CAN RELIGION GO BEYOND REASON?

by Joseph Agassi

> Real mystics don't hide mysteries, they reveal them. They set a thing up in broad daylight, and when you've seen it it's still a mystery. But the mystagogues hide a thing in darkness and secrecy, and when you find it, it's a platitude.
>
> [G. K. CHESTERTON, "The Arrow of Heaven"]

Let me first state my views on salient points, so as to declare my hand. Explanations will come later.

Religion in its traditional forms is a thing of the past—largely due to the development of science and to the discrediting by the sciences of religion's archaic views of the world and man. There are constant attempts to retain and revitalize parts or aspects of traditional religion in the new conditions. These are transformed ritual, transformed faith, and meaning, where meaning is meant to retain aspects of salvation. It turns out that these three aspects rather hang together, and that faith still seems to clash with science. It is my observation that these days see the growth of a new silent avant garde of able and civic-minded religious scientists. They belong to various denominations and hold a new version of religious philosophy which follows Duhem, Buber, and Polanyi. It is compatible with science and revives ritual and faith in a desperate effort to find meaning. I oppose this avant-garde philosophy as one which makes its holders more living-dead than is bearable, as one which empties both science and religion of their significance. Following Arthur Edward Waite, I find quest to be more significant in religion than faith, or ritual, or salvation. Like Russell in his less bellicose and more pensive moods, I find quest to be the heart of research, and I find it full of religious overtones. The true religion, the quest, seems to be in science now as in Spinoza's days.

I. RELIGION AND REASON

We do not know what constitutes religion and we do not know what constitutes reason. Since reason regularly allies itself with science, we

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may just as well confess right away our ignorance of what constitutes science. Had we been in possession of theories of religion, of reason, and of science, we would then try to use these theories to answer the question in our title: Can religion go beyond reason? But we are not in possession of such theories; one who wishes to answer this question, nonetheless, may first offer such theories. However, it is bad business to start with a full-fledged theory rather than with a problem and a problem situation.[1] For the sake of the problem at hand, I shall begin with traditional religions, traditional theories of rationality, and the corpus of scientific knowledge; I shall suggest that the traditional views on these matters are defective; I shall then discuss some modern modifications of these—always with an eye on our question, of course.

Traditionally—that is to say, in the Western tradition—faith and reason meet and immediately clash when Jew (faith) and Greek (reason) meet in the Hellenistic world. Traditionally, for neither pre-Hellenistic Greek nor pre-Hellenistic Hebrew does the problem arise, since the problem rests on the specific conflicts between the two traditions so symbolized and which neither knows before they meet—not even Job, not even Ecclesiastes. Julius Guttmann says in his classic *Philosophies of Judaism* that there is no (rational or critical) philosophy in pre-Hellenistic Judaism. As many writers have suggested, pre-Hellenistic Greek philosophy is singularly free of religious problems proper—its theology and ethics being only very loosely linked with any specific religions. In Hellenism this changed drastically: the Philonic tradition tried to harmonize faith—a specific faith, that is—and reason. The Talmudic tradition, just as much as the Tertullianic and Augustinian, claimed that reason is, and should be, limited. One may not ask the unanswerable question! The differences between traditions were differences of commitment as to which was the true faith. The agreement was regarding the claim that beyond the limit of reason stood one specific true faith. So were matters understood by Talmudists and Cabbalists, Scholastics and alchemists. To quote Alfred Weber's *History of Philosophy* (also quoted in *St. Anselm's Basic Writings*), "The Second Augustine, as Saint Anselmus had been called, starts out from the same principle as the first; he holds that faith precedes all reflection and all discussion concerning religious things. . . ." Maimonides indicates in his *Guide for the Perplexed* that there existed in the Middle Ages a school of unbelievers. They tried to show, he more or less reports, that there is no room for faith, and their proof was based on the claim that there is no limit on reason. That is, as a matter of principle; nobody ever as yet denied that reason is, in fact, limited. He agrees that this is the best way

for the unbeliever to destroy faith: The only way, as is impossible, to destroy faith, is to deny that reason is limited. Here, Maimonides says, the unbelievers and I understand each other very well.

Change came in the Renaissance, and with it the problem, the conflict, as we know it today. Admittedly, in Medieval philosophy one can find passages suggestive—but not much more—of modern controversies; yet, the modern concern with the peace between faith and reason belongs to the Renaissance of science. The problem—"does reason conflict with faith?"—became central. Not much room was left even then to the question, assuming that there is no possible conflict between reason and faith, "can they cooperate or not?" This question is characteristically of our age. The concern of the Renaissance remained, like that of Maimonides, to answer those who wished to reject faith in the name of reason. And, let us be clear: Maimonides' line was—still is—very strong: The way to dispose of faith is to make unlimited claims for reason. In the Renaissance people wished to make unlimited claims for reason, but without thereby wishing to dispose of faith. "Can this be done?" was really their question. The question was put in cold storage by the Royal Society at the end of the Renaissance.

When the Royal Society of London was founded in the mid-seventeenth century, its chief concern was to separate faith from reason in order to prevent any possible conflict. This is all well and good. The question is, however, can we separate the two? One can always say faith and reason are inherently separate, since they share no problem. This, however, may mean that there is no limit to reason, that reason handles all questions, and faith handles all quests (but not the questions). And, we remember, Maimonides viewed this as the only foundation for the antireligious philosophy which a believer should seriously criticize.

The tradition based on this claim is very important. Therefore, many authors, from Maimonides to Marx to Marcel, agree: Either reason is unlimited, or it is not. If it is unlimited—meaning if on principle reason can solve all problems—then there is no room for religion in any significant sense; it is then relegated to poetry and emotion and such. If reason is limited, and we may assume it to be limited in any way, then certain problems are beyond reason. Perhaps even reason depends on other agents for success; perhaps there is no reason and no science without intuition, instinct, belief, or whatever you call it. In such cases room is made for religion. In such cases, perhaps, there may be room for rational theology, perhaps for the application of reason to the study of the intuitive faculty.

How much of all this was acceptable is hard to say. What seems to

have been widely accepted is that either reason is unlimited and excludes religion, or it is limited and calls for religion. Soon one side of the dichotomy got the upper hand. Ever since the foundation of the Royal Society, the claim that beyond reason stands faith has been questioned. This naturally led to the conclusion that reason is not limited. The success of Newtonian science led spokesmen of science increasingly to the bold expression of the view that reason is unlimited, and when they became bolder they openly concluded from this that reason must be hostile toward faith. To be more precise or to put it in modern parlance, the religion of science became increasingly hostile to all established religions, Christianity and Judaism in particular. Individual religious scientists found their positions increasingly uncomfortable. As Michael Polanyi puts it in his *Personal Knowledge,* John Locke, as the spokesman for the new scientific community, kicked religion upstairs, made it like the lords and kings of England—venerable but powerless. Authority went to the House of Commons.

Since the crisis in physics at the turn of the present century, a new breed of religious scientists has developed. Members of the breed tend to endorse an instrumentalist philosophy of science, one similar to and very often influenced by, that of Pierre Duhem. Such religious philosophies of science strip science of its claim to know about the nature of things. The new religious scientists also endorse Buber's quasi-existentialist philosophy of religion which considers religion a private matter between a man and his god. And they endorse Buber's and Polanyi's traditionalist philosophy, according to which there is no rationality without prior commitment; and commitment, though not entirely arbitrary, is arbitrary within the limit of choice between existing traditions and the philosophies they endorse. In a distinct sense this group of scientists plays the role of the religious avant garde of our days; the taste makers and molders of educated opinions and attitudes in the religious sphere; a quiet avant garde of professional scientists of a traditionalist inclination who prefer to operate within their religious, social, and political institutional frameworks, rather than use open public platforms for open debates.

To conclude the present introduction, let me present the broad outline of the situation as I see it. The conflict between faith and reason has occupied much of the literature on the relation between the two, including the theological writings of Kepler and Galileo, whose chief concern was to prevent any such clash. Accepting their view, most philosophers now agree that either reason is limited, thus making room for faith, or not, thus rendering faith a matter of mere psychological or

poetic interest. Very few writers, notably Kant, thought differently: Reason is limited yet the claims of faith have to be carefully checked. Somewhat in line with this philosophy, I suggest we depart from traditional polarizations, and even from traditional equations.

Tradition has (falsely) equated:
religion = faith;
as contrasted with:
reason = science.

I find both equations unacceptable and the polarization between reason and religion even more objectionable. Still following Kant, and more so in accord with more recent views, particularly of Popper and of Bartley, I suggest that reason is limited, and that hence there is room for faith within reason: Such a faith conflicts with the modern versions of traditional religion as advocated by the avant-garde religious scientists as described here.

In the present essay I shall try to present the background of this avant-garde movement. Here is an outline of my presentation (the numbers indicate the subsequent sections).

II. There is a dissatisfaction with both science and religion.

III. Once science was a handmaiden of established religion. When science freed itself of the authority of established religion, claims for science were made which later proved to be exaggerated. Both reason and faith seem now to be courting one another.

IV. But one must examine carefully the question: In what sense is it possible, and in what sense desirable, that science and religion supplement or complement each other?

V. What each expects from the other is that it complement the other's intellectual weakness. Otherwise the intellectual dissatisfaction with both will not be removed.

VI. The idea of cooperation, then, is that of intellectual supplementation between science and religion, which idea emerges from the intellectual disappointments in both.

VII. Hence, these disappointments should be the first indications of ways leading to remedy.

VIII. To evaluate these we need standards of rational thought and of rational action more general than hitherto available.

IX. In view of the failure of credulity and naïve hopes, new rational standards must, first and foremost, be those of utter self-reliance—perhaps merely out of despair—much as expressed by Jorge Luis Borges in almost every essay of his.

X. But the inevitable dose of despair need not be as large as that contained in the pragmatism of the new avant garde.

XI. The religious aspect of science offers a better remedy of existing defects—of both religion and science—than the uneasy merger of old-fashioned philosophies of science and of religion. The honest religion of science, the true agnostic religion, does easily what other blends cannot possibly achieve.

II. Dissatisfaction with Science and Religion

A. One may approach the situation from the scientific or rationalistic tradition. We have been looking for something—knowledge, power, happiness; success for the human race. We had expected to attain it with no outside help. It is this attitude which we call variously reason, science, humanistic agnosticism, mature self-reliance, rational responsibility. This attitude embodies a certain contempt toward those who rely on people whom they cannot or would not question (priests or party leaders) or on ideas they cannot or would not present and examine critically (the catechism or party line).

