Conceptions of Dialogue: Philosophy of Science (Popper, Kuhn, Feyerabend) and Ecumenical Dialogue[1]

CHARLES MOREROD, OP
The Angelicum
Rome, Italy

WE WILL BEGIN by presenting the epistemology of three important philosophers of science: Karl Popper (1902–94), Thomas Kuhn (1922–96), and Paul Feyerabend (1924–94). We shall attempt to make clear their views on the relationship between various scientific theories.

Whatever the differences among these three authors, we will try to find out if from their work there does not emerge a certain common view on the relationship between the various scientific systems. If such is the case, we shall try to see if there exists a similar relationship among religious systems (in ecumenical and interreligious dialogue). It is probable that a view which is widespread in the scientific field has an impact on culture that is broader than on the natural sciences themselves, given the prestige of these latter.

Why study this question from the starting point of three philosophers? Philosophers of science reflect, and to some extent influence, the thinking of scientists and the general mindset of their time.

---

[1] Translation by Robert Williams of "Conceptions du dialogue: Philosophie des sciences (Popper, Kuhn, Feyerabend) et dialogue oecuménique," *Nova et Vetera* 76 (2001): 23–53.

I. Karl Popper[2]

Born in Vienna, Karl Popper spent World War II in New Zealand and from 1946 was in London (London School of Economics), which explains the title of Sir Karl Popper that he bore from 1972 on. He had a major influence on the philosophy of science in the twentieth century, and numerous scientists, political analysts, and economists (George Soros in particular) claim to be members of his school.

A. Accept the Partial and Provisional Character of Theories

For Popper, the evolution of science shows the failure of holistic systems, that is, of systems that intend to set forth a definitive and global interpretation of the world. The succession of scientific theories, especially physical, has shown that theories can only be provisional and even in the phase of its provisional acceptance the theory is partial: "[W]hatever we accept we should trust only tentatively, always remembering that we are in possession, at best, of partial truth (or rightness), and that we are bound to make at least some mistake or misjudgment somewhere—not only with respect to facts but also with respect to the adopted standards."[3]

We must always keep in mind that a theory that has been corroborated on many accounts by experience may nevertheless be false. Thus the theories of Kepler or Newton, one after the other, contained much exact information, yet they were false.[4] A clear example would be that of the earth's position in relation to the sun: The cultural impact of the theories that Galileo came up against comes from the fact that such theories fit in with common

---

[2] We will base our study on the following works: *The Open Society and its Enemies*, Vol. 1: *The Ascendancy of Plato* and Vol. 2: *Hegel and Marx* (London: Routledge, 1945); *The Logic of Scientific Discovery* (London: Hutchinson, 1959); *In Search of a Better World* (London: Routledge, 1992); *Unended Quest: An Intellectual Autobiography* (Glasgow: Fontana, 1976); *Objective Knowledge: An Evolutionary Approach* (Oxford: Clarendon Press, 1972); *The Lesson of this Century* (London: Routledge, 1996); *All Life Is Problem Solving: Questions about the Knowledge of Nature* (London: Routledge, 1999).

[3] *The Open Society and Its Enemies*, Vol. 2, Addendum, "Facts, Standards, and Truth: A Further Criticism of Relativism," 391.

[4] Ibid., 376–77.

experience. Generally, it is only when a theory has become outmoded that we realize that it was only a provisional approximation. Moreover, changes in physics have a philosophical impact: Einstein's theory of relativity has overthrown the presuppositions of philosophers like Kant and Hegel.

B. Every Theory Depends on the Question It Answers

The reason why a theory, more or less corroborated by experience, can be false is that every theory aims to answer a specific question. Since the question is more limited than what would have to be observed, the experiment that must corroborate the theory only focuses on a part of what could be experimented on and only proceeds using one possible method among several (for example, one may observe the same human body according to physical criteria, chemical criteria, psychological criteria, and so forth, and get a different view with each approach). To sum up,

> [A] scientific description will depend, largely, upon our point of view, our interests, which are as a rule connected with the theory or hypothesis we wish to test; although it will also depend upon the facts described. Indeed, the theory or hypothesis could be described as the crystallization of a point of view. For if we attempt to formulate our point of view, then this formulation will, as a rule, be what one sometimes calls a working hypothesis; that is to say, a provisional assumption whose function is to help us to select, and to order, the facts. But we shoud be clear that there is no theory or hypothesis which is not, in this sense, a working hypothesis, and does not remain one. For no theory is final, and every theory helps us to select and order facts.[5]

The repetition of a phenomenon in an experiment is not enough to establish a proof, for a different approach could give a different result. Indeed, "anything can be said to be a 'repetition' of anything, if only we adopt the appropriate point of view."[6]

Put more drastically, it is impossible to verify theories wholly and definitively—"[t]heories are . . . never empirically verifiable"[7]—

---

[5] *The Open Society and Its Enemies*, Vol. 2, 260–61.

