dispute becomes more reasonable when we specify the more and the less in different manners. Obviously, two ideologies compete here, one of them being a part of the traditional ideal of the educated individual and the other being a part of the tough-and-no-nonsense ideology of post-World War II culture. If you want some study of the process by which the second got the upper hand over the first, you may read Aldous Huxley’s 1939 novel, After Many a Summer the Swan Dies, that contrasts a cultured researcher and his crass assistant who are characteristic of the period of transition.

Huxley objected to insensitivity or crassness, we need not share his objection—no more than to color blindness. Objection is anyway a waste of effort. Yet the defense of it is as regrettable as the defense of blindness that is worse than waste of effort: it is the advocacy of self-mutilation. This advocacy may be in fashion, the fashion being the support of unreason, the support of the advice to avoid using one’s brains. That is irrationalism (to use the nosological name for this disease). There are arguments against rationalism, and they deserve

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10 Thus, also, even while appreciating local art, we may admit that few parts of the world has produced art equal to that of the West. Some non-Western art is exquisite: there is no glass like Chinese glass, and Chinese and Japanese painting are also exceptional, yet Renaissance paintings are superior to them.
study for various reasons, all of them rationalist, not as serious support for the advice for
relinquishing reason: to relinquish reason, just as you need no arguments to avoid using your right arm; and at times it is indeed advisable to avoid using your right arm; but it is downright silly to avoid using your right arm on principle. This should suffice to make irrationalism impractical—on principle. Finally, the tough-and-no-nonsense attitude is in principle worthless—as a form of irrationalism.

Putting it like that is cutting corners: even the irrationalist version of this idea has some merit; the deliberation on metaphysical ideas may be just an excuse for inaction, just an excuse for the inability to take a stand, and so on. I admit that. More generally, the lack of autonomy often appears in disguise as scientific doubt. This is easy to spot: when you face a practical question and offer a proposal for action people may ask you, as they often do, how do you think action A will bring about result R? What mechanism is at work here? For, quite possibly you are in error: far from relieving us of our trouble, action A may boost it. Now at time action A is costly and time consuming and it behooves those who are ready to try it out to take some time, to sleep on it, and then take the necessary measure to implement action A. At times, however, the best way to test the claim that action A leads to result R is to implement it right away on a small scale. The best practical pieces of advice are indeed such: they should either have immediate positive results or else prove inadequate with little, reversible damage. This is the demand for high refutability. Refutations that come late, after series of confirmations, may indeed be too costly.

The paradigm case here is the aircraft known as Comet 4. It was a plane tested by military authorities and by civil companies and found very satisfactory. It lost its tail in flight—with fatal results—due to metal fatigue, a phenomenon not known till then.

All this is irrelevant. Those who hesitate deciding about anything to do with flying are seldom informed about aviation and the physics that goes into it, and they seldom ask technical questions about it. Only when offered practical solutions to problems that are social in character, hesitant people mask their hesitation as technical questions. Arguing with them will often prove waste of time. Advice to avoid waste of time is usually a waste of time. Now the waste of time is a part of the idle way of life. Yet it may frustrate. Awareness of this helps reduce frustration. The attitude of the tough-and-no-nonsense that reduces frustration by advocating useful actions does the job often enough, yet it may also cause tremendous frustration. People who are active all their lives may die happy in the feeling that they have spent their lives productively, but things may go wrong and make the dying feel having wasted their lives. This cannot be avoided for sure: one may waste one’s life with or without the help of the tough-and-no-nonsense attitude.

My presentation is off the point. I am discussing the possibility of life spent satisfactorily and happily or wasted in deep regret—with the aid of this or that philosophy. Meditation on this may be very frustrating. Finding this to be the case leads to the philosophy of Ludwig Wittgenstein. He said, what a philosopher ought to do is to destroy the very interest in such discussions. Now liberal philosophy says, everyone has the right to decide what lifestyle to

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13 Aldous Huxley, *Point Counter Point*, 1928.
choose, and this raises the problem, what lifestyle should I choose? Some people can ignore this question; others cannot. Wittgenstein said, this question is upsetting and so it is better to destroy interest in it. In my adolescence, I considered seriously the question, should I be a law-abiding citizen or not. I then envied Yehudi Menuhin, not because he was a musician and not because he had such tremendous success, but because since the age of three he knew what his lifestyle would be: he was a violinist. Little did I know: he broke down when he was at his peak. He emerged out of his personal crisis by retraining professionally, still as a performer: he moved to yoga, Indian music and to Jazz and to becoming involved with children’s literature, to partaking in world politics and to running a music school and to teaching music. This story portrays an extreme case. The opposite extreme is Edison, who was an inventor from the very start and he was very happy with this choice. He was extremely versatile. Other inventors were known to operate within a very narrow compass and very happy with their choices. This shows that there are many ways to evade the problem. Why some are hit so hard with it and others do not notice it I do not have any idea.

So back to you. If you have a specialty and you are at peace with it, do stay with it till you are reasonably established. And then perhaps you better takes stock; that will be up to you. But first get established, and do not mind if you are branded a specialist in the wrong specialty.

I do not know why people mind this. Consider Thomas S. Kuhn, perhaps the most famous philosopher of science of his day (his The Structure of Scientific Revolutions 1962 appeared in many languages; more than a million copies of it were sold). His success was often declared due to its work being a combination of history of science and of philosophy of science. He denied it: “I am never a philosopher and a historian at the same time.” He was a protégé of Harvard President James Bryant Conant. He never knew whether he wanted to be a philosopher of science or a historian of science, as his main idea was this: what makes a fields scientific is the unanimity of the academics who inhabit the department devoted to that field. It never occurred to him to ask, how did this look in a world devoid of universities and he even declared that science without professional periodicals is impossible—as if Archimedes wrote scientific papers. He had hoped to launch a new science. To that end he declared that he agreed with every individuals whose opinions he cited—even if he cited them in criticism. To his regret he failed to unify either the philosophy of science or the history of science. So he died with no decision on his allegiance. The question remained, what generates unanimity? His answer was, a shared paradigm of an admissible theory within the field. This raised the question, what is a paradigm? Early in his career he admitted that this is very much what Michael Polanyi had called personal knowledge, namely, that personal knowledge is not given to articulation. What the master can transmit to disciple is knowledge, or else it could not be transmitted, Polanyi observed, yet this does not mean that the master can articulate it; famously, masters are unable to say what they transmit to their disciples. The concept of the paradigm is a bit more specific: a master offers a chief (παρά, para) example (δείγμα, digma) for disciples to emulate. Kuhn said, the structure of scientific revolutions is this: when a paradigm becomes too problematic, the masters of its field invent a new paradigm and declare a paradigm-shift. To this he added: those academics who refuse to follow a paradigm-shift lose their jobs. This represents more his teacher, Harvard president James Bryant Conant, than Polanyi. The tenure system prevents this from