Is this self-reliance rationality? Or is it empirical science? It is hard to tell. As long as one is pleased with this attitude, with any attitude for that matter, one need not bother to clarify it and to nail down fine distinctions concerning it and related attitudes. But something may go wrong. Some of our expectations may meet with deep disappointments. What should be radically modified? It may be reason, science, or self-reliance.

Alternatively, we may try to keep our old attitudes substantially intact, and modify them only to the extent necessitated by the addition of a new ally—whose task should be to undo the disappointment. This attempt is plausible and shows great respect for the old attitudes, even though they proved to be less potent than previously hoped. As it turns out, however, the intruder, like a cuckoo, soon outgrows and expels the older inhabitants.

B. Let us now approach matters religiously. There is an imperfection in man which science promises to remove but fails. And the question is, can religion succeed here? The perfection sought is what religious thinkers call grace. This is the meaning of the word grace (at least in this context; but, I suggest, even more generally). Grace, as we are told, is never a right; although we are not entitled to it, we may be granted it, especially if we fulfill certain conditions. Those who believe in grace—especially those who believe that they have attained grace—are different from those passionately engaged in the search for perfec-

tion. The searchers are troubled; the blessed are not. The searchers may not quite know what they are looking for; they may merely feel the need for some support, for some meaning in life, for some improvement. At first, it is true, they had expected it from religion, and then from science, and now they are bewildered and may even look again toward religion. It does not matter so much in the first place what the source and history of the dissatisfaction is—rather, what matters in the very first place is that there is, indeed, dissatisfaction. Once religion has given us the support we crave, then the primary dissatisfaction is removed and the situation is thus radically altered.

Not only one who has attained grace, but even one who listens to him in the hope of emulating him—regardless of how and why—has nothing to do with our discussion, even if the latter never will attain grace. The situation is similar to that of those theories of reason which have never fulfilled their promises of certitude or near-certitude in science; so long as one accepts the promise no problem arises. To be drawn to our present discussion, the religious person must be dissatisfied, disappointed, frustrated. He may, then, look to reason for consolation. And, taking a dose of reason to support his religion, he may, indeed, all too easily destroy his religion. But this alone will not do. He has to be doubly frustrated: Reason destroys his religion and fails to replace it.

C. The problem, then, is whether religion and science are complementary. Assuming that neither religion nor science alone is a sufficient means of attaining perfection in man, perhaps a combination of them would be. And even if a combination of the two would not perfect man, perhaps it would bring him nearer to perfection more rapidly than either component alone. This idea—of reconciling science with religion, the view that science and religion are complementary—must nowadays be quite popular, since it is peddled in all sorts of literature, from philosophy, history of religion, and science to sheer science fiction. Also popular, of course, is the traditional idea of separating science from religion, a result of the view that mixing science with religion destroys both. One might reconcile these two ideas of complementation and of separation in the following way: Science and religion may help each other perfect man—but only if use is made of each in its separate place. This view, that science and religion should be separate but complementary, is the one now coming into vogue within the scientific community. It is the chief aim of the present essay to argue that this idea destroys the vitality of both science and religion, and is thus doubly objectionable.

III. Reason and Faith

The dual dissatisfaction with science and religion is rooted in Western history: Once science was the handmaiden of established religion; now reason and faith both seem to be courting each other.

A. In the second half of the thirteenth century, the Church openly attempted to suppress rationality of self-reliance; and one assertion which illustrates the mood of the avant garde of the age was condemned, namely, that there is no need to accept as a matter of faith a thesis which can be accepted as a matter of reason.

In general, self-reliance was presumably viewed as such an obstacle to the endorsement of faith that even its specific employment in support of faith was feared. Efforts to destroy self-reliance abounded; the cleverest and most appealing to the self-reliant is the effort to do so philosophically. The Christian philosopher could destroy the self-reliant's self-reliance by proving to him the truth of Christian faith. But this is not all. Not only in Thomas Aquinas's *Summa Contra Gentiles,* but also in his *Summa Theologica,* the idea that science is subordinate to religion reigns supreme: Aquinas proves that without sacred doctrine there is no science. It is incredible: The man whose direct intellectual ancestry was Jewish and Muslim (Maimonides and Averroës), and whose intellectual heritage was secular and pagan (Plato and Aristotle), the same man said, in effect, if you are not a Christian you cannot be a scientist!

The view of science as handmaiden of religion has been retained after a fashion even in modern times. Thus, Descartes could still pretend that his philosophy, though it started in skepticism, ultimately reinforced religion. A few decades earlier, Kepler, Galileo, and Bacon tried to present science and religion as noncompetitors—on condition, of course, that under the pressure of reason the claims made by established religion will sometimes have to be modified. With the official institution of the scientific revolution, with the rise of the Royal Society and its scientific code, things changed even more radically.

B. After the foundation of the Royal Society in 1661, and prior to the Einsteinian revolution of 1905, the relations between science and religion seem to have been progressively those of polite hostility. Frequently the leaders of science were irreligious, or else they tried to conceal the fact that they were religious. There are exceptions, to be sure; but even since the formation of the Royal Society, the exceptions have been rare. Boyle and Newton were leading scientists and they were both religious—each in his own very peculiar and highly unorthodox way. And yet the forceful leader of science at the time was Edmund Halley

(of the Halley comet), and he was an agnostic, though a less aggressive one than some of his successors. As is well known, Bishop Berkeley developed his philosophy in reaction to Halley's agnosticism. He also attacked Newtonian self-reliance as the cause of Halley's agnosticism. His views adumbrate the much more modern views, to be discussed below. Joining the scientific or rationalistic movement at that period often was tantamount to leaving behind established traditional religion. It was customary at that period to conceal the fact that one came to rationalism and science after disappointment with traditional religion: it doesn't matter what one thought previously, we all look alike before science. And so, after the foundation of the Royal Society, and prior to the Einsteinian revolution, reason, namely science, surreptitiously won over religion, while officially it was not hostile to established religion. Reason was not supposed, however, to prevent the study, critical or otherwise, of religion as an intellectual and social phenomenon; and the study was quite critical in part—and that part had quite a devastating effect. The official policy was expressed openly only in the latter part of the period, particularly within the Marxist movement: Let established religion live in peace; help rational education (both scientific and political) to develop; and subsequently religion will quietly fade away.

For three centuries, the seventeenth through the nineteenth, religion has been on the retreat; scientists often had no part in established religion, or belonged to a church but felt awkward about it. Even the religious scientists, including the pious Robert Boyle himself, openly preached against any religious idea which clashed with their own reason. Loyalty to science came first, and so in every conflict between science and religion, science invariably won. Bible criticism, archaeology, geology, Darwinian biology, social anthropology, every field which developed scientifically, led to new retreats for religion. A well-known instance of this is Albert Schweitzer's work early in this century—his *The Quest of the Historical Jesus,* and his doctoral dissertation on the psychiatry of Jesus; they are frankly apologetic, but only to the extent permitted by reason or science and scholarship.

C. Meanwhile, the dissatisfaction with late nineteenth-century science bred a new attitude toward religion. The dissatisfaction became almost universal among literary intellectuals, and affected many scientists. The trend had finally reversed, and scientists started courting religion. Russell's *Religion and Science* of the 1930s records symptoms of that transition, and in it he expresses his surprise at the phenomenon.

It has occurred time and again, of course, that a philosopher who had attacked religion when young endorsed it when older (Heine, *Religion and Philosophy in Germany*), that a rationalist, with an anticlerical career almost completed, called the priest to his deathbed. But, as a public phenomenon what Russell narrates was obviously a novelty: A movement of religious scientists is a twentieth-century product.

IV. The Question of Complementary Relationship

Let us, then, try to examine the question: In what sense is it possible, and in what sense it is desirable, that science and religion supplement or complement each other?

A. The antireligious thinkers, such as Russell, readily acknowledge that, for fulfillment of life, science is not enough. We need friendship, and we need arts; we need all sorts of things apart from science. Religion was claimed to be a substitute for sex, for instance. Science was never seriously claimed to be such a substitute. At most, the claim of science was that of a means by which to achieve enlightenment—plus the subsidiary claim that religion cannot bring enlightenment. For instance, this is how Kant puts it in his *Religion within the Limits of Reason Alone:* It is only when religion claims to fulfill the function that science or reason also claims to fulfill, that the clash arises. And in each such clash, says Kant, science must win and religion lose.

Kant, in his desire to write a very liberal and tolerant book, was even willing to concede that one can be reasonable while believing in virgin birth, which he personally considered idiotic. Yet at the end of the book he says that whenever religion claims to do what reason claims to do, it is phoney. Against his intentions, against his temperament, when it came to the relation of religion and science, Kant was an enemy of established religion. Religion can only win in cases in which science cannot even start to compete! This was the situation until very recently.

For example, Michael Faraday, whose life was dedicated to science, was also a profoundly religious man, who (outside his church) rarely alluded to his religion; the rare exceptions were cases of enormous pressure. And yet he found no difficulty in alluding to all other nonreligious complements to science. In a moving passage in a letter to a friend (Schönbein), he says, "After all, though your science is much to me, we are not friends for science sake only, but for something better in man, something more important in his nature, affection, kindness, good feelings, moral worth."

B. Religious assertions were often dismissed by scientific leaders,

if not as superstition, then at least as highly problematic and in need of much interpretation. This did not exclude even Robert Boyle, who was the most religious leader of the scientific community, of the commonwealth of learning, to use his phrase. He was, for instance, the man who instituted the rule that in scientific circles people should not argue about religion. He was deeply religious—he gave most of his money for religious purposes of missionary works (especially spreading the Bible) and of charity—and he was said always to have paused for about one minute after he used the Sacred Name in speech, with the result that he tried to avoid using it because it became a burden on his audience. Also, one must add, he was an unusually honest, frank, and sincere man. His philosophic doctrine was that there are two faculties of mind —reason and emotion; that justice belongs to reason and mercy to emotion; and that God gave us the ability to comprehend him by reason alone, as justice requires, but that out of pity for those of us who are a bit dumb or stubborn, he created miracles, which have a merely emotional appeal. It might seem strange that a man so deeply religious should have thought so, but so he did, and he was heard by many. He has also written that theological questions are beyond reason, and, therefore, that we should leave them to religion; but he never meant this to express the idea that religion is a complement to science. This would have been quite impossible anyhow, since in his view religion is not another form of understanding. Perhaps he meant to suggest that since religion is not a form of understanding, let religion try to handle the incomprehensible.