[6] *The Logic of Scientific Discovery*, Appendix x, "Universals, Dispositions, and Natural or Physical Necessity," 422.

[7] *The Logic of Scientific Discovery*, 40.

for absolute proof is beyond the possibilities of experience: "We cannot search the whole world in order to establish that something does not exist, has never existed, and will never exist. It is for precisely the same reason that strictly universal statements are not verifiable."[8] Since it is impossible to look at every swan, we cannot say with absolute certainty that they are all white.[9]

That being the case, we must not chase after the impossible goal of proving the truth of a theory but instead may only prove its likelihood, that is, prove that one theory offers more advantages and fewer inconveniences than another. Popper expresses this goal as follows: "we say that T_2 is nearer to the truth, or more similar to the truth, than T_1, if and only if more true statements follow from it, but not more false statements, or at least equally many true statements but fewer false statements."[10] This viewpoint implies that every theory contains not only true statements but also false ones, at least in the sense that it implies some false consequences.

C. Science Marches on Nonetheless

Under these conditions how can science proceed? We would think that the scientist must choose the most probable theory while he waits for a better one. Popper rejects this viewpoint, which he sees as a disguise for "dogmatism." Instead, he wants us to choose the most improbable theory: "I do not think that we can ever seriously reduce, by elimination, the number of the competing theories, since this number remains always infinite. What we do—or should do—is to *hold on to the most improbable of the surviving theories* which is the one that can be most severely tested. We tentatively *'accept'* this theory—but only in the sense that we select it as worthy to be subjected to further criticism, and to the severest tests we can design."[11]

The choice of the most improbable fits in with the core theory of Popperian epistemology, namely falsifiability. We cannot verify the exactitude of a system but we can "verify" its inexactitude: "not

---

[8] Ibid., 70.

[9] Cf. ibid., 27: "no matter how many instances of white swans we may have observed, this does not justify the conclusion that *all* swans are white."

[10] *Objective Knowledge*, 52.

[11] *The Logic of Scientific Discovery*, Appendix ix, 419.

the *verifiability* but the *falsifiability* of a system is to be taken as a criterion of demarcation."[12] We can play with words by saying that to prove a theory false empirically is still to verify it. Certainly. But it is easier to find a shortcoming than to prove the truth of all its elements, which would require exhaustive experimentation.[13] In fact, according to Popper's final point of view, for its falsification to have any meaning a theory must be presented as solid.[14]

A scientific theory must be open to the demonstration of its falsity; hence it must have a certain inherent modesty. For this reason the most unlikely theory is considered the best. A theory that is hard to prove false is often a theory that says little because its scope is quite limited.[15]

D. Epistemology and the Evolution of Living Things

In his approach to science, Popper sees a mark of reality itself: *"In so far as a scientific statement speaks about reality, it must be falsifiable: and in so far as it is not falsifiable, it does not speak about reality."*[16] This affirmation is absolute. Indeed, the only absolute that Popper accepts is the effect of errors on theories.[17]

---

[12] *The Logic of Scientific Discovery*, 40.

[13] Popper recognizes that the criterion of falsifiability is not free from difficulties: cf. *All Life Is Problem Solving*, ch. 1, "The Logic and Evolution of Scientific Theory," 3–22.

[14] Cf. *Objective Knowledge*, 266: "[L]et it be your ambition to refute and replace your own theories: this is better than defending them, and leaving it to others to refute them. But remember also that a good defence of a theory against criticism is a necessary part of any fruitful discussion since only by defending it can we find out its strength, and the strength of the criticism directed against it. There is no point in discussing or criticizing a theory unless we try all the time to put it in its strongest form, and to argue against it only in that form."

[15] Cf. *All Life Is Problem Solving*, ch. 1.

[16] *The Logic of Scientific Discovery*, Appendix i, "Two Notes on Induction and Demarcation," 314.