14 Ludwig Wittgenstein, Philosophical Investigations, 1953, §118
happening to most academics. Kuhn ignored the historical information on the scientific revolution as a movement of amateur researchers organized in voluntary societies. This shows that his output is more propaganda than history. In particular, it takes professionalization and the specialization that it accompanies as given, so that it ignores its rationale. Now, clearly, specialization is a result of the process of division of labor that is ancient, but that proliferated beyond recognition with the industrial revolution. It is time to do something about it. This is not for you now. What you can do in that direction is try our hand in popular science.

5. Science and Technology

The application of science is as old as science. Many historians of science see the origins of science in technology. They are biased: they advocate a corollary to their view of science as inductively evolved out of information: they take it for granted that ancient technology is prescientific and so devoid of theoretical basis. Anthropologists deny that. Some historians of science view science as having evolved out of metaphysics. Their bias is different: they consider science a deductive system. They have the support of Aristotle’s *Metaphysics*, although we are ignorant of his view about the question, how historically did science come into being. Bacon unjustly decried Aristotle’s philosophy as deductive and declared the need to be rid of it and to replace it with a theory based inductively on a “just history of nature”. The first step in this direction, he suggested, is to draw from the vast extant literature all information before disposing of it. No one has ever tried this, but the idea did serve some historians of the physical sciences who mentioned, however meagerly, some empirical knowledge embedded in technology. The most obvious examples should be from the most ancient technologies of hunters and gatherers or from the agricultural revolution, or perhaps from the ancient kitchen, such as the benefit of roasting or of cooking. Somehow, most historians of the physical sciences prefer cases that are not obvious and that statics reinforces, like the columns in Egyptian temples that are thickest in the right place: not in the middle but one-third up. This indicates that ancient designers knew some statics even though they learned it by trial-and-error, as they allegedly lacked any theory that could incorporate it. This supports Bacon’s view that information precedes scientific theory. As it stands, this idea sounds quite commonsense. Bacon was not the first to articulate it; nor was Aristotle. Taking this idea seriously, within methodology or within psychology, most current students of perception deny the possibility of (Baconian) pure perception. The discovery that all observations are theory-laden belongs to Galileo and Bacon. It is theory, Galileo observed, that prevents seeing the moon jump from one rooftop to another like a cat while strolling in the street on a moonlit night. Hence, said Galileo, we must be cautious when we argue from facts: we need to use the right theory; for this we must learn to think critically. Bacon did not agree. He said, critical thinking does not help, as the experience of scholasticism shows: the scholastics were critically minded and still in error—due to their prejudices. Hence, said Bacon, we must first give up all preconceived opinions. We will then see facts as they are, he promised. He even promised—but he never made good on his promise—that he would describe a technique to overcome optical illusions.

Bacon insisted that the avoidance of all theory is possible: all you need is the good will that

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requires giving up all beliefs voluntarily and stay vigilant. This rendered inductivism irrefutable: all scientific error proved their initiators prejudices and thus not qualified for scientific research. After Newton’s mechanics was superseded, things changed. Bertrand Russell said then, the view that one is free of all prejudice is humbug, you may remember. Yet many famous philosophers clung to the view that not all observation-reports are theory-laden. Thus, famous twentieth-century empiricist philosopher Rudolf Carnap split all statements of the language of science, be they true or false, to three parts, logical, observational and theoretical; he called the language of pure observation $L_o$ and took it for granted that it is not empty. His most famous student, Carl G. Hempel, argued that possibly all theories are mere restatements of observation-reports, so that the language of theories $L_T$ is empty. If not, then the mix of the two languages, the set of theory-laden observation-reports, is problematic. Hempel was convinced that the problem is soluble since he advocated Wittgenstein’s theory that science has its own language. Hempel showed that this theory—of the language of science—is problematic too, but he never gave it up. Discussions involving this absurd theory abound. They are less than worthless. They claim to pertain not to psychology and not methodology, but only to epistemology: participants in it want to show (in vein) that given this odd division of language, some observations will justify the choice of theories (to believe in? to apply?).

This view was an essential part of Bacon’s vision of the new science. He was a utopist, and he declared science the vehicle of the great future, as it will cure the world of famine, poverty and disease, perhaps even of death, and thus also of the motivation for war. He suggested that people who wish to contribute to the rosy future of humanity should not waste their free time on politics but invest it in empirical research. The Royal Society of London that carried out this vision of Bacon (he was its patron saint) showed interest in technology. This was a novelty: earlier, scholars were aristocrats of one sort or another, and as such they were haughtily indifferent to technology. Among the early Fellows of the Society were individuals interested in forestry, in shipbuilding and more. In retrospect, the most remarkable thing they did was to encourage the use of a steam engine of technician Thomas Newcomen. Its use was pumping water out of coalmines. A century later, replica of it held in the University of Glasgow drew the attention of James Watt, an instrument-maker turned researcher, hired to attend to the instruments that its observatory had inherited. It seems to me this was a way to support an independent researcher who was not sufficiently well off to fend for himself. In any case, he felt obliged to justify his job. He improved the Newcomen engine and with the support of the researchers around he and an engineer with some scientific pretense tried to market the new Watt engine. They went bankrupt. With the protection of a special patent, the venture had better success; it made him rich. The invention of the metal railway in the end of the eighteenth century and the construction of the train system soon after had the industrial revolution launched. In 1830 there was a revolution in the Royal Society of London with professional technologists who were also scientific researchers began excluding the amateurs from the Society and having it an organization of professionals run by professionals for professionals. The current URL of the Royal Society denies that it ever was an amateur society, claiming that it allowed rich amateurs to join it as a means for milking them to support poor scientific researchers. Memory is short, especially when the deletion of a memory aims to cover up embarrassment.