Until the twentieth century, the rule was that whenever science and religion disagreed, science won and religion proved to be wrong. Russell still held this view in 1935. The Bible says that the hare chews the cud and the biologists say it doesn't chew the cud; and, of course, it doesn't. I don't know why it is so important to Russell to insist that the Bible says that the hare chews the cud, that the biologists disagree, and that the biologists are right. I suppose it is a remnant of the reaction to medieval science. It is not uncommon to hear even nowadays such claims; we are still told repeatedly that the religious leadership was against inoculation which scientists recommended. In truth, many scientists were against many inoculations—sometimes correctly, sometimes not—and many religious people, as missionaries who went to the bush and administered inoculation, were for most advanced medicine, and even contributed to medical science in their small ways. It is, in my opinion, often difficult to know when and how and why established religion clashed with science, and precisely on what issues. And science

is not always right in such clashes. It is even often unclear what is meant by the claim that science is always right in such clashes. Even the greatest clash—between the Church of Rome and Galileo—has turned out to be not half as obvious a case as most writers a century and two ago would have us believe.

C. Somehow, the question of how, exactly, do science and religion compete, belongs to history. By now established religion in the West has entirely capitulated on this issue. By now no religious leader in the West, not even the fundamentalists whose parents forbade the teaching of Darwinism in their public schools, not even the pope, would dare clash openly with science on any issue. What they offer is, they claim, what science cannot offer.

V. Toward Intellectual Complementation

What each side—the established religions and the rationalistic scientific movement—expects from the other, is that each complement the other in the intellectual arena and in the area of each other's weakness. Otherwise the intellectual dissatisfaction in either case will not be removed.

A. The cycle, then, is complete. Science once dared not contradict religion, and posed as an ancillary to religion. Now the opposite is the case. When Kepler, Galileo, and Bacon said that the book of nature cannot contradict the Bible, they meant to mollify opposition. When Pope Pius XII made the same idea into the guideline for his policy, it was an admission of defeat. You may reinterpret the biblical story of the creation, said the pope, if you believe Einstein's story of creation. You may believe Darwin's theory that man descended from apes only if you believe this occurred just once in history.

B. The development of a sophisticated view of religion as ancillary to science was brought about by developing the antireligious scientific view to its extreme. Extremes touch, we are told. When one takes any viewpoint to its extreme, said Samuel Butler, one sees its absurdity. The viewpoint in question, then, may be either discarded or complemented. There are those who push a viewpoint to its extreme in order to force its replacement (the scientific avant garde), and others who do so in order to force its complementation (the rear guard of science, but also the avant garde of religion).

Both extreme mechanism ("man is a machine") and extreme positivism ("only science makes any sense") are the paradigms here. They

are so very narrow that they make it almost undeniable that there is more to life than science. When extreme mechanism presents the world as utterly dehumanized and aimless, it may suggest[2] to us that there is depth and meaning to the world, but outside science: the body belongs to science, and the soul to religion. Alternatively, a sensitive religious soul entering science may be drawn to mechanism in order to arrive at such a conclusion. He would say, "science does not capture meaning, but I do experience meaning"; hence some experience is extrascientific—let us call it religious.

The extreme positivist sees religion as a refuge for ignorance and a bastion for superstition. Apart from this, he may see nothing in religion; he may even refuse to comprehend the meaning of a proper name like "God" and declare it meaningless, wanting not only in denotation or designation or reference, but even in connotation or sense; it may declare theology proper as less than false, as sheer meaningless gibberish. The philosophers G. E. M. Anscombe and Frederick Copleston, S.J., have endorsed extreme positivism in order to advocate a move which is extremely easy to implement, which is nothing but the tacking of a small rider onto extreme positivism, and which is becoming increasingly popular in certain circles—as the magic solution to hosts of troublesome problems. They favor some version of extreme positivism just because it evidently requires complementation; any proliferation of the meaning of the word "meaning" or "sense" will permit this. "God" does not make *scientific* or cognitive sense, but can it make *artistic* sense, or *religious* sense, or perhaps *social* or *political* sense, etc., etc.? Proliferation and compartmentalization "sense" put an end to strife. When the same string of words appears in both a scientific and a religious context, then they do not necessarily possess the same sense; and hence, obviously, scientific discourse need never conflict with religious discourse; everybody is happy now—separate, but equal.

C. Yet, what we have achieved is complementation like that which love and friendship as well as arts and ceremonies offer, not intellectual complementation. The language of music is not the language of science, we all agree; and even the literal meaning of a ceremonial declaration is not of much import, at least according to the sophisticated modern bride who seemingly promises in church to love and honor (or even to obey), not only in the foreseeable future, but "until death do us part"—yet without meaning to disclaim her legal rights to equality and to divorce. All this was and is accepted—perhaps regrettably—without any contesting or debating. In such cases, no doubt, the

ceremonial promise differs from a verbal contract, and therefore the word "promise" may signify ceremonially something utterly divorced from what it signifies in business. We do not need extreme positivism to arrive at such conclusions, and such conclusions do not offer new complementations. Anscombe and Copleston offer us stale cakes instead of fresh bread.

VI. Possibilities of Cooperation

It is from dissatisfaction with both religion and rationalism that the new idea of cooperation emerges.

A. A lot of old intellectual rubbish is still extant; and sometimes the crudest arguments impress the sophisticated. Some religious writers try to show that some wise old sages may sound Freudian; that the taboos of Leviticus are hygienic, etc. The critics of this kind of intellectual rubbish fall into a trap when they expose the old sages as un-Freudian fools, and when they explode all alleged connection between Leviticus and modern hygiene. For all this belongs to the quarrel between science and religion of the middle of the nineteenth century. Inasmuch as religious doctrines were concerned with matters of fact, they were often significant precursors to present-day doctrines, but one must take it for granted that they are now superseded. Religion now claims only historical respectability for some of its old doctrines, but no more; it does not claim that any of them is true. Contrary to the eighteenth-century mood, present-day scientists and, to a greater degree, present-day historians of science, often show sympathy toward such claims for historical respectability. In the wake of religious cultural historians such as Arthur Edward Waite, of medievalists like Huizinga, and, above all, of the illustrious historian of medieval science, Pierre Duhem, practically all historians of science today agree that, superstitious as astrology and alchemy surely are, in the Middle Ages they were part and parcel of learning, and as such belong to the history of science proper. Erroneous as biblical medicine may be, it was no worse (perhaps better) than all its competitors at the time it was recorded; hence, it deserves our appreciation. Here we see a tremendous shift in the rationalist attitude toward old religious doctrines: as a result of a historical perspective, the attitude has become less contemptuous and more tolerant and even respectful toward old errors. Does this improve the relation between the religious and rationalist today?

B. The shocking fact for the rationalist is not that some religious doctrines are now respected as once reasonable but now superseded;

but rather that some scientific doctrines are now in exactly the same category of respected as once reasonable, but now superseded. When scientific theories can be superseded, it is no longer feasible for the rationalistic advocates of science to hold religious theories in contempt for the same reason. The gospels are not gospel-true, but neither are the books of Newton. Any scientist who denies the last sentence should be told to read Newton in order to shake his dogmatism. No doubt, there is a matter of degree here—explicable by the fact that the Bible is older than Newton's *Opticks*. From a historical perspective there may be little difference in validity between the doctrines of science and of religion of one given period; in some cases the two doctrines are identical (Aristotle). What the one hostile to science forgets is that theories can be superseded only when they go with claims for ultimate truth; he often stresses that in some sense scientific theories have not been superseded, as when they go with claims for useful application and when they are somehow absorbed in newer theories. In this sense theories cannot be superseded, but in this sense theories are not as rational as they were once claimed to be. The aspects of science that cannot be superseded, namely, usefulness and incorporation into later views, have never caused any hostility or clash with religion; the clash concerns aspects or interpretations of science—its claim for final theoretical knowledge—in which science definitely can be superseded. The classical claim was that scientific theories are absolutely true, that Newton's theory is the last word in mechanics, that Newton has achieved what the gospels failed to achieve.

Some religious thinkers stress that Newtonian mechanics or Daltonian chemistry have been superseded, though they were once claimed to be the undeniable literal truth, the demonstrated last word. These religious thinkers stress that such claims are no longer made, and their memory deliberately obliterated. It seems, then, that these religious thinkers are debunking science. It looks as if, in revenge for the scientist's debunking of religion, now the religious are debunking science. But this is a very gross error. We are not speaking here of irrationalists rejoicing in the inability of the rationalists to keep believing in what only yesterday they were claiming to be the dictates of reason. We are speaking here of scientists who yesterday were themselves such rationalists; who were disappointed in their rationalistic view of science; who subsequently ceased viewing scientific theories as the dictates of reason and who started to see in them more technology than enlightenment; who are returning to their church or synagogue.

And so, it is not that the religious are now debunking science; it is not tit for tat. The religious scientists, who seemingly debunk science by reminding us of old defunct promises, are sophisticated leaders of sophisticated communities; they debunk the old rationalist view of science, not science itself; they are moved by a sense of disappointment, not of hostility. Hence, they come to religion, at least in part, from science and old-fashioned rationalism.

C. We can now see what kind of enlightenment religion is offering; how that enlightenment can be claimed to be complementary to, but not competing with, science. What religion offers is intellectual commitment; faith in certain doctrines which are not amenable to scientific treatment, and which can be adhered to safely. Empirical facts and metaphysical doctrines are permanent. Scientific doctrines as doctrines proper, and religious doctrines which can clash with science, are both highly transitory and should be totally dispensed with. This, I contend, is the view now endorsed by the religious scientists who are the religious avant garde; and though unacceptable, it is a very serious view and merits close examination.

This view is, in a definite sense, quite existentialist; but it is already fully articulated in the works of Pierre Duhem, the philosopher and historian of science of the period of the crisis in physics, the link between the Newtonian and the post-Newtonian era. He was a philosopher's philosopher and a historian's historian. He did not gain much recognition in his day. Just now he is becoming popular enough to be the leader of the twentieth-century intellectual avant garde. Very soon he will be superseded, and then his doctrines may become accepted by the vulgar.

VII. Defects of Both Rationalism and Religion

The disappointments leading to the new situations, both in old-fashioned rationalism and in old-fashioned religion, should be the first indication of ways leading to a remedy.