[17] Cf. *The Open Society and Its Enemies*, Vol. 2, Addendum, "Facts, Standards, and Truth: A Further Criticism of Relativism," 377: "The idea of a philosophical absolutism is rightly repugnant to many people since it is, as a rule, combined with a dogmatic and authoritarian claim to possess the truth, or a criterion of truth. But there is another form of absolutism—a fallibilistic absolutism—which indeed rejects all this: it merely asserts that

In Popper's opinion, the epistemological framework is based upon an analysis of living things. An animal (and even to a certain extent a plant) confronts its environment according to the following scenario. First, it realizes there is a problem (for example, the intrusion of another animal). Second, it tries to solve this problem and when it occurs again, it relies upon the previous attempts, supposing all the while that there is a regularity in the solving of a given problem. Third, the solution (or the animal) is eliminated if it is ineffective and is replaced, if possible, by a more effective solution.[18] Science proceeds in the same manner:[19] A problem arises (perhaps the scientist induces it for research purposes), and then we look for the best means of solving it. Thus understood, scientific development is like Darwinian evolution,[20] which implies that every theory, like every species, runs a great risk of disappearing as soon as it no longer adapts; there is no question of setting up definitive theories.

This framework proposes an aprioristic epistemology that Popper deems revolutionary:[21] strictly speaking, the starting point is not the observation of the whole of the surrounding world, but the realization that there is an immediate problem to be solved. We then formulate an a priori hypothesis and we do experiments. It just so happens that this is the way living things behave.[22]

Our knowledge is therefore at once real and fundamentally limited because the range of the knowable makes a complete verifi-

---

our mistakes, at least, are absolute mistakes, in the sense that if a theory deviates from the truth, it is simply false, even if the mistake made was less glaring than that in another theory."

18 Cf. *All Life Is Problem Solving*, ch. 1.

19 Despite certain differences between the scientist and the animal: cf. *All Life Is Problem Solving*, ch. 1 and especially ch. 5, "Towards an Evolutionary Theory of Knowledge," 57–73.

20 Popper's father owned the works and a portrait of Darwin: cf. *Unended Quest*, 11.

21 Cf. *All Life Is Problem Solving*, ch. 4, "The Epistemological Position of Evolutionary Epistemology," 45–56.

22 Without being deterred by it, Popper is aware of the fact that we could rework his scenario by making the circle "problem–hypothesis–experiment–provisional solution" start at a point other than the problem: cf. *All Life Is Problem Solving*, ch. 1.

cation impossible and because our hypotheses—like human situations—can be developed indefinitely. A final argument in support of this general thesis is the "mathematical proof" that Gödel's theorem of incompleteness provides. This theorem, formulated by the mathematician Kurt Gödel in 1931, proves that a mathematical system can never be finalized. From this Popper concludes that all the physical sciences, since they make use of arithmetic, must necessarily be unfinalized by virtue of Gödel's theorem of incompleteness.[23]

E. From the Limits of Scientific Knowledge to the Limits of All Knowledge

For Popper, the fact that scientific knowledge—our best knowledge—is limited implies the limitation of knowledge in general.[24] There is no such thing as certain knowledge: the only thing that exists is conjectural knowledge; we human beings are animals and animals cannot have certain knowledge.[25]

Science lands with a thud. In order to measure the impact of this reappraisal of its ability to know, we must measure the impact of the hopes it has aroused. A good example is the appearance of Newton's physics: "Thus Newton's theory created a new intellectual situation; it was an unparalleled intellectual triumph. The predictions of Newtonian theory were corroborated with unbelievable accuracy . . . .It seemed that here indeed was knowledge; true, certain and sufficiently justified knowledge. There could surely be no further doubt about it."[26] The depth of the doubt is measured by the height of the disappointed hope: "This classical notion of science as true, secure and sufficiently justified knowledge still flourishes even today. But it was overtaken sixty years ago by the Einsteinian Revolution; by Einstein's gravitational theory. The outcome of this revolution is that Einstein's theory, whether

---

[23] Cf. *All Life Is Problem Solving*, ch. 2, "Notes of a Realist on the Body-Mind Problem," 23–35. Popper discussed this question with Gödel: cf. *Unended Quest*, 132.

[24] Cf. *All Life Is Problem Solving*, ch. 4.

[25] Cf. *All Life Is Problem Solving*, ch. 5. However we must say that Popper does differentiate human from animal knowledge; cf. *All Life Is Problem Solving*, chs. 1–5.