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16 Archimedes, the greatest applied physicist of all time, they say, was most reluctant to apply his ideas: he did that only as the last resort, as means to save his hometown Syracuse from defeat.
Academic Agonies and How to Avoid Them

Obviously, those who wrote the Google item on the Society found the idea of amateur science embarrassing.

It is amazing how quick the change was. The transition was total only after the end of World War II, with the total victory of professional science with its proof of ability to kill millions (the Manhattan Project). The change was remarkably fast. The reform of the universities after the French Revolution with the secularization of the system of higher education there and the 1830 reform of the Prussian universities and the foundation of the University of London soon followed by the foundation of technical universities, soon to turn much of the scientific academic education into technological training. Repeatedly commentators observed that in the long run even the most practical technology depends on pure research. To no avail.

The advancement of technology is taken very seriously as the peak of progress. The paradigm case is the NASA project of sending astronauts to the moon and back. Some critics observed that the cost of that project could make a difference were it used to feed starving children or a similar project. This, incidentally, is false: the call was to abort the project, and it would have cost more to do that than to go on with it. Even were the protest made early enough it would have been doubtful. The project was taken as a military venture, and so cancelling it would have benefitted not starving children but fatted generals. Were it possible to guarantee that large-scale funds will go to save starving children, then after the moon landing this should have happened. It did not. We do not quite know why. For all we know, a world that sends astronauts to the moon is better fed than one without it. Nevertheless, though in error, opponents to the moon landing had their priorities right: technology is a tool, mainly to improve the quality of human lives, and so feeding starving children should have top priority.

This is to endorse the idea of the welfare state: its main object is the improvement of the quality of human lives. Canada and Sweden, according to the UN records, are top top welfare states today. Brian Mulroney, the Canadian premier for 1984-93, said once, the market loses every year a given number of engineers and the education system has to train and send to the market at least the same number of engineers every year; for that it needs to receive as students at least as many freshmen every year—which it does not. His purpose in saying this was to increase the budget for education. Academics responded with unqualified approval. Sad. He could have said, we are a rich country and we can afford improving the quality of life of our citizens, which is a part of our official duty, and one major means for this is the improvement of our education system—in the art and in the sciences alike. Canadian academic would have agreed with that, but they deemed it too daring. When a similar debate took place in the Congress of the United States of America, critics raged at useless investments in research. An example mentioned in that discussion was the investment of a pretty penny in the study of migration of some birds. By luck, the supporters of that project could show the benefit of the economic consequences of that project, and they mentioned it triumphantly as if all successful scientific research projects were also

Raising funds for a wise cause is not easy. Former US president Bill Clinton is in charge of funds for fighting AIDS. He noted that USA should invest in health in Africa to reduce the rate of AIDS in the USA. He failed to convince people to do that, he reported, and so this did not take place. See Bill Clinton's HIV/AIDS Record of Shame, https://actupny.org/reports/bcn/BCNclinton.html.
technologically successful. This is preposterous, yet an addition to the current American officialese, the term r & d [research and development], serves to keep confusing the issue: during the Cold War, the military used physicists and chemists, as well as mathematicians. They were called to help increase the already too huge American arsenal of weapons of mass destruction that should now be urgently on its way to dismantling as soon as possible.

The rich part of the world is the technologically active one and the liberal one. Look at those poor countries that provide the rich ones with oil and with other natural resources. They squander their money on luxuries for the rich instead of feeding and educating the poor. This shows the error in Bacon’s idea that science will make the world rich: this holds today only for the civilized part of the world. Ernest Gellner has said, with no civil society, neither science nor technology could flourish as they do.\(^\text{18}\) Despite the tremendous success of liberalism—the rich countries are liberal and the liberal countries are rich—most scholars speak of liberalism as bankrupt.\(^\text{19}\) This requires caution. The term “liberalism” is not used in the same sense everywhere. Moreover, much of the criticism of liberalism is just, and the criticism of its utopian version is even deadly. We should take it to be the direction for desirable improvements and among these the uncontroversial ones should gain top priority. This should suffice for putting much social science in the service of social technology.

6. Natural and Social Science

Gellner’s claim—only in civil society can science or technology flourish—takes us to social philosophy and to social science. That the academic members of the faculty of arts and the faculty of social science fight for the prevention of closing them down should turn red light on. The damage that the obscurantist tough-and-no-nonsense faculties can do is the worst: not immediate and not reversible. While the natural sciences and technologies may still flourish, social conditions may become increasingly intolerant—first while allowing natural science and natural technology their traditional freedom while implementing a limitation on civil liberties, and that limitation will affect all. Under such conditions, the citizenry may allow the rulers to limit democracy since their material conditions may improve due to permissible technological advances. People engaged in research into natural science and technology and even in production of the products of the more advanced knowledge, they will suffer less from the curbing of the freedoms of other citizens. When they will find that the conduct of their own affairs is becoming impossible, they may change their minds and fight for the reinstatement of democracy. By then it may be too late.

Things may start with the ill effects of the implementation of new technologies. This is conspicuous in every case in which the replacement of human labor with some robotic process leads to unemployment and thus to suffering. This is gratuitous: robots should relieve burden, not add misery. Now unemployment is a modern concept, born to the industrial revolution that totally altered employment traditions. It is these that have brought about unemployment. Marx deemed unemployment inevitable: the free market forces workers to accept employment for minimum wages thereby limiting their purchase power.


He knew of course of unionization and of collective bargaining; he proved that the struggle for the improvement of workers’ conditions would fail: the rise of workers’ wages will cause inflation that will keep real wages minimal. It is like getting bigger spoons instead of more soup, he said.\(^{20}\) This Marx deemed the cause of a new economic situation, of poverty within richness: economic crises make people hungry while warehouses overflow. This makes the abolition of the free market and the inauguration of socialism imperative. Marx never thought of legislation for the improvement of workers’ lots, since his philosophy said, intervention of politics in the economy is impossible.