A. Ignorance, even in the best scientists, is not something new, nor was it left unexploited by the enemies of reason. But it did not impress scientists until recently. Indeed, we may represent the traditional viewpoint by a sharp quotation from Kant's *Religion within the Limits of Reason Alone:* "It is the commonest subterfuge of those who deceive the gullible to appeal to the scientists' confession of their ignorance."

The reason that scientists could so easily confess ignorance and yet be unmoved by proposals from the religious to seek enlightenment

elsewhere is fairly clear: Scientists were arguing from a position of strength. It is not how much they knew, but their ability to know, the very idea of self-reliance through knowledge, that offered them more hope than all religion could.

This very idea was contested by Pierre Duhem. Science must be devoid of all pretense to theoretical knowledge, he said, because science can never prove its theories empirically. Unproven theories are more likely to be erroneous than true, and hence it is better to view science, not as a system of theories, but as a system of mathematical definitions used to correlate empirical data. Thus, if we think Newtonian mechanics is an empirical theory about the behavior of planets and stars, then we may be disappointed by the subsequent need to revise our theories. However, if we view Newtonian mechanics as a system of second-order total differential equations to correlate observations, then these are immutable. True, the domain of application of Newtonian mechanics, the range of correlated facts, is changeable: We constantly try to apply the equations to new situations or with increasing precision, until we are stopped by experience from doing so indefinitely. When our attempt to extend the range of applicability of our equations is thus frustrated, we may look for new equations.

In this manner Duhem succeeded in rescuing science from the state of permanent revolution to which it might have been thrown when it turned out that empirical proof of scientific theories is impossible. But there was a price to pay: The informative content of scientific theory was gone. Theoretical science had to be viewed as a mere mathematical system to pigeonhole and correlate empirical data, and its aim had to be viewed as mere convenience and usefulness. This view of the status of theoretical science (conventionalism) as mathematical, and of the aim of science (instrumentalism) as technological, sharply contrasts with the classical view of science as enlightenment—as chiefly the knowledge of the true laws of nature, as the true explanation of the empirical phenomena, with technology as a mere by-product of true knowledge.

In advocating this change Duhem had the support of antireligious philosophers like Poincaré and Mach, and he was very proud to count these as allies. But he alone went further, and argued that the new philosophy of science permits, perhaps even requires, an adjustment of our philosophies of religion and of enlightenment.

Duhem was an orthodox Roman Catholic; his philosophy helped him harmonize his religious and his scientific commitments. He readily admitted all this, but he stressed that he advocated his view of science,

his conventionalism (theoretical science belongs to mathematics), and his instrumentalism (theoretical science belongs to applied mathematics), not only for the sake of religion, but chiefly for the sake of science itself.

B. The conclusion that religion has won, that it has not capitulated to rationalism in any way, is thus being pressed. Indeed, my own teacher, Sir Karl Popper, in his classic "Three Views concerning Human Knowledge" (*Conjectures and Refutations,* 1964), accepts it. I wish to explain my dissent from it.

Popper's argument is this. In the late Middle Ages, instrumentalism was the current philosophy of science, as Duhem has observed. The argument between the Church and the Copernican heretics was not scientific but philosophical. The same Jesuits who attacked Galileo's philosophy used Copernicus in their astronomic calculations. Saint Robert, Cardinal Bellarmine, S.J., accepted the Copernican hypothesis *mathematically,* and insisted that Galileo was transgressing his rights as a Catholic when accepting the Copernican hypothesis *philosophically:* As long as the Copernican hypothesis was unproven it was not the duty or even the right of Galileo, as a scientist or as a Catholic, to assert that Copernicanism was really or philosophically true. Strangely, not only Duhem, the Catholic, but even Poincaré, the free-thinker, endorsed Bellarmine's position; with Niels Bohr, says Popper, instrumentalism became the accepted fashion; and so science capitulated and the Church won.

In the tradition of science, it was taken for granted, as Giorgio de Santillana illustrates in a detailed study, that Bellarmine stood for obscurantism and Galileo for enlightenment. In the late nineteenth century, as Popper shows, Mach and Poincaré tacitly, and Duhem openly, endorsed Bellarmine's view of Copernicanism and rejected Galileo's. Copernicanism, they said, was not true information about the universe, about the center of the universe; rather, they said, it was a system of applied mathematics. Copernicanism, they said, does not tell us what and why, but how. Some unsophisticated historians of science still repeat the nineteenth-century story, according to which the debate between Galileo and his opponents is now dead, since Copernicanism has won; the observations of stellar parallaxes (shifts of the scenery caused by the motion of the observer), which Galileo could not observe (for want of a strong telescope), are by now established as the facts that prove Copernicanism to everybody's satisfaction. So claim most historians of science. But this claim is contestable; Poincaré

and Duhem did contest it. Copernicanism is the statement that the sun is the center of the universe. (Even Newton read Copernicus so; he thought that the center of the solar system is the center of the universe, and was troubled by the discrepancy rooted in the fact that the center of the solar system is not identical with the center of the sun.) This assertion has been superseded. Taken literally it must be proclaimed false; of course, as a very powerful mathematical tool it is still useful within its limitation, and a much better tool it is than any of its predecessors. Thus, Bellarmine won.

This is misleading when taken as the overall picture. Bellarmine has won, but on a technicality and concerning a minor point. When Bellarmine argued that Galileo had no right to proclaim Copernicanism philosophically true, he was not debating with Galileo. Rather, he was threatening Galileo; more precisely, he was defending the Church's authority over the scientists. His argument concerning Copernicanism was a rider to explain his threat—a rider concerning just a point at issue, not the main issue itself. And Galileo agreed with Bellarmine on what the issue was. In his *Letter to the Grand Duchess,* he defended nothing less than the scientists' freedom from the authority of the Church, suggesting that the Church has no business telling scientists (as scientists) anything at all. It was the self-reliance of reason, of the individual's ability to read the book of nature without the aid of authority, tradition, and priests, that Galileo was defending. Bellarmine darkly and menacingly had hinted that Galileo was siding with the Protestants, and Galileo darkly and vehemently repudiated the charges. John Watkins, Paul Feyerabend, and other followers of Popper, have recently sided with Bellarmine on this: Protestants were self-reliant when reading the Book of God, and scientists when reading the book of nature. The Spinozist formula, *Deus sive Natura,* God equals Nature, the Copernican claim that the two books cannot contradict each other as they are both true, or any other kind of correlation, will make Bellarmine's hint very plausible. And though his hint may be merely plausible, already his fear that science, just like Protestantism, weakens the Church's authority, is amply justified. Indeed, science did undermine religious authority. Yet the Catholic Church has finally allowed men of science to be almost as self-reliant as their irreligious colleagues. And self-reliance spread both with the spread of scientific education and with the spread of the scope of science. Subsequently, some Catholic leaders declare openly that many moral problems have now become matters for individuals to decide in accord with their own consciences.

Bellarmine showed great insight: if self-reliance is allowed to any extent, there may be no stopping it. This insight is, indeed, Platonic —as explained in Popper's *The Open Society and Its Enemies.* Popper himself endorses it. The choice, he says, is between self-reliance and the return to the apes (return to complete dependence). Bellarmine lost to an extent that would have alarmed him—that indeed alarms many a Catholic leader today, leaders such as Cardinal Ottaviani, who, in protest, resigned his position as head of the Vatican congregation in charge of faith and morals in 1967.

Protestants almost unanimously capitulated to science much earlier; the Protestant equivalents of Ottaviani are a handful of fundamentalists. Even branches of the most orthodox sections of Orthodox Jewry have accepted science. It is not merely that religion yields to science what is due to science. With few exceptions the religious these days allow the rationalists to spread the gospel of self-reliance even in the midst of religion. Bellarmine has lost as few valiant fighters ever have.

C. Symmetry between the defects of rationalism and of established religion is hard to advocate. What the religious are losing to science and to the scientific tradition is viewed as progress by most people. Whether the same can be said of the scientific tradition or the rationalist tradition is highly debatable, for the tradition of science lost aspirations for theoretical knowledge when it accepted Bellarmine's instrumentalism. True, Bellarmine's instrumentalism, his view of science as applied mathematics, makes room for the freedom to accept any metaphysical commitment. But this is hardly a gain; it is the loss of the hope, of the ideal, to develop a scientific metaphysics or a scientific world view; it is thus a catastrophic loss of self-reliance, or at least loss of the hope of self-reliance, or at the very least loss of the precious illusion of self-reliance. When religion loses, self-reliance gains; when rationalism loses, self-reliance loses too. Hence there is hardly any place for any symmetry. Things look bleak.

VIII. Standards of Rational Thought and Action

We need standards of rational thought and of rational action more general than either of the older standards. This claim is contrary to the traditional one, according to which science is autonomous and hence cannot abide by external standards. Traditionally the standards of science were equated with the standards of rationality; the new religious avant garde merely adds that there are different standards

of rationality in the different fields of human thought and action—science being a prominent one, but not the only one.

Would we be better off giving up the illusion of self-reliance and settling down with a commitment? It is here that criteria diverge. Common sense is usually—but certainly not always and not on principle—against both illusion and commitment, against self-deception and dogmatism. Yet, it seems that we must give in to one or the other. Say which, and you have decided whether to enter the rationalistic tradition of unadulterated science or to switch to the new tradition of reconciliation with religion.

Let us first see clearly why the commitment and the illusion are so very inimical to each other.

A. Let us approach things first from the rationalistic point of view. To be precise, the issues discussed here are not scientific. Should we approach them scientifically, and, if so, how? The viewpoint traditionally endorsed by scientists, the scientific attitude, so called, is the readiness to apply the method of science to all intellectual activity, to all intellectual problems, to the attempted solutions to them, and to the examination and the application of the better of these solutions. Such a viewpoint, of course, prejudges the issue of a possible complement to science in the sense discussed here—the intellectual or enlightening sense. Let us examine this viewpoint for awhile, even though it is prejudiced.

Can we apply the scientific attitude outside the usual domain of science? To answer this we ask, "What is the application of the scientific attitude?" The traditional answer is that the scientific attitude is the application of scientific method. Now we must ask, "What is scientific method?" The traditional answer is vague, except on one point: Whatever scientific method is, it is an empirical method —and in that it involves the quest for empirical evidence. Now we can reformulate the question, "Can we apply the scientific attitude outside the usual domain of science?" into the question, "Is scientific method essentially empirical, namely, is there any intellectual activity to which we can apply scientific method of inquiry without thereby rendering the inquiry empirical?" The traditional answer is, "No: enlightenment = rationality = science = empiricalness."