[26] *In Search of a Better World*, 35–36.

true or false, demonstrates that knowledge in the classical sense, secure knowledge, certainty is impossible."[27]

Henceforth, the very meaning of the word "science" must be redefined: "Our science is not knowledge *(epistémé)*: it can never claim to have attained truth, or even a substitute for it, such as probability."[28] We have to change the way we think: "I think that we shall have to get accustomed to the idea that we must not look upon science as a 'body of knowledge', but rather as a system of hypotheses."[29]

Popper wants to show the limits of science without being a skeptic: "[T]he belief in scientific certainty and in the authority of science is just wishful thinking: *science is fallible, because science is human*. But the fallibility of our knowledge . . . must not be cited in support of scepticism of relativism. From the fact that we can err, and that a criterion of truth which might save us from error does not exist, it does not follow that the choice between theories is arbitrary, or non-rational: that we cannot learn, or get nearer to the truth: that our knowledge cannot grow."[30] On the contrary, criticism of illusions in regard to knowledge aims at the service of truth because the idea of error already implies truth.[31]

Although the usual theoretical justification of realism seems to him "disproved," Popper still considers himself a metaphysical realist who admits the theory of evolution.[32] He even sees in it the condition outside of which human life is not taken seriously.[33] If with Kant he admits that theories are human constructs, he adds that these theories must afterward be confronted with the facts.[34] With his epistemology of approximation, of likelihood, Popper means to propose a "realistic realism" for the experimental sciences,

---

[27] Ibid., 37.

[28] *The Logic of Scientific Discovery*, 278.

[29] *The Logic of Scientific Discovery*, Appendix i, "Two Notes on Induction and Demarcation," 317.

[30] *The Open Society and Its Enemies*, Vol. 2, Addendum, "Facts, Standards, and Truth: A Further Criticism of Relativism," 375.

[31] Cf. *All Life Is Problem Solving*, ch. 5.

[32] Cf. *All Life Is Problem Solving*, ch. 3, "Epistemology and the Problem of Peace," 36–44.

[33] Cf. *All Life Is Problem Solving*, ch. 1.

[34] Cf. *Objective Knowledge.*

that is, a realism that takes into account the limits of our experimental knowledge and does not look to it for mathematical certitude. This allows him to say that "[b]y incorporating into logic the idea of verisimilitude or approximation to truth, we make logic even more 'realistic'. For it can now be used to speak about the way in which one theory corresponds better than another to the facts—the facts of the real world."[35]

F. The Philosophical Sources of Totalitarianism: The Epistemology of Plato and Hegel

Popper links his critique of certain conceptions of science to a political critique. He sees a kinship between a science very sure of itself and totalitarianism. Philosophy must be careful to avoid lending itself to such deviations. The starting point of his work as a philosopher of science is the contemporary experience of totalitarianism, in its Marxist or Fascist-Nazi forms,[36] which was responsible for the disappearance of a great part of his family.[37]

Popper rejects an epistemology that quite forcefully claims to know the true nature of the perfect state, and thinks that since many people cannot arrive at this knowledge by themselves, they have to be "stimulated." This position implies that a true knowledge is possible but not for everyone.

Popper re-reads history in the light of his epistemological-political hypothesis. He enumerates those past philosophers whose epistemology, in different ways, favored an open society. In the

---

[35] *Objective Knowledge*, 318.

[36] Cf. the Preface of the French translation of *The Open Society and Its Enemies*, (*La société ouverte et ses ennemis*, Tome 1, Paris, Seuil, 1979, 8): "The ideas put forth in this work go back to the year 1919. The First World War had just ended and I had already rejected Marxism because to me it seemed to create the illusion that violence was justified . . . . In the interval between the First World War and Hitler's invasion of Austria, I had kept silent about my criticisms of Marx, only opening myself up to very close friends. At that time, the only alternative to Marxism in Austria was Fascism, the worst of all. But the day that Austria was invaded, I took the decision to write this book. It is an attack on totalitarianism and tyranny in all their forms, whether of the right or the left." Cf. *Unended Quest*, 33; and *The Lesson of This Century.*

[37] Cf. *All Life Is Problem Solving*, ch. 3.

place of honor we find Socrates, Xenophanes, Descartes, and Bacon. With this positive philosophical line, he associates a certain type of "reasonable" Christianity,[38] in which God seems scarcely to find a place.