Even Bernard Shaw ridiculed Marx, although he oddly declared himself a Marxist: while Marx was sitting in the British Museum reading books, laws regulating child labor were implemented. This goes well with Gellner’s observation: only in civil society can science or technology flourish.

What will refute Gellner’s observation? Obviously, the development of modern technology in a country with no civil society. The Soviet Union, for example. This did not make Gellner withdraw his observation. It is easy to see why: Soviet technology depended on Western technology. Moreover, it imposed on its public. Gellner meant to correct our perception: picturing inventors, we look at their scientific environments; he has invited us to pay attention to their social environments. Following his invitation, we learn to see his observation; it then soon looks trivial. His invitation was inspired and it made a difference in our view of technological society. Do not let the tough-and-no-nonsense destroy this improvement.

7. Science and the Arts

Apart from the sciences, the natural and the social, we have the humanities. The boundary between the natural sciences, the social sciences, and the arts is not clear; they overlap. Engineering seems to be mostly within the natural sciences: the parts of it that include mainly applied mathematics and applied natural science take practically the whole teaching efforts that go into the making of accomplished engineers. The most significant part of engineering nevertheless concerns social goals and circumstances. This is why engineers have to consult all sorts of non-engineers regarding their projects, from legal matters to insurance. These are technical too; there is still much non-technical to engineering. All this is clearer than the boundary between the sciences and the arts: how much of the study of language is science and how much is it art? Linguistics is a science and philology is an art; but the distinction between them is unclear. The only sharp distinction is between the universal and the particular: only the universal is scientific. Except that this distinction itself is not clear.\(^{21}\)

We need not go into that. Suffice it that some fields are decidedly arts and thus not science: the study of cultures, the history of art and of politics and their likes.

As science is triumphant, the arts are defensive. This makes science useless: few people can enjoy the fruits of technology with no knowledge of how to enjoy life. We should know


\(^{21}\) Karl Popper, The Logic of Scientific Discovery, §14: “it depends upon whether we wish to speak of a race of animals living on our planet (an individual concept), or of a kind of physical bodies with properties which can be described in universal terms a biologist will not decide whether biology is limited to this earth or not.”
what kind of leisure we enjoy, what kind of art we enjoy, and so on. The revolutionary aspect
of the Keynesian revolution in economics is the idea that encouraging spending is the best
way to solve some major difficulties that the economy may meet, problems that require
solutions form the arts. All opposition to Keynesian economics notwithstanding, his
proposal works and the objection of the Chicago school of economics to it concerns only
the way the government spends its money, nothing else. (It was economist Don Patinkin,
former student of Chicago superstar Milton Friedman, who said, Friedman was a clandestine
Keynesian.)

As science is triumphant, the arts are defensive. This is so because members of the Arts
faculty feel that they are fighting for their livelihood, and that for that they compete with the
sciences; they take it for granted that they will lose, but they cannot afford to lose all the way
without losing their means of livelihood. This is a regrettable error: the idea that the academy
can do without attention to culture deprives it of its traditional status as a cultural institution,
as an institution that should preserve culture and help advance it. It deprives science of its
status as a major component of Western culture. Already Galileo found this view—
instrumentalism—intolerable. (He said this with concern for science, which was at the time
on the defence, regardless of the academy, for which he had little sympathy.) In his great
1632 Dialogue, he declared that instrumentalism belittles science and impeding its research.

Science is triumphant and the arts are defensive merely because the ignorant, and more so
the obscurantists, advocate the view that science is devoid of intellectual value. (This way the
advocates of science-sans-arts hope to reconcile their ignorance of the arts with their claim to
be of cultural standing. Indeed, members of the science faculty who are not artistically
ignorant speak differently.) This denial of cultural value to science glorifies it as practical; as
the source of weapons for mass destruction and as a source of instruments that increase
comfort. Also, some obscurantists look askance at the comfort of modern life. Of course,
their view is appalling even after one concedes to them all that the faculty of arts is able to
concede: the major task of technology is not to increase comfort but to combat hunger and
disease and infant mortality!

C. P. Snow’s celebrated and highly influential 1959 The Two Cultures (namely, the arts and the
sciences) suggested that we encourage the development of subjects that bridge the two
cultures. (He intentionally ignored the social sciences and lumped technology within science.
This deprived his contribution of durable value.) At best, his proposal is for sugar coating of
a bitter pill (the sugarcoating that he recommended is photography and the history of
science.)

The two cultures are fictional. As Michael Polanyi has noted, the split of culture into two is
an early nineteenth-century artefact. It reflects the average educated people’s loss of interest
in the natural sciences due to the rise of professional scientific technology and the institution
of compulsory education. Paradoxically, compulsory education split the population to the
mathematical illiterate and the artistically illiterate. Compulsory education was a bliss, but it
came with needlessly high cost; we can improve upon the early implementers of the idea of

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Economy, 1972, 80: 883-905.
23 Michael Polanyi, Knowing and Being, 1969, Ch. 3.
compulsory education. The compulsory-education law should force the young to go to school, not to study; to stay in school, not in the classroom. This will lead to the abolition of some classes—not all. And the abolished classes are indeed ones too boring to merit survival, unless we can revive them by restoring their passion. This will be a challenge for some enterprising young teachers. Such simple and easy-to-implement reform will reduce the gulf between art and science.

This looks unproblematic. Do not worry: its implementation will raise problems. There will be advocates of closing departments that have merit, for example; already now we hear repeatedly the proposal to close the faculty of arts. It is admittedly just too stupid to suggest that people not proficient in the acquisition of languages should use this deficiency of theirs as a major reason for advocating the closing of departments of foreign languages and cultures. Academics with no shade of familiarity with the arts already propose to reduce the faculty of arts as much as possible. It is possible to close the faculty of arts, of course, and even at once. This will destroy Academe as we know it. They may then regret this, but it will then be barely reversible.