This is classical rationalism and classical positivism, of course. The most obvious criticism of it is that logic and mathematics are rational yet unempirical. As late as 1922 this criticism worried Ludwig Wittgenstein; his *Tractatus Logico Philosophicus* contains a supreme

effort to do away with logic (including mathematics) by declaring it a peripheral, unintended by-product, and as such, rather senseless. A sentence can be meaningless like the sentences of theology, metaphysics, and ethics—which, strictly speaking, are no sentences at all (just as poetry contains no elements of arithmetic, even when appearances give contrary impressions)—and a sentence can also be properly framed, but simply say nothing, just as zero is a number, and as a map can be mapped onto itself, and as a mill can grind water. For Wittgenstein, logic and mathematics were rather senseless freaks because he wished to accept the equation at the end of the preceding paragraph in all its narrowness. They really did not exist for him any more than ordinarily zero counts as a number. The totality of true propositions, he said, is the total natural science!

When we break away from such a narrow rationalistic attitude, namely from strict classical positivism, we feel the great need to distinguish between the scientific and the rational, and we feel the strong urge to define the rational as broader than the scientific.

More than that—much more. We may wish to explain the desirability of science, of the application of scientific method, in terms of rationality. And this amounts to the wish to have the criteria of rationality put limits to the applicability of scientific method. But this means that the field of rationality should be wider than the field of science—in the sense of the existence of instances of discourse which are rational and yet nonscientific (and, to keep matters neat, nonmathematical, nonlogical as well). For, if we want to decide rationally where to apply scientific method, we also want to decide where to refrain from such application, and so allow, a priori, such possibilities. The criterion of rationality would, consequently, be deeper than the criterion of scientific character, at least as an instrument for making decisions when to apply scientific method and when not. All this is impossible within the old positivist framework where the identity of rationality and empiricalness is determined a priori.

B. But why should such a fruitful and useful activity as science be in need of justification in terms outside its own? Pierre Duhem stressed that science ought to be autonomous, that is, not judged by any external criteria. For, he said, scientists need not share any external criteria, yet they support the unanimity which all scientific activities enjoy. If science be judged by external standards, divergence concerning these will destroy unanimity in science.

The autonomy of science, as advocated by Duhem, is a dual auton-

omy; first, concerning the rationality of its method, and second, concerning the lack of metaphysical commitment of its content. The threat to either kind of autonomy is a threat to the unanimity observed to rule science. The autonomy of method is the undesirability of judging scientific standards by external standards of rationality. The autonomy based on freedom from any metaphysical commitment prevents metaphysical disagreements from leaking into science. Thus, we cannot judge the acceptability of the continuum theory of elasticity and of the atomic theory of thermodynamics, by either a metaphysical commitment to an Aristotelean antiatomistic process metaphysics or to a Democritean atomistic-mechanistic metaphysics. Both Aristotelean and Democritean agree about both elasticity and thermodynamics; hence physics and metaphysics cannot clash. Metaphysics alone pertains to reality; physics (i.e., empirical science in general) handles only phenomena and prediction, only economy and usefulness, perhaps aesthetic value to boot, but not truth and not finality. Thus spake Duhem.

Duhem's concept of the autonomy of science is very close to the classical rationalistic conception as advocated by the Royal Society, except that the old rationalists forbade commitment to any metaphysics prior to its having gained scientific status, and Duhem took it for granted that everyone has a metaphysics and not all scientists are in agreement about metaphysics. This seems a very plausible and congenial modification of the view of the autonomy of science. Yet its main thrust concerns not the autonomy of science but the autonomy of metaphysics—and in the sense that metaphysics need not be troubled or constrained by science. That is, the autonomy of metaphysics is secured by depriving theoretical science of its informativeness.

From the autonomy of metaphysics to the autonomy of religion there is but one step. It is no accident that the new positivists prefer to debate at length the autonomy of science. They so act on the presumption that once the autonomy of science is decided, the rest follows easily: first the autonomy of metaphysics, and then of religion. If science is judged by universal standards of rationality, these have to apply elsewhere, thus leading to the (Russellian) ideal of applying the scientific attitude wherever possible. This, they claim, makes no sense. Where one applies the scientific attitude one applies the empirical method and achieves science, so one cannot apply the scientific attitude elsewhere; elsewhere meaning metaphysics, which either does not exist (old rationalism) or has its own standards (new positivism). The claim for the autonomy of science thus leads the new positivists

to claim autonomy for other fields as well. When the practitioner of metaphysics fears science, what he really fears is that *he* transgresses and trespasses; and, indeed, science tolerates no trespass. But then, neither does metaphysics. Bellarmine was right in denying Galileo the right of trespass into metaphysics and theology, but wrong in that he permitted himself to trespass into the domain of science. So both Bellarmine and Galileo were wrong in the clash (the one was naïve and the other was overconfident, they add, but let things rest in generalities); the correct attitude, then, should be that of autonomy, of no possible clash. This is the new positivism of the religious avant garde (which I wish to combat).

Duhem and Wittgenstein (when young) were both narrow positivists, recognizing no standard above and beyond those of science. But, whereas Wittgenstein endorsed science and only science, Duhem endorsed science when dealing with matters scientific, and religion when dealing with matters religious. Doubtless, Duhem's position is superior to Wittgenstein's. Between the two, the new is more tolerant of metaphysical commitment and in this it is preferable to the old.

C. The decisive argument of the previous paragraphs is defective on two accounts. The first is this. Unanimity in science was classically endorsed as a corollary of the idea of certitude. Now that certitude has been given up as a bad job anyhow, we need not endorse unanimity. Certainty was indeed overthrown because unanimity was exploded. Twentieth-century physicists disagree with practically all nineteenth-century physicists about atoms, about action at a distance, and about geometry. Duhem speaks of a new brand of unanimity—the agreement of living scientists amongst themselves, to say the most. Even this agreement is highly questionable. Faraday, for example, attacked the accepted views on atomicity and of action at a distance. In his day he could be dismissed as a small minority; yet today the majority sides with him against the majority of his day; so today it is harder to dismiss him. Thus, we cannot declare even unanimity among nineteenth-century physicists!

Anyway, what is the value of unanimity? The criteria of science must be subject to external criteria, and extreme traditional positivism must be avoided in order to avoid dogmatism. To say that the criteria of science are valuable for the sake of unanimity, or fruitfulness, or what have you, is to value what have you, and thus to judge the criteria of science by some external criteria. Duhem knew all this; he did not commend unanimity but observed its existence. But, of

course, his observation is false: He himself as a physicist followed Ampère and Weber and attacked Faraday and Maxwell.

The same holds for religion. To say that the family that prays together stays together is to value religion as an instrument; it is a positivistic attitude toward religion; religious positivism so called. It is likewise based on a false observation. Religious positivism is empirically refuted, yet it is consistent with religion proper: One may hold that religion is both right and useful. However, most religious positivists do not care whether religion is right or wrong, and even are prepared to concede that it is partly wrong, partly meaningless mumbo-jumbo. Alternatively, if one holds that religion is both right and useful, one has to say which of these two characteristics one values more; that is, one has to say this, for the sake of critical debate. For, if we try to make a person alter his views, we wish to know which criterion he employs in his act of changing his views.

Let us elaborate on this point for a moment. Of course, if one's defense of religion because of its usefulness collapses, one may indeed attempt to defend it on theological and metaphysical grounds. This, however, may be a reflection on one's intellectual makeup. Perhaps one is using delaying tactics, perhaps one is attached to a position and will not relinquish it until all defenses of it fail, perhaps one is not attached but is loyal to one's position, and perhaps one simply thinks one ought not to alter frivolously one's view under insufficient pressure. One's opponent may feel frustrated, but then one's opponent was in error when pursuing a line of attack in depth before attempting even a superficial survey of the opponent's defenses. Will the opponent capitulate more easily when this defense of his collapses, or that, or both? and so on. Taking things intellectually rather than personally, the same question reads: Which criterion is more significant? Any attempt to sidestep this question may amount to the claim that religion is both truthful and useful because of some necessary link between truth and utility. This claim, then, should be explored first as the deepest. Even further, will the deepest claim about such a link be true, useful, or what? Will it, Heaven forbid, be empirical and thus lead the believer to mix his theology and his science?

On this line of attack one can expose the new religious avant garde as religious positivists who base their philosophy on empirically unexamined but easily examinable claims about the roles of religion.

IX. Enlightenment and Self-Reliance

We now come back to our chief question, "Can religion complement science as enlightenment?" with the attempt to demarcate enlighten-

ment in an improved fashion. What, then, is enlightenment? What prescription do we make when we advocate enlightenment? Enlightenment is, first and foremost, being self-reliant as opposed to being guided, blindly obedient, and servile. Is commitment independence of mind, or is it servitude to a principle? Is the committed person more or less self-reliant? Can we answer this question without being empirical, or, if we must be empirical, without mixing science with metaphysics?

A. Traditionally, enlightenment was viewed as independence and as freedom, as opposed to voluntary servitude, as the refusal to be led by the nose—essentially, as self-reliance. The self-reliant person, the enlightened person, consults his own judgment and taste, or, if need be, opens his own judgment or taste to criticism; he will not simply take it from the Vatican or Moscow. He may take it, but not *simply* take it; that is, if and when he does take it, he will have a reason, *he* will find it acceptable.

Old-fashioned rationalists are ready with an arsenal full of the weapons of psychoanalysis and of socioanalysis and of political analysis. They will sneer at the Catholic (Communist) who accepts the judgment of the Vatican (Kremlin) only after consideration. They will call such considerations rationalizations, ratiocinations, self-deceptions, pseudo-rationality, pseudo-intellectualism, fake self-reliance, mere gloss and varnish of rationality on old and defunct irrationality. It is not unusual to find such people compared to a dog on a leash who divines the direction his master is heading for and keeps ahead of the master in that direction. These people are, says the old-fashioned rationalist, the most useful arm of the Vatican (Kremlin) for the purpose of deceiving the half-sophisticated and the half-dissatisfied.

There are such people. But here we are talking of the true avant garde, of a small portion of the self-declared avant garde, which is for the Vatican (Kremlin) much headache and many a sleepless night; and which is for the rationalists a living refutation of the equation of the committed-obedient with the slavish-guided. We should ignore the slavish-guided and their ratiocinations and discuss the committed who claim to be self-reliant in the sense that they claim responsibility for their own commitment.