On the other hand, thinkers such as Heraclitus, Plato, Hegel, and Marx developed an epistemology with a totalitarian bent by asserting an inevitability that applies inexorably to history. Plato went astray above all with his claim that the philosopher has to possess the truth rather than to seek it: "his [Plato's] philosopher is not the devoted seeker for wisdom, but its proud possessor."[39] This unshakable possession of the truth winds up in the project of a perfect state where the individual will be submitted to the service of a design that surpasses him. Hegel walks in the footsteps of Plato. With his totalitarian conception of philosophy and history, he is in some way the missing link in the chain that joins Plato to modern totalitarianism. Beyond Plato and Hegel, and in their wake, Popper takes aim at Marx, who inherits from Hegel an absolute view of history and the knowledge of its meaning. Having been disappointed by Marxism, Popper sees Marx as a false prophet; reality has undertaken the task of showing the falsity of his hypotheses. More profoundly, not only did Marx believe he knew the meaning of history, and failed in this project, he was mistaken in wanting to set up a system that took in the whole of reality, a holistic system: "Marx was the last of the great holistic system builders. We should take care to leave it at that, and not to replace this by another Great System. What we need is not holism. It is piecemeal social engineering."[40] Such a project upsets Popper on both the epistemological and the political levels. Unrealistic as far as knowledge is concerned, the desire for an encompassing political system leads us to decide what another's happiness must consist in and afterward bring it about through authority, to force the facts to bow to the system.

In any case, Popper connects a certain view of science with political deviancies. Thus, to the stability of a Platonic type of science he opposes his attitude of challenging certitudes. To suppress the "idol of certitude" is to slay obscurantism, both scientific and political:

---

[38] Several times in *The Open Society and Its Enemies*, Vol. 2.

[39] *The Open Society and Its Enemies*, Vol. 1, 144.

[40] *The Open Society and Its Enemies*, Vol. 2, 134; cf. on Hegel, Vol. 1, 17.

"With the idol of certainty (including that of degrees of imperfect certainty or probability) there falls one of the defences of obscurantism which bars the way of scientific advance."[41] To say no to ideologies—and to new religions—is a condition of peace.[42]

If Popper's "approximation" epistemology belies the claim to know the meaning of the state clearly, we must not deduce from this that relativism is the solution to political problems, particularly since systems like Platonism or Hegelianism have a too-elevated theory of knowledge in general—according to Popper—but too weak when it comes to the concrete capability of individuals, who for this reason must be subjected to a plan that they do not choose.[43] For him, relativism[44] is one of the causes of Germany's political woes, and the faculty of knowing is a condition of freedom.[45] It is a question of finding an equilibrium between two evils, which he thinks is an approximate realism on the political level.[46]

We should ask ourselves if Popper himself does not give in to a hasty generalization when he is led to asserting that no ideology means no war. He seems to overlook the fact that if ideological factors have played a major role in contemporary wars, so too have wars arisen from personal ambition or weakness, from a desire for enrichment, from hunger (these factors are sometimes mixed with ideology). Original sin is a much more profound answer to this question, even though it is a general response to it.

II. Thomas Kuhn[47]

After studying Physics at Harvard, Thomas Kuhn taught the History and Philosophy of Science at Harvard, then at Berkeley, and finally at MIT.

---

41 *The Logic of Scientific Discovery*, 280–81.

42 Cf. *All Life Is Problem Solving*, ch. 3.

43 Cf. *Sources of Knowledge and of Ignorance*, III.

44 Cf. *The Open Society and Its Enemies*, Vol. 2, *Addendum*, 393–95.

45 Cf. *Sources of Knowledge and of Ignorance*, III.

46 Cf. *Sources of Knowledge and of Ignorance*, XV. It is the principle of falsification applied in a certain fashion to politics.

47 We shall be using two works: his most important work, *The Structure of Scientific Revolutions*, 2nd Ed. (Chicago: University of Chicago Press, 1970); and *The Essential Tension: Studies in Scientific Tradition and Change* (Chicago: University of Chicago Press, 1977).

Kuhn reproaches Popper for ignoring everyday science in order to build a system based on exceptional circumstances. For his part, he intends to present the evolution of science in the daily labor of researchers, where in fact revolutions take place.