As science is triumphant, the arts are defensive. This threatens the future of the life of the spirit. The threat is real. The rest is marginal. It was in 1959 that leading German philosopher Karl Jaspers demanded that the university should limit its concern to science and science alone. In 1964 Harvard president James Bryant Conant cited him and added, “If there are no general principles, then the subject is not scientific; if it is not scientific, it does not belong in a university.” Dismissing “campus warfare”, he added that he took science in a broad sense of the word, while rejecting the demand for certainty and while using common sense. This is supposedly broadminded even though it excludes as unscientific, say, Marxism. Such attitudes led to the warning that Bertrand Russell issued at the time: the academic taboo on Marxist literature, he said, will turn the tide and make Marxism popular in the USA. This happened, but without correcting the damage that Conant had caused. It is time to try to think about that. The first step is to view science as a high point of western culture akin to high points of the western arts (Popper).

8. The Public, the Educated Lay People, and the Intellectual Elite

Usually, fringe-academics are—understandably but erroneously—too servile towards Academe, due to their uncritical acceptance of the diverse fashions in it. I have warned you against following them uncritically. This concerns you as a young person on the way to academic career. It behooves you to take a detached view of them and see their enormously valuable contribution to society.

The societies of western countries are democratic; their citizens take this for granted, although democracy needs a watchful eye to push the alarm bell when it is at risk. It often is, since it is inherently unstable, as it is given to easy transition from democracy to populism and from populism to dictatorship. A populist demagogue can win elections and then erect a dictatorship. The threat of dictatorship is less serious than populism, since it is attractive only in times of stress and then there is a strong disposition to unite and defend the right of common people to voice their opinions. Populism is dangerous because populism is the idea that average people can and should run their country yet they cannot; even elected experts
seldom can. This is why the threat of populism lessens with the rise of the level of education of the population: the better educated the public is, the nearer democracy and populism are. What saves a democracy from populism is the respect that common people have for the better-educated members of their own society.

Politically, it is the fringe academics who sustain the respect for intellectuals that traditionally enabled them to keep populism at bay. They lost this ability when during the Vietnam War they semi-officially replaced truthfulness and credibility with populist techniques as means for furthering the cause of peace. We now pay the price for this by experiencing a wave of populism sweeping the western world.

This is where fringe-academics enter the picture. They have better access to the public arena than their peers, the better-educated inhabitants of the ivory tower.

“Democracy” means, the rule of the people (the demos). Abraham Lincoln concluded his Gettysburg address in a refusal to declare victory, so “that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom—and that government of the people, by the people, shall not perish from the earth”. Not so, said Bernard Shaw: the people cannot govern: officials do. Popper did better. He said, although democracy cannot decide who governs or how it can and does decide who should not govern: in democracy the people can overthrow the government with no violence. Now since antiquity it was known that great ease in overthrowing governments is detrimental, since rulers must be given the chance to try out their plans before these are to be viewed as defunct: it should be possible but not too easy to overthrow a government.

Moreover, there are conditions for democracy. Among these, some level of education is essential, perhaps also of literacy. Elections in illiterate populations were tried in the twentieth century—with little success. The more literate the people, the more aware they are of the intricacy of their own democracy, and this knowledge is the best tool against the danger of populism, the best reduction of the gap between democracy and populism. This is where the fringe-academics should enter the picture; they often do. More generally, this is where the educated people enter the political picture: the better educated than the average may influence the less educated and thereby check populism. Hopefully: populism is a constant threat and at times the better educated cannot convince the less educated that their familiarity with politics is badly wanting, especially when populist leaders have their public’s ear when they denounce intellectuals as fake and intellectual warnings as fake news.

The reason is, there is the anti-populism mechanism works on intellectual blockage and there is no rule as to how much it needs to succeed: it is tradition, the tradition of respect for learning and thereby for the learned. This tradition is at least as dangerous a populism: the learned tend to support Plato’s idea of the philosopher king. It is hard to assess the risk of the success of philosopher kings. Will they contribute to the welfare of the people as Plato had hoped? We do not know: few dictators were nearly as learned as Plato wanted them to be and none was as benevolent. Usually, efforts to appoint a philosopher for a dictatorial position led to crass tyranny. Still, we should note that politically speaking the intellectual elite is not an organized group and membership in it is by self-selection. The assumption is therefore reasonable that politically oriented intellectuals are usually much less politically knowledgeable than they claim.
This is somewhat surprising. Among intellectuals Platonism is not popular; even liberalism fares there better. Even simple liberal ideas—such as that hatred has little to do with politics—being counter-intuitive, are fruit of intellectual disquisition. Traditional responses to liberalism dismissed it as agreeable but too unrealistic to work. Yet the success of liberalism is stupendous. Nevertheless, most political writers—academics or not—these days oppose liberalism to this or that extent. It makes no sense to me, but I have to point this out to you. I do not recommend that you learn anti-liberal slogans to further your career, but I owe it to you to tell you that your being a liberal—as I hope you are—is a positive obstacle to your acquiring an academic career. Of course, I fervently hope that you will succeed despite your liberalism, if you are lucky, your liberalism may even be rewarded.

I am discussing liberal intellectuals and their role in keeping democracy away from populism. When intellectuals are illiberal, they do the opposite, as we can learn from the sad recent history of democracy and populism in the United States of America.

You may find this section bewilderling. You may think that I have not thought the message of this section through, that I am in two minds or more. How perceptive of you. There is almost no literature on it and it is very subtle. This is why fringe-academics may be more influential—positively—on the stability of democracy. Many people are too constrained to consult proper academics even on academic affairs, not to mention broader intellectual matters. So they consult the people in their circles who are not academics but who have some knowledge of matters academics, the fringe-academics. And so, the very fluidity and lack of organization of the intellectual elite, the very ambivalence towards intellectuals of non-intellectuals, and so on, all this makes it hard to say what happens, when, much less what will happen and least of all, why. Yet some cases stand out. Not only was one headline written by a French novelist and intellectual—Émile Zola—made political history; the eighteenth-century Enlightenment Movement, the French Encyclopédistes, to be precise, contributed to the making of the modern world. To see how this works is to look at your uncle and to ask whom did he consider wiser and more educated than himself, and did that person attenuate your uncle’s political expressions. This should do, but you may want to go further and ask, what influences of what past intellectuals worked in that circle of ideas and what ill effects did some democratic intellectuals have on politics.