The new positivists are thus a serious faction. Though the Establishment may wish to dismiss it as too small and too intellectual, time and again this turns out to be not so easy. Such an inner strength rightly becomes influential and does deserve close study.

B. The religious person who claims that in his very commitment he

is self-reliant has, above all, to explain his allegiance to one religious establishment among many competing ones. Affiliation entails some sort of a package deal, of course, which includes some less desirable aspects of any given set; and so the religious who claim self-reliance have to explain not only their allegiance, but also their affiliation to a given sect, their readiness to take the rough with the smooth.

No; they will declare affiliation to be a practical matter, subject to empirical study. If they can do more to reform the sect by a struggle from without, they say, they would leave their sect even if this would take them to Hell. I do not know how seriously this terrible boast is made, but I have heard it made frequently. On second thought, perhaps the boast is not so serious after all: Where is the Hell referred to by the party boasting readiness to land there for the sake of the common welfare?

The answer depends not on affiliation—which in this stage of the discussion is subject to some superior pragmatic criteria—but on allegiance: how much of the official doctrine of the sect does the self-reliant religious person really endorse? We do not know. He may be committed to one doctrine really and to a somewhat different doctrine demonstratively—as loyalty prevents broadcasting one's criticism of the doctrine of one's sect. So it is hard to rely on empirical evidence and so the debate must close here, or we may venture an a priori reconstruction instead.

First, consider the believer who accepts the metaphysical doctrine of his sect about the nature of God and his world, about nature and morality; and then the positivist who has no faith, no metaphysics, only a moral sense and a sense of ritual (aesthetic and/or social).

Commitment, say those who claim to be self-reliant believers, is the necessary conclusion to all discourse on self-reliance and on rationality. Justifying one's own view by one's own arguments makes one hop from one defense to the defense of that defense, from one criterion to the criterion which leads to its choice, and so on ad infinitum. This is the well-known critique of classical rationalism from infinite regress. One takes one's fate in one's own hands, says the modern postrationalist, and makes a decision which prevents this: One commits oneself to a standard and acts in the light of the standard one has chosen oneself. This is the only possible road to true self-reliance.

C. Here we come back to the old theme of disappointment: The religious avant garde come to religion from the classical view of science as rational; in the sense of justified; in the sense of its resting firmly

on final evidence by a final criterion. Sir Karl Popper has treated the irrationality of this "despair of reason" in chapter 24 of his well-known work, *The Open Society and Its Enemies.* Popper suggests that the minimal standard of rationality should be openness to criticism, and that the commitment, necessitated by the breakdown of the classical overoptimistic view, should be minimized into the minimal faith in reason, to wit, the faith in the fruitfulness of criticism. Popper calls the classical view *uncritical* rationalism, and the one he proposes in its stead, *critical* rationalism.

A similar, though much more detailed, and epistemologically more sophisticated, view was developed by Bartley in his *Retreat to Commitment* (1962) which, though a few years old, is not yet the bestseller it deserves to be. Bartley centers on the *tu quoque* argument. The irrationalist says to the rationalist—you too are committed to some dogma. And Bartley answers, no; whatever view of mine you criticize effectively I shall reject—even my view of enlightenment as the fruit of critical debate; if you, too, are willing to accept criticism of your commitment, it may thereby cease to be an irrational commitment, it may cease to be a commitment at all, and merely become a tentative opinion. This is how I read Bartley.

It is important both for Popper and for Bartley to distinguish between the standards of science and the standards of rationality, and to argue that the latter support the former. Popper, Bartley, and others, have tried to develop this point; I shall only briefly state it here in two parts.[3]

The first part is that criticism may be of diverse kinds; in empirical science criticism is ideally a new experiment which criticizes a good theory. The second part tells us what is a good theory. It tells us, first, that rational action is directed toward diverse ends, even that enlightenment can be constituted of diverse aims; and that, second, the end of science is comprehension of the world, so that a good scientific theory—which is what we wish to characterize—is that which explains much. And so, empirical science concerns a very special kind of enlightenment, namely, comprehension of the empirical world. The aim of science is the search for new theories which explain empirical facts and for newer empirical facts to criticize these theories. Enlightenment, however, may be of diverse kinds, aimed at diverse ends, criticized in diverse manners, with the proper correlations between the intended aims and the construed criticisms.

So much for the Popperian or neo-Popperian view. For my part, I prefer a new variant of the classical idea of self-reliance. Classically,

a self-reliant person accepts an idea on its own merits as he understands it with his own mind. Classically, and subsequently to the previous claim, a self-reliant person accepts a view after considering its proof satisfactory. This, we saw, leads either to infinite regress or to commitment! Alternatively, a self-reliant person has forever to cope not so much with proof and acceptance as with quest, trials, criticism, rejection, modification, new quest, and so on, as long as life permits. Subsequently, justification cannot rest on proof or knowledge, and likewise—when these fail—justification cannot rest on commitment; suffice it if justification be given by showing that certain criteria lead to the conclusion that such and such a theory is the best available. Thus, whereas the classical justification is that Newton's mechanics was demonstrably true, the new justification of the fact that Newton's mechanics was endorsed at the time is that at the time it was the best available explanation of the then-known phenomena, and one which remained, then, impervious to criticism. This, of course, may lead to doubting the criteria; but we may claim that thus far the criteria, too, are the best available; that when they have serious competitors we may well reject them too, as, indeed, I think we should.

Self-reliance is the reliance on one's own judgment, on one's own criteria, etc. Now, in judging quantum theory, Einstein and Heisenberg had the same criteria and reached the same conclusions. Yet Einstein, but not Heisenberg, rejected quantum theory out of a metaphysical commitment. Commitment enters science very forcefully: He who is committed to causal metaphysics conducts one research program, he who is committed to chance metaphysics conducts quite a different research program.[4] Hence, if we wish to avoid a retreat to commitment, we had better attempt various commitments. Admittedly, life is short, and too many possible commitments, then, have to be ignored as not very promising—of course, with no proper justification! We must go back, I fear, to the philosophers of commitment and consult them on such matters.

X. The Sophisticated Religionists: Buber and Polanyi

The new religious positivist, the self-reliant believer, has certain dogmas about the value of self-reliance which should be taken as tentative opinions to be criticized. Self-reliance must be taken as a fundamental point of departure, as a primary principle; however, not the optimistic (and thus questionable) principle of the old rationalist, but rather the desperate one (rooted in admitted failure, not in questionable success), akin to that of the new religious positivist.

A. Again, we see how clouded simple issues may become. What is self-reliance, commitment, metaphysics? In science? In religion? Historically, much of the study of philosophy has centered on the truth and falsity of certain philosophical propositions, which, indeed, enter reliance and commitment in a large way; but, consequently, the studies of attitudes, programs, and ways of life, have regrettably suffered too much neglect. Thus speaks the modern enlightened theologian.

There is here a quaint mixture of something apologetic, almost dishonorable, and something noble and admirable. The apologetic aspect is to minimize the various doctrinal differences between various sects and to see these as mere reflections of a variety of ways of life. This is religious positivism pure and simple, and no enlightened theologian is free of it; not even writers who, like Martin Buber, frankly reject parts of their traditions, doctrinal or ritualistic, which they view as superstitious and magical.

I wish to quote here one of the more popular introductions to the philosophy of religion, Frederick Ferré's *Basic Modern Philosophy of Religion.*[5] The thesis of the volume is summed up on page 371, at the introduction to the discussion of "the cognitive possibilities of theistic language," which simply adumbrates the author's worry that unless his theology is empirical it may be arbitrary and thus irrational. Ferré's thesis: "The two primary functions of theism's logically primary images are (1) expressing and influencing basic life styles, and (2) reflecting and shaping ultimate 'ways of seeing.' It is hard to come to grips with either of these functions."

The obvious criticism of Ferré's thesis is that what is "hard to come to grips with" is not enlightenment to be led by, but ignorance to be tackled. It is here, however, that most rationalistically or scientifically oriented critics are slightly in error, attacking the religious not head-on, but off-tangent—a tangent which leads straight to old-fashioned or classical or positivistic or uncritical rationalism. The two "primary images" of Ferré are not to be rejected, since they are quite correct; also they are indeed "hard to come to grips with"; but they are not "theistic" in the least, especially not when "theistic" is a euphemism for Ferré's own denomination. Rather, "the two primary images" are religious in the skeptical sense in which Einstein and even Russell must be regarded as religious. The ideas of "life style" and of "ways of seeing" are admittedly religious in some traditional sense, but they are not identical with traditional religion, much less with that of a given traditional sect.

B. The best defenders of religion as the new enlightenment, as a

"style of life," are Martin Buber and Michael Polanyi. Both are Jews by descent. The one advocates a refined version of Hassidism (which is the way of life of a neo-Cabbalistic Jewish sect) but is opposed to all mandatory traditional Jewish ritual; the other advocates a refined version of Catholicism. The one draws his analogies from the social sciences and the humanities and the finest of the fine arts; the other from the natural sciences and their philosophy and history. Both advocate the new ideas of intensified or heightened mode of cultured and civilized "way of life"—gracious living if you wish, but not of isolated individuals as much as of perfectionists in interpersonal relations, I-Thou relations—and both advocate the connoisseurship of the style of life; both see here a commitment and a refinement of education, both see here a new lease on life for the best in traditional religion on condition that the worst in it be frankly jettisoned. In this they are, of course, a part of a larger movement, Bultmannism or the demythologization of religion. What is important in their works, however, is more the positive aspect of their religiosity, their readiness to justify their unwillingness to demythologize religion so far as to let it vanish completely (the death of God).

The works of Martin Buber do not yield to summary, even a brief and superficial one, within the limits available here. Indeed, much of his contribution is part of a process of reviving a lost past and a lost education which is both religious and meaningful for modern Jews. I shall not discuss all this. Two points of his work should suffice. First, his *Two Types of Faith,* which is a brilliant piece of linguistic analysis in the wake of Georg Simmel but supporting an existentialist philosophy, and a strange piece of pseudohistory supporting a quaint pseudo-Judaism. We can believe, or have faith, or the like, says Buber, in two different senses, one indicated in the preposition *"in x,"* the other *"that y"* or *"concerning y,"* etc., where *x* is a *person,* and *y* is a *proposition.* The Jew, the Psalmist, has faith in the Lord—not in his existence; rather, the Jew trusts that the Lord will not let him down, not the proposition that he exists. Saint Paul required that the Christian have faith in the Greek sense, in the sense of accepting the truth of a proposition, so as to be saved—thus mixing Greek and Jewish elements of his religion.