A. Why Was Aristotle Mistaken?

Kuhn's starting point seems to lie in a personal experience. Before beginning the study of the history of physics in 1947, he pours over Aristotle's physics in the light of his knowledge of later physics. At first he finds there hardly anything beyond a collection of errors. Asking himself how anyone could take such an erroneous system seriously for very long, he tries to deepen his understanding. It then occurred to him that Aristotelian physics should be situated in a whole context aimed at understanding certain definite points (questions to solve), in particular change in quality, and from there all motion. Seen in this light, Aristotle's physics appears much less false to Kuhn. He deduces from it that while reading the works of an important thinker, one must look first for the apparent absurdities in the text, wonder how a sensible person could have written them, and only then will these passages begin to make sense.[48] Aristotle was therefore not stupid, Kuhn thinks from then on, but his basic hypotheses oriented the results of his research.

B. Paradigms

Unlike Popper, Kuhn concentrates his attention on the ordinary conditions of scientific work. The scientist normally thinks that in his science we can know how the world functions and the rules and instruments by which we can observe this functioning. The series of angles used by a group of scientists to approach reality are paradigms: "[I]n much of the book the term 'paradigm' is used in two different senses. On the one hand, it stands for the entire constellation of beliefs, values techniques, and so on shared by the members of a given community. On the other, it denotes one sort of element in that constellation, the concrete puzzle-solutions which, employed ad models or examples, can replace explicit rules as a basis for the solution of the remaining puzzles of normal science. The first sense of the term, call it the sociological . . . . Philosophically, at

[48] Cf. *The Essential Tension*, Preface.

least, this second sense of 'paradigm' is the deeper of the two".[49] Paradigms and the scientific community that accepts them mutually define each other: "A paradigm is what the members of a scientific community share, *and,* conversely, a scientific community consists of men who share a paradigm."[50]

Certainly, the simple fact that sciences which have the same subject have different names proves Kuhn right at least in part. The question is whether these different approaches can be combined; for Kuhn the union is far from established. In large measure, the members of a given community have absorbed the same literature and from it have drawn the same lessons. On the other hand, since the different communities focus their attention on different subjects, there is a great chance that professional communication among various groups may give rise to misunderstandings and even to important disagreements.[51] Experts in different paradigms live, in some ways, in different worlds: "[T]wo groups, the members of which have systematically different sensations on receipt of the same stimuli, do *in some sense* live in different worlds."[52] This holds true above all in a given science (among different physics theories, for example) but also by reason of the impact that a discovery that went unnoticed in one science can have on another.

C. Normal Science Brings Observation into its Paradigms

Conflicts among paradigms arise from the fact that the scientist usually fits every new fact into his predefined box: "Closely examined, whether historically or in the contemporary laboratories, that enterprise [normal science] seems an attempt to force nature into the preformed and relatively inflexible box that the paradigm supplies. No part of the aim of normal science is to call forth new sorts of phenomena; indeed those that will not fit the box are often not seen at all."[53] In other words, a given group focuses on a type

---

[49] *The Structure of Scientific Revolutions*, Postscript, 175. This Postscript explains the contents of the book, taking into account certain misunderstandings that showed up regarding the first edition.

[50] Ibid., 176.

[51] Cf. *The Essential Tension*, "Second Thoughts on Paradigms," 293–319.

[52] *The Structure of Scientific Revolutions*, Postscript, 193.

[53] *The Structure of Scientific Revolutions*, 24.

of phenomenon that it approaches from a definite angle. Anything on the margin of this phenomenon is considered outside the subject of the study, whereas the consideration of it as part of the subject would perhaps change the whole theory.

By reason of its paradigms, therefore, a theory may be blind to certain phenomena that, in another theory, are taken into account and may even be key. For example, in the eighteenth century electrical attraction was known but it was considered a marginal phenomenon because it could not be well integrated.[54] Every observed phenomenon must a priori conform to laws that we know already and which run the risk of limiting our understanding of it.