I said enough for you to get the gist of discussion. Since it is tangential and hardly helpful to you in your search of an academic career, I will stop here and zero in on more practical matters since this book is coming to its close.

9. The Individual and the Academic Community

The social sciences are impeded by the traditional philosophical dispute between individualists and collectivists, now outdated. Individualists deem a society—any society—a conglomerate of individuals, and hence all social science psychology at heart. Jean-Paul Sartre, once a celebrated philosopher, said, there are only two sciences, physics and psychology (because, as Descartes has taught, there are only two substances, body and soul). The alternative view, collectivism, is that individuals are members of society, so that at heart all social science is political science. The latter view, represented by the much praised and much maligned Georg Friedrich Wilhelm Hegel, seems to be the more sophisticated; yet,
when you notice that the representation of this view in common parlance is the idea that we belong to national types, so that typecasting is not only inevitable but also the right thing to do, then you realize how primitive collectivism is. Indeed, collectivism is the older and the still prevalent view; individualism is the invention of the Greek sophists that was revived in Europe during the Renaissance and the scientific revolution. In the eighteenth century, only economics and political theories were popular as they are easier to study from the individualist viewpoint. The achievement of the social sciences of the eighteenth century, economics and politics, are marvelous (even though grossly outdated). The contributions of the collectivists to the social sciences appeared in the nineteenth century, as a reaction to the French revolution. Some of them are intriguing; most are downright disgraceful.

The arguments in defense of both views are obvious and most powerful: individualists say, no individual, no society; collectivists say, no society, no individuals. (Collectivism looks more sophisticated than individualism since the collectivist argument is the slightly less obvious.) What these arguments prove is that both parties are in error: we must assume that both individual and society exists for social studies to proceed.

Benedict Spinoza complained that almost all social studies are utopian and so unrealistic. He saw only Machiavelli as an exception, as his message was, do not trust princes (Psalm 146:3). To be more realist, said Georg Simmel, we must see that individual and society are in constant and irreconcilable conflict. Obviously, this is true. Practically all teachers take it for granted. Worse: they take it for granted that for the good of their charges they must break them—the way you break a horse: you have to subdue their insistence on freedom. Think of your own teachers. Unless you were fortunate, you have undergone the normal process of education and so you remember favorably one or two among the many teachers you have encountered. You will notice that they were the exception, the individuals that did not see breaking you as their chief task.

This pertains to you and to your wish to integrate into Academe. Why integrate at all? To any framework? True, some individuals are not integrated; they are all sort of social outcasts, from hermits to the mentally ill. Since collectivism sees individuals as members of society, it deems them all the unintegrated mentally ill, or in the jargon of the early nineteenth century, collectivists see every individual as either integrated in some society in some way, or else alienated. Thus, Romantic thinkers declared mad all deviants, including the revolutionary and the genius; as societies change and endorse the ideas of some revolutionaries, they rehabilitate them retrospectively. Hence, truth is relative.

All this is highfalutin: things are much simpler. Remember this: you do not have to integrate. There are many ways to avoid integration. The simplest is to become a bum. The welfare state is great for many reasons, chief among them is that in it you can be a bum comfortably: you need not be homeless for that. The hardest way to become a bum is to lose your mind. It is too painful and so not recommended under any circumstances. The most comfortable way for avoiding integration is to join Academe. It does not look that way because conspicuous professors fight jealously for every option of public exposure while true

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24 Philippe Pinel, a physician who defended the rights of mental patients, invented the word “alienation”. For a time, the politically correct word for psychiatrists was “alienists”.

academics are not visible: they prefer to spend their time in libraries and in laboratories. All stable societies accommodate for deviants; in Europe as in many other parts of the world, it was the monasteries; in Western Europe, it was the universities that were a bit less esoteric than the monasteries. In any case, deviation is unavoidable; ignoring it creates all sorts of witch-hunts and they all destabilize as they all have a common base. Children accept all that adults tell them with no filter. They also accept what they see and the way they understand it: this is how we inherit all faulty habits from our parents. It is this childlike naïveté that some obscurantist thinkers envy and wish to revive. (The paradigms here are Blaise Pascal, Leo Tolstoy and Ludwig Wittgenstein.) Adolescents usually lose their naïveté and become what is these days called cynicism: there are no values. It is impossible to argue against cynicism. It expresses your being educated for a task that you reject, you need an alternative to it and you find none. Finding one may help one overcome cynicism with no help. So, if you want to be an academic, choose the right reason: do not stay in Academe out of fear of the outside world, do not choose this profession in order to win respect or make money or anything else other than that Academe offers you leisure to study. Otherwise, you can seek better alternatives elsewhere.

The conflict between individual and society is a matter of degree, with a sense of full integration as the one extreme and the life of a hermit as the other. The life of an academic is more comfortable; that of a financially independent scholar is the most comfortable. Hence, do not try to resolve all conflicts in your (academic) environment. Suffice it that you decide for yourself what ill of society—at large or in your immediate vicinity—you will fight to improve. Try to choose it judiciously if you can. And no, do not expect me to advise you on this. To think that I can help you here and there is already a great exaggeration; but I am sufficiently aware of my limitations and of my inability to offer you advice on personal choices, especially as long as we have not met each other.

Generally, it is graduation from the two extremes, the naïve overall acceptance of social norms and their cynical overall rejection, that the moral life of the adult individual begins. On this I cannot offer generalities. The one generality that rings in my ear is Talmudic: let not your youth put you to shame in your old age. Translation: do not join any academic clique and partake in no intrigue. Member of a clique may do something right, of course, and then they may merit you support. You can then join their activities as long as you approve of them; for that you need not join them. You should act openly and swear no allegiance: be loyal to yourself only. You can do it. You will meet with threats. Ignore them.

10. The Open Future

That is it. This volume will end with a final chapter, from which one may expect nothing but hot air. So here is my last chance to let you know what I think of your chances and how I think you may try to improve them in a reasonable manner.