Of course, considering the first two of the Ten Commandments in the light of Buber's analysis will lead to blasphemy, since these no longer declare, respectively, the existence of the one deity and the nonexistence of any other deities, but rather the trustworthiness of him and the untrustworthiness of the others. Interestingly, historians of biblical

theology may very well be so blasphemous and read the Ten Commandments this way: originally, some say, Israel's deity was "jealous" and this led him to become overdeity, and only still later did he become the one and only.

Be this so; nevertheless, traditional Judaism obviously and most emphatically opposes this reading. Hence, traditional Judaism has strong fundamental articles of faith in the very sense which Buber declares very Greek and very un-Jewish. This Buber's piece of arbitrary apologetics has to be jettisoned. What remains is the advocacy of a way of life of trusting, of faith, and of hope.

The arbitrary apologetic streak in Buber's philosophy need not concern us overmuch. Buber himself was willing to see in traditional Judaism much that he rejected as distasteful. In his "Reply to Critics," in Schilpp's volume *The Philosophy of Martin Buber* (Library of Living Philosophers), in a section published in *Commentary* in 1964, Buber ends on this point: that the Hassidim proposed to intensify religiosity, to intensify life, but by a magical formula; to avoid the formula, yet to go on pursuing the same end, said Buber, was his chief message. However, Buber never really liked to admit that he had a message. Again and again he said he was pointing the way and no more (something, one might add, an art critic has to do, or a good educator), he only wished to help people find their own way, not prescribe (art critics cannot prescribe taste or proclamations of taste).

What Buber's philosophy amounts to in terms of religion in the strict and traditional sense is not clear to experts, let alone laymen. There are two or three biographies of him and innumerable studies, all inconclusive. It seems clear, however, that Buber shifts emphasis from doctrine to prayer. Prayer enriches life, especially when done in a way somewhat more sophisticated than going to the synagogue to recite some dead words just to fulfill a duty. If one wishes to pray, says Buber, one need not raise problems and enter discussions about the existence of the deity; when one really has to pray, one just prays.

There are two obvious criticisms of Buber, the one hostile and shallow, the other sympathetic and serious. The hostile critic will see in God a father substitute and in prayer a regression to a child's desire for protection and comfort. All this is true but irrelevant: an orphan in need of a father substitute may reasonably adopt a human stepfather, and unreasonably adopt a totem pole. The psychological need is the same in both cases of the advisable and of the inadvisable conduct. The question we should ask is, "Is there a deity which listens to my prayers?" and not, "What is my need for prayer?" Assuming that God does not

exist, is prayer advisable? The sympathetic critic will draw attention to the fact that many who do wish to pray cannot honestly do so since they cannot come to the conclusion that some personal deity listens. The sympathetic critic will thus reject Buber's proposal to ignore faith of the Greek type. Buber, on his part, cannot and would not meet this criticism by an attempt to prove that there is a deity listening to our prayers. Rather, he would point out that those who refuse to assume too much about God do assume too much about their own selves—in particular about their own abilities, intellectual and moral. Excessive self-reliance is to Buber not so much the sin of hubris as the error of hubris—the overestimate of one's own abilities and resourcefulness.

Buber has a baffling point here. Once we equated reasonableness with proof and became antireligious. Now we gave up this idea of reasonableness, and Buber at least challenges us to reconsider all our ideas: Perhaps we should invent a new criterion of reasonableness and apply it to religion; perhaps we should act intuitively and simply pray, both when we feel like praying and when we feel that it is reasonable to pray; and perhaps we should simply become irrational. These are the alternatives and this is Buber's challenge. Buber is not alone in challenging us, but *his* challenge, particularly, appeals to the religious scientific avant garde, the subject of the present study. And he particularly appeals, I think, because of his attitude to the above alternatives. Contrary to certain allegations, Buber flatly rejects the irrationalist option, and even severely criticizes Heidegger for accepting it. He also leaves the choice between intuitive reasonableness and possible new criteria for reasonableness; he merely stresses that there is no basis for the claim that prayer is unreasonable except in a defunct philosophy which suffered from excessive self-reliance.

To consolidate all this and to be somewhat more convincing, Buber has undertaken to perform two tasks, both of which he has executed. The first is to argue that the limit of self-reliance is the reliance of the individual on his specific background—social, cultural, religious, and even scientific. The second is to sift the reasonable from the unreasonable in religion.

I shall not discuss his execution of these two tasks, especially since I am studying here the phenomenon from the viewpoint of one more interested in science than in any specific religious commitment. But I have to state one outcome of these labors. The resulting philosophy will not be irrationalist, though decidedly not rationalist in the sense of classical uncritical rationalism. It will be a philosophy of commitment—of commitment as a precondition of rationality, not as the out-

come of a rational decision. Yet the commitment is not arbitrary either —at least not as arbitrary as the average existentialist would have it. For the choice is not between a set of possible commitments but between a set of existing and living commitments of communities which traditionally practice them.

Buber's refusal to fit any categorization is systematic and stubborn. I have opened this essay by dividing men not into scientists and priests but into knowers and seekers, and I view the religion of the knower as essentially different from that of the seeker. Buber fits neither category. His is not a knower, and preaches no doctrine; but he seeks not a doctrine, not the truth, but the community of those who seek communion in God. It is very hard to say, for those who demand that quest be a component of religion, whether Buber qualifies this way or not. He suggests getting rid of magic, but no new rationality; he suggests intensifying life and the quest for God, but says nothing on the quest for enlightenment. He is against excessive self-reliance but does not say to what degree one should allow, indeed strive for, integration in one's community, without thereby losing one's independence and self-reliance.

Here we see how important it is to view religion, as well as science, as a living tradition. And this is why here Polanyi comes to complement Buber: Prayer or any other religious conduct is part and parcel of the religious way of life, which is utterly parallel to the scientific way of life. Banish one, and you may just as easily banish the other; it all is a matter of initial and frankly arbitrary choice of an existing tradition practicing a given way of life. One chooses science, one religion, and Polanyi chooses (*The Logic of Liberty*) both: They both enrich his life.

Polanyi attacks the traditional rationalist philosophy of science as enlightenment. There is no rationality in the old sense; there is no proof in science; complete objectivity is impossible. Yet there is some objectivity within, and—as a matter of brute fact, if you will—to, a given scientific society (*Science, Faith, and Society*).

Comprehension, says Polanyi in the preface to his *Personal Knowledge,* "is neither an arbitrary act nor a passive experience, but a responsible act claiming universal validity." This sounds surprisingly Popperian, until one remembers that Polanyi, in the same volume, flatly rejects the correspondence or absolutist theory of truth. "X is true," he says, really means, "I believe X to be true." And to see what belief means is to see what it entails in actual life, in parxis. Thus, Polanyi advocates a version of Duhem's instrumentalist philosophy of

science; but he shows that Duhem's own statement of his view is too old-fashionedly rationalistic. It is less than Duhem had claimed it to be: within the Duhemian rules of science some alternatives are excluded, but the rules do not narrow the alternatives in each case to precisely one. Hence, moves in the history of science often had to be made by individuals prominent within the scientific tradition—moves not fully characterizable according to any articulated set of known rules (*The Tacit Dimension*). Here an element of authority enters the philosophy of science.

This point has been repeated by Thomas S. Kuhn, who is thus far utterly neutral in the debate concerning religion, in his *The Structure of Scientific Revolutions* and elsewhere. And he acknowledges his debt to Polanyi. The exact timing of a scientific revolution, says Kuhn, is not determined by any rules; the rules only prescribe a vague feeling of the approaching revolution. The exact timing is declared by the acknowledged leadership of the scientific community. So much for Kuhn's position.

Again we come to an important element in all this, Polanyi's doctrine of connoisseurship (*Personal Knowledge*). If you want to be a scientist—or an artist, or a theologian—you start neither a priori (by thinking) nor a posteriori (by observing); you start by going to the best available master and becoming his apprentice. The method, the style of life, is tacit and inarticulate; you learn it by apprenticeship. You cannot criticize religion or science from the outside, nor do you become an insider by merely endorsing a doctrine; commitment is an existential affair; one learns the meaning of a commitment by practicing it.

C. Both Buber and Polanyi become slightly authoritarian in places—out of the inner logic of their situation. As the limit of self-reliance is social, so transcending self-reliance lands one on the reliance on the authority of one's leader. The task of sifting the reasonable from the unreasonable in any given religion is left to the leader to perform; and the outcome of that performance has to be accepted. A crucial instance is Buber's *Moses,* which includes a critical introduction and an uncritical text. In his introduction, Buber rejects both the literal acceptance of the Bible as a historical document and its total over-critical rejection. The Bible, he says, should be treated as a distorted racial memory. If one can ascribe this idea to any single author, one may well accept R. G. Collingwood's (*The Idea of History*) attribution of it to F. H. Bradley. This idea is admirable, and should be appreciated

even though it has been practiced before (say, by Schweitzer), and even though its explicit formulation is by now commonplace. But how do we rectify such memory? Buber does not say; he illustrates. He simply retells Moses's story as he sees it. Willy-nilly he thus plays the role of a leader.

The admitted ineffability of the essential and vital and valuable elements of tradition is an enormous source of strength here. One cannot specify the tradition as well as one can convey the feel for it. On almost any significant question Buber or Polanyi offers an elusive, refined answer. Sociology should follow neither individualism nor traditionalism, but a sort of middle course. Social and political innovations must take place, but fall on fertile grounds. Religion is not merely a private faith and not merely a social and cultural way of life, but a sort of blend of the two. Science is neither inductive nor deductive, but a blend.

This, then, is the Buber-Polanyi intriguing doctrine of self-reliance which stands behind their religious doctrines. A self-reliant person develops his sensibilities to the utmost, even to a point beyond his ability to articulate them. He may learn to be critical on the way, but he must evolve to the postcritical level of intuitive expert judgments. These are not final: Sooner or later criticism may shake them; but they are above and beyond criticism when they rule the day. The classical rationalistic idea was that one must prove, and of course, thereby articulate, one's views. Proof is too much to expect. We have, then, daring based on intuitive feelings, on expert touch. This is not only unprovable but even not articulated.

Now, what is not articulated can hardly be criticized, it seems. And so the new philosophy seems to land in blatant irrationalism. Yet this is an error. Strange as it may sound, the differences between the views of Buber and Polanyi and those of Popper and Bartley are secondary.

There are two important ingredients to judge, intuition and criticism. Now, readily or reluctantly, all major thinkers today agree about intuition, its value, the difficulty of articulating it, etc. Similarly, those who do not appreciate criticism are dismissed as irrationalists.

There are two secondary ingredients to judge: connoisseurship and the choice of a style of life. Now, the Popperian will say, it is preferable to attempt to articulate one's intuitions in order to open them to critical examination and evaluation. Even the connoisseurs and artists may benefit from attempts to articulate, though they cannot ever be entirely

successful. The Buberite, however, will defend the working ineffable residue which may be destroyed by overarticulation. This, however, can be studied empirically—like the many tenets of positivist commitment. Buber and Polanyi are, when all is said and done, religious positivists: Whatever body of religious doctrine is articulated, they will relegate to a secondary position; it is the living working practice which they stress. Martin Buber was immensely consistent here and, where he could more easily point the way to the perplexed, regularly and repeatedly debunked his written words as poor substitutes for teaching, for live conversation. And, true enough, there is some distance between this and the old religious positivism, which in the works of some disciples of Malinowski identifies religion—including the affirmation of the faith—with mere ritual. Buberite positivism evades the intellectual question: How much of the doctrine of any religion is acceptable? This evasion, however, is not enough of a novelty to make a difference, even when Buber adds myriads of sophisticated and exquisite cultural and historical studies to his philosophical works.

The difference between the two avant-garde groups, the critical rationalists and the sophisticated religionists, becomes even smaller; yet the religionists are not rationalists; ever so often they skate dangerously close to authoritarianism and hence to irrationalism, because they advocate the connoisseur's intuition as best and hence binding—even though it keeps changing (improving?).

XI. Science and Universalistic Religion

What is most obviously missing from the new refined religion of the religious scientific avant garde whom I have ventured to describe, and who follow, I think, Duhem, Buber, and Polanyi, is very odd indeed: What is missing from their religion is the religious aspect of science, the scientific quest. Their religion incorporates beautifully some religious aspects of the arts, of Fra Angelico, or of Bach. They admit the aesthetic value of science—indeed they stress it. But the religious value of science, or the intellectual love of God, short circuits their philosophy. The separation of religion from science is essential to them. It is essential to them in order to prevent science from ousting religion, for (like Pascal) they have found science without religion intolerable.

What I recommend here, then, is exactly such a short circuit, an intensification of all that is good in this avant-garde philosophy. The result will be "A Free Man's Worship," much as Russell envisaged it half a century ago.

A. The religious scientific avant garde I have discussed here are not professional philosophers or theologians. Also, they have high standards of professional ethics. Hence, they can seldom express their views on religion, whether in writing or in public speaking. Even in private, when conversation turns really intellectual, they prefer to talk on subjects they know: mathematics, pure and applied; science, natural and social, pure and applied—real hardware by the most severe positivist standards. They are also inhibited from discussing religion due to loyalty—both to their religious denominations and to science. They are hardly heard. But they have clear and strong opinions, and these often show in action, usually in committee or in private consultation.

The picture of the behavior of the religious scientific avant garde then—quite unintentionally—is that of a conspiracy of silence about religious doubts; of a grimness on the part of desperate intellectuals who try sheer tenacity as their last effort at adjustment—a seeming conspiracy very much akin to the traditional seeming conspiracy of silence on the same topic though from the rationalistic side of the barricade. The disappointment in science was too painful; the new positivist view is precarious and really depends on keeping life as gracious as possible and on not tearing one's hair and shouting at each other.

The cool, suave attitude of the religious scientific avant garde to science is the not really cool and rather stiff expression of past disappointment, of the once burnt twice shy. Also, their mood fits Duhem's despair of ever attaining informative theoretical science very well. Dedicated they are; enthusiastic they fear to be. Buber has done a lot to bring religion to life for them (for they often lack religious upbringing), at least to the Protestants and Jews among them, but in a significantly mutilated form—at least one can show this with respect to Judaism. For Buber, Judaism is a faith, not a scholarly way of life; the love of learning, the respect for scholarship, and all that, so characteristically Jewish, do not appear in Buber's picture of Judaism. The most important Jewish ritual—study—is totally bypassed by Buber.

This is no oversight: Pragmatism is a shift away from intellectualism. Duhem has debunked the intellectual values which rationalism preaches, and rendered science a part of technology; likewise Buber has ignored the intellectual values which religion preaches, and rendered religion a part of a way of life. What members of the new religious scientific avant garde desire most is intellectual, and what

they want reinforced is the moral and religious value of intellectual activity. Exactly this they have lost to commitment. In a grim determination to hold to the commitment, they have lost sight of their own quest.

Much as I do not like this grim determination, I do not think I can show that it is redundant. For all I know, the grim determination may work; perhaps because it is a mode of convincing the divine authority of our goodwill and sincerity (the new Kierkegaardians!) so as to induce the authority to spare us. The grim determination may not suit my character, or yours, or yet the suave mode of gracious living as cultivated by the new religious scientific avant garde. Psychology may be against it. Yet, philosophically, grim determination has the upper hand. Religion, in the late Middle Ages, preached pessimism, even in the high Renaissance (R. F. Jones, *Ancients and Moderns*). Science competed hard, and offered certainty and optimism. Now that science has disappointed us, it should no longer offer mock certainty and shallow technological optimism. The members of the religious scientific avant garde refuse to let go of the last shred of the promise of science, and in desperation they try then to complement it with religious promises. The desperate mood of such a move is not canceled by the outcome. Moreover, contrary to all their intentions, their philosophy remains irrationalist both in that it disallows scientific examination of their pragmatist tenets and in their loss of their own main objective: the intellectual love of God.

B. My own view of the matter is this. Science is better off not competing with religion concerning promises, but competing with old sectarian religions frankly as a new universalistic religion. The pretense that science was no competitor to established religion has led science to engage in fierce hostilities of a positivist and radical nature. As Comte has already noticed, positivism *is* a religion; yet he was not boldly positivist, not positivist enough, to reject this religion. Competing as a religion, science may, however, appear as what the avant-garde religious thinkers do wish religion itself to appear: Not anti-religious, but rather religion properly modernized, a way of life with as little dogma and taboo as possible, and with as much possible enrichment by varied traditions as desired.

The idea sketched here is not different, I hope, from what Einstein, in his "Religion and Science," referred to as: "the cosmic religious feelings" that he felt. For more details on the religious aspect of this philosophy, I would recommend consulting R. Robinson's

woefully neglected *An Atheist's Value* of 1964 (though I definitely intend not to advocate atheism). But in order to integrate this into a more coherent philosophy, one must devise a philosophy of science and of rationality to compete with Duhem's philosophy of science. Here, I think, a modification of the views of Popper and of his former students—especially Bartley—seems to come in rather handy, though as yet their views are far from having the finish a serviceable doctrine may need.

C. Let me conclude with two quotations from Bertrand Russell's *Autobiography,* volume 1.[6] Anticlerical as he often is, in his deeper moments he expresses his quest in thoroughly religious terms. The first and brief quotation is from a letter written on April 22, 1906, exhibiting Russell's views of the religious aspect of intellectual activity. The other, from a letter written on July 16, 1908, exhibits his view of religion which, though half a century old, seems to me to remain the real avant-garde attitude in these matters.

> And another thing I greatly value is the kind of communion with past and future discoverers. I often have imaginary conversations with Leibniz, in which I tell him how fruitful his ideas have proved, and how much more beautiful the result is than he could have foreseen; and in moments of self-confidence, I imagine students hereafter having similar thoughts about me. There is a "communion of philosophers" as well as a "communion of saints," and it is largely that that keeps me from feeling lonely [p. 280].

> I am glad you are writing on Religion. It is quite time to have things said that all of us know, but that are not generally known. It seems to me that our attitude on religious subjects is one which we ought as far as possible to preach, and which is not the same as that of any of the Voltaire tradition, which makes fun of the whole thing from a common-sense, semi-historical, semi-literary point of view; this, of course, is hopelessly inadequate, because it only gets hold of the accidents and excrescences of historical systems. Then there is the scientific, Darwin-Huxley attitude, which seems to me perfectly true, and quite fatal, if rightly carried out, to all the usual arguments for religion. But it is too external, too coldly critical, too remote from the emotions; morever, it cannot get to the root of the matter without the help of philosophy. Then there are the philosophers, like Bradley, who keep a shadow of religion, too little for comfort, but quite enough to ruin their systems intellectually. But what we have to do, and what privately we do do, is to treat the religious instinct with profound respect, but to insist that there is no shred or particle of truth in any of the metaphysics it has suggested; to palliate this by trying to bring out the beauty of the world and of life, so far as it exists, and above all to insist upon preserving the seriousness of the religious attitude and its habit of asking ultimate questions. And if good lives are the best thing we know, the loss of religion gives new scope for courage and fortitude, and so may make good lives better than any that there was room for while religion afforded a drug in misfortune.

And often I feel that religion, like the sun, has extinguished the stars of less brilliancy but not less beauty, which shine upon us out of the darkness of a godless universe. The splendour of human life, I feel sure, is greater to those who are not dazzled by the divine radiance; and human comradeship seems to grow more intimate and more tender from the sense that we are all exiles on an inhospitable shore [pp. 285–86].

NOTES

1. For the importance of problems, see M. Bunge, *Scientific Research* (Berlin: Springer Verlag, 1967), chap. 4. For the importance of problem situations, see W. W. Bartley III, "Approaches to Science and Skepticism," *Philosophical Forum* 1 (1969): 318–31.

2. The word "suggest" is too mild here: the depressive qualities of these doctrines bring to mind the brainwash techniques discussed in Sargent's *The Battle for the Mind.*

3. For more detail, see my "Science in Flux," *Boston Studies in the Philosophy of Science* 3 (1968):293–323, and my "Unity and Diversity in Science," ibid. 4 (1969): 464–522.

4. For more details, see my "The Nature of Scientific Problems and Their Roots in Metaphysics," in *The Critical Approach: Essays in Honor of Karl Popper,* ed. M. Bunge (New York: Free Press, 1964).

5. New York: Charles Scribner's Sons, 1967.

6. Boston: Little, Brown & Co., 1967.