This is then is my main advice to you. There is a conveyor-belt leading to the position that you covet. And on it are more people than can stay on it all the way: most of those who covet academic positions end up in disappointment; Academe invites most of them to blame themselves—it is always comfortable for the insider to feel that they deserve their privileges, that those who did not make it are only themselves to blame. What is most unfair in this
process is that some of those who are on the conveyor-belt that leads to academic careers have no chance to reach the end point: they have no chance to succeed for the sufficient reason that most of those who play the game play it dishonestly. Among those who have no chance to succeed, some enjoy the ride; and then it is fine. Most of them suffer agonies, chiefly humiliations and bewilderments. You need not be among them; this is a matter of personal decision. Decide in accord with your personal dispositions, but without losing your ability at self-criticism. Remember: plenty evidence shows that Academe is no utopia; not all insiders have merit and not all who deserve academic positions succeed in acquiring them. You cannot do much about it now. If you are successful, then remember that you should try to help improve the system. But not now.

When I say that some of my peers are semi-literate, it sounds as if I exaggerate. I cannot help it. I still recommend that you do not resent this fact. And do not jump to the silly conclusion that a semi-literate individual who has just become a new member of the department you wish to join has robbed you of the position that you have a claim for. If it is any comfort to you, let me draw your attention to the fact that there is no law of nature as to the number of members of any institution and that semi-literate academics often have useful merits that many a learned academic lacks.

A final piece of advice regarding the conveyor-belt: find out whether you enjoy your place on it; if yes, stay there for the ride, not for the hope of reaching its end-point. Otherwise, decide whether you are willing to pay the price of staying on it. Always pay the price of a decision of yours willingly and with no haggling. If you do not fit the conveyor-belt, try going for the academic job unconventionally. (I did.) There is always room for unconventional competitors, nowhere more than in Academe. There are myriad arguments against this advice. The ones I know merit no response.

A word about the price. Academics strive for tenure as a matter of course; in many systems the faculty members belong to academic unions, and these prevent the option of academic employment with no tenure except for probation periods. Liberalism suggests that a dual system is preferable; and then the non-tenured should be better paid than their equivalent tenured peers. This is not going to happen in the near future, though. And so you need a tenure-track position. As you will approach the moment of decision about your possible tenure, the price for your deviations will rise with increasing speed. Afterwards, tenure will be a great protection; by then your peers will expect you to become tame. Otherwise, they may try to punish you. Penalties for tenured academics are two: ignoring you and your work, and shaming you. Shaming is the greatest and most effective penalty in Academe. You are immune to it, I hope. Still, whatever is the price, pay it willingly. A friend of mine was designated heir-apparent on a school of thought. He was allowed to seek a temporary job elsewhere with the understanding that he will be called back at the right moment to fill the position he was expected to fulfill. He then had heretic thoughts. He was not foolish enough to be sure he was right, yet he thought others may find his thoughts interesting and so he published his ideas with no hesitation. He promptly lost his promised very high position. He never regretted it; not for moment. You may think this is a special case, and of course in a sense it is; but I have a few such friends and I learn from gossip that there are many more. The requirement for such a story is that there be schools of thought, of course. It is not
known that these exist.\(^\text{26}\) Even when their presence is obvious and well known, the disposition is to ignore them. The paradigm-case is the case of economic theory with the free-market school or the Chicago school against the Keynesian school. Yet for decades experts deprecated this by the standard technique of naming: the theory of the one school is micro-economics and the other is macro-economics. A joke about a department of economics in a new university in Texas is telling: its head said, we have established micro-economics in our department, and now is the time to move to start macro-economics. Yet it took courageous Don Patinkin to say, as long as the department in Chicago teaches micro and the department in Yale teaches macro, economics is no science: they both should teach both.

Back to you. Do not swear allegiance to any school, not even to the one you belong to: openness is the highest and wisest imperative. And do not wait for schools to recognize each other: recognize them all—unless you have a compelling reason not to (such as the Fascist blemishes on the theories of famous social anthropologist Mircea Eliade or the utter futility of the output of Nazi philosopher Martin Heidegger). Keep your research above petty conflicts and pay attention to serious intellectual ones: pick the question of your choice from among those under dispute and write down all the competing answers to it. Sift the intelligent ones from the silly ones and discuss the former. Clarifying a dispute this way is always a worthy intellectual activity.\(^\text{27}\) This may take courage: it is difficult for a novice to dismiss a silly a view that some big wigs support. Disregard this. The penalty for deviation here is amply compensated by the respect that it gets you— even when no one will do you the courtesy of telling you about it.

Like every large institution, Academe is entangled with its own red tape. This makes the bush telegraph popular although it is an unreliable source of information Students usually learn about the academic red tape from it. Even academics do. Bureaucrats often use it as an excuse for ignoring your rights. You should know that every large institution has officials whose task is to provide you with the information you need about your rights. You do need it, and you need it updated; request it. This is not to say that you should trust what official tell you: rules have often enough exceptions; if need be, you can create one. In addition, note this: the university is an autonomous institution: it can change at a drop of a hat any rule it has that is not prescribed by the law of the land; and it does not need to justify its conduct to anyone. If an academic rule seriously impedes you, think of the option of asking the university to waive it. The university does this. It has to. And at times to everybody’s benefit.

Look at the history of Academe. It began as the class of priests with no community, of people who were pensioners for life. It had two faculties: medicine and canon law. It developed slowly, with the faculties of engineering and of mass media being the last to appear. It offered lectures and degrees. For the degrees it required only a few exams. The American system finally won, with exams and grades for every single course a student takes and for the combinations of courses, with or without a written essay, dissertation, whatnot. This is a burden on both student and professor, except that powerful professors get


assistants to grade their students’ papers. In addition to teaching, the tasks of professors are administrative and research. The teaching burden is extremely light if you want your lectures to help your students rather than impress them, since you can always benefit from feedback and if you cannot help them you can go home and do some minimal homework and if this does not suffice tell them how things stand. The administrative tasks are largely voluntary and you can dodge most of them. In the whole of my career, I bumped into only one case of a professor’s utter refusal to undertake any administrative task that caused him to undergo early retirement. (He gladly did that.) As to research, only one piece of advice becomes it: undertake only research that interests you. This may change, and so do fashions. And fashions are made by the stubborn and by those who can do only one sort of thing.

The future of Academe largely depends on the future of society. Humanity may face total destruction. In that case, our current plans make no difference. So it is advisable to ignore this possibility except that we should try to help to prevent it. The future of Academe largely depends on the future of the attitudes of our society to the life of the intellect. This is a part of current modern democracy. It behooves us as intellectuals and as teachers to raise the interest of the public in democracy and in the life of the intellect. For reasons that I will not specify here, widespread populist anti-intellectualism comes repeatedly with proposals to limit certain intellectual activities. It can come in Parents-Teachers Association meetings from individuals who complain against the inclusion of poetry in the school’s curriculum and it can appear as a revivalist religious movement. In any case it impinges not only on your job but also, and more importantly, as your task as a member of your society. It does not take the great Abraham Maslow to tell us that there is a hierarchy of needs and that we do have intellectual needs that are hard to overlook. Science fiction writers dwell on it. Except that education often makes us suppress awareness of these needs. It is the task of those who know better—you and I—to try to alter this situation before it does too much damage. And you need not be a pessimist: tough as the situation is, the deep-seated need for food for the intellect is strong enough to make its way back.

That should do for now.

28 For example, Ray Bradbury, Fahrenheit 451, 1953.
EPILOGUE

The Aims and Structure of Academe

We are done. I hope you do not think your having spent time with me is a total loss. I do care for you, but we cannot discuss your personal problems, such as health and the hazard of sitting for hours in the library or in front of a screen. I will regretfully ignore your physical health. More pertinent is your mental health, the hazard of interaction with wise people not aware of the misanthropy that our intellectual traditions are imbued with. On this, I gave you sufficient hints; I hope you can take it from here. If I had to grade you, I would grant you the highest grade for your tenacity in staying with me for so long or—if you just skipped most of the book and landed here prematurely—for your sagacity and ability to try to develop a feel for a book before granting it the readiness to go along with it for many hours. The memory still amazes me of the time I invested in worthless textbooks that my teachers had recommended. Admittedly, of these, the science ones were up-to-date; yet they were dull; those in contemporary philosophy were disastrous. I hope I have warned you sufficiently against this hazard: choose carefully what you read and read only what you enjoy reading!

What you may expect of me here is to express some nice, optimist words about the future of our society in general, about the future of the life of the intellect in it, about the positive, significant role of Academe in its development, and about your future academic career. I will not do that. Admittedly, Academe is the best part of our society, yet it is no utopia; in particular, its hiring policies stink. It will not improve it fast enough for you. I hope you take this parting shot cheerfully, ready to face the unfair world with the realism that bears your readiness to face unfair challenges with a smile. Win or lose, the game is worth playing. Anyway, remember, judged by any reasonable internal standard you care to choose, the life of honest failure is more satisfying than that of dishonest success.

Saying this I find unpleasant: it is homiletic. It is easy for the successful to deliver homilies, especially for ones whose likelihood of success is as small as that of bright young people on their way to academic careers. Still, I say, also to those who may have much more to lose than budding academics: peace with oneself signifies much more than worldly success. We all need more luck than wit, my mother told me repeatedly. My having survived my military service with no disaster is obviously due to sheer luck. (Most of the childhood friends died in battle.) My academic success is chiefly due to financial support without which I could not afford studies, and to my having grasped every opportunity that I was lucky to encounter. My experience shows that with luck one can achieve what I have achieved, with no need to exhibit exceptional virtuosity and no need to work very hard, but with some tenacity. It is more the position of the academic in our society than my own achievements that ensured me my current economic comfort. I say this with no humility and no pride, although I am proud of my achievements and of my ability to help others acquire what I have—all except for my luck. I had it and I wish that you have it too. Yet I know: it is impossible that all my readers will be lucky, except when Academe will expand. That is economically possible; it would be great for the economy, but received misanthropic work ethic will still not allow for it. The reduction of academic injustices depends on reforms that depend only on Academe, but I am not sanguine about it either. I should know: my late wife was more qualified an
academic than I was—as a teacher, as a researcher, and as good company—yet her career suffered sabotage from its very beginning in all possible ways and we could do nothing about it. Still, we can reduce injustices right now: we have all the tools necessary for it except for the knowledge of how to effect a reform with ease and efficiency. I have little expectation to see it. I can only hope that progress in the ability to reform society will come sooner than it is reasonable to expect. With your efforts, boosted by your insights and your decency and your civil courage, we may still surprise ourselves.

That will be wonderful.

Remember: one thing about academe is decidedly utopian: it is devoted chiefly to study and instruction. All we need do is to weed out the misanthropy that so many of us think that it comes with the territory. It need not do that at least not to the extent that it does. It does so fortuitously. The latest cause of this adversity is the opening of the academy to the average citizen, which in itself is all to the good, of course, except that it has led some academics to fear unfair competition. The added fear is exaggerated: the initial fear is bad enough as it already makes the choice of candidates for academic jobs random: there is no rule by which to select one out of the short list of candidates for almost any academic job. The only item that makes a difference is tenacity. Yet even that is not always necessary. One of the greatest and loveliest academics that it was my fortune to meet was economist Lionel Robbins, and he tells in his autobiography how close he was to miss studentship and academic appointment.

In traditional society, almost everyone was born into a profession. The exception was the clergy, and within the clergy, the academics. The choice of a profession was born to industrialization. How this takes place is at times reasonable——when a child shows aptitude for some craft. Otherwise it is usually a matter of accident. Most of us have a person in our past who has served us as a beacon of hope, who had faith in us, and who guided us to the choice of occupation, often quite unintentionally, by having faith in us, by serving for us as a beacon of hope. You can be such a beacon of hope to people around you. For this, you must be open and supporting. That is all. The option is so easy and so coveted yet, sadly, few choose to take it, even though it really is what may make all the difference for some of us. Just remember yourself on a bleak day and think of students whose normal day is bleak. Stretch a helping hand to such people and see what happens. It is easy, harmless and open-ended. It may make for them all the difference between failure and a fruitful, happy life.
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