D. Changing Theories

It happens of course—and we are talking about those revolutions that lend their name to Kuhn's major work—that we give up a theory when it shows itself truly incapable of explaining one or more phenomena henceforth clearly recognized. For example, when Ptolemy's astronomy, which afforded an explanation for almost all the phenomena, became too obviously incapable of explaining certain others, it was abandoned and a new theory replaced it.[55] This process is not necessarily swift because at first we do not doubt the theory but rather the manner in which it is applied, and because we do not give up a paradigm until another is at hand to replace it.[56]

Changing a theory does not bring only advantages, for every paradigm allows us to answer certain questions. Hence, changing a theory may entail the loss of certain useful answers: "[E]ach paradigm will be shown to satisfy more or less the criteria that it dictates for itself and to fall short of a few of those dictated by its opponent . . . since no paradigm ever solves all the problems it defines and since no two paradigms leave all the same problems unsolved, paradigm debates always involve the question: Which problem is it more significant to have solved? Like the issue of competing standards, this question of values can be answered only in terms of criteria that

[54] Cf. *The Structure of Scientific Revolutions*, 35.
[55] Cf. *The Structure of Scientific Revolutions*, 66–76.
[56] Cf. *The Structure of Scientific Revolutions*, 77–91.

lie outside of normal science altogether . . . ."[57] It sometimes happens that changing the paradigm brings about no change in certain important applications: Copernicus' cosmology does not directly help us fix the calendar any better than Ptolemy's.[58] And it may be that both paradigms are false, as when certain people consider light to be a wave, others a particle, while wave mechanics will say it is neither the one nor the other.[59]

III. Paul Feyerabend[60]

During the Second World War, Paul Feyerabend, who was born in Vienna in 1924, served as an officer in the German army. He studied Physics and Philosophy at Vienna and then went to Cambridge in hopes of studying under Wittgenstein. Wittgenstein's death led him to turn to Popper, whom he later rejected. Feyerabend began his teaching at Bristol in 1955; in 1959, he accepted a chair at Berkeley and subsequently became an American citizen. He would teach at several American universities and, at the end of his life, at Zurich's Federal Polytechnic School (after leaving California because of an earthquake and to live in Italy with his last wife).

What sets Feyerabend apart is his open contempt for conventions. Here there are two related aspects: on the one hand, a certain relational incapability. According to his autobiography, events, striking in themselves, left him cold when they happened: seeing the dead in the streets of Vienna at the age of ten, learning of his mother's suicide and taking part in her burial at the start of the war. He sums up this attitude and gives a certain explanation a posteriori when speaking of his reaction to the arrival of Nazism in Austria: "[T]he events I did notice either made no impression

---

[57] *The Structure of Scientific Revolutions*, 109–10.

[58] *The Structure of Scientific Revolutions*, 154.

[59] Cf. *The Structure of Scientific Revolutions*, 114.

[60] Bibliography of Paul Feyerabend: *Against Method: Outline of an Anarchistic Theory of Knowledge* (London: Verso, 1988); *Farewell to Reason* (London: Verso, 1987); *Dialogues sur la connaissance* (Paris: Seuil, 1996); *Philosophical Papers* (Cambridge: Cambridge University Press, 1981); *Three Dialogues on Knowledge* (Oxford: Blackwell, 1991); *Killing Time: The Autobiography of Paul Feyerabend* (Chicago: University of Chicago Press, 1995).

at all or affected me in a random way. I remember them and I can describe them, but there was no context to give them meaning and no aim to judge them by."[61] His last marriage, in 1989, allowed him to discover, at the same time, love and compassion. The other unconventional aspect—probably partly connected to the first—is his attitude *vis à vis* a certain academic decorum. Not only did he distinguish himself by regularly making fun, in public, of other philosophers and scientists, by saying that scientists do not always have better arguments than astrologers,[62] and by leaving a chair at Yale because they wanted to keep him from holding his classes on the lawn, but he did not take himself too seriously either: "[M]y contrariness extended even to ideas that resembled my own."[63] Sometimes, forgetting what he himself had written, he could end up defending himself when confronted with a bad review by criticizing his own—forgotten—text: "[W]hen a reviewer wrote 'Feyerabend says X' and then attacked X, I assumed that I had indeed said X and tried to defend it. Yet in many cases I had not said X but its opposite. Didn't I care about what I had written? Yes and no. I certainly didn't feel the religious fervor some writers apply to their products; as far as I was concerned, *AM [Against Method]* was just a book, not holy writ. Moreover, I could be easily convinced of the merits of almost any view. Written texts, my own text included, often seemed ambiguous to me—they meant one thing, they meant another; they seemed plausible, they seemed absurd. Small wonder my defenses of *AM* confused many readers."[64]

---

61 *Killing Time*, 38.

62 Cf. *Three Dialogues on Knowledge*, 66: "Wherever you look you find theories beset by major difficulties—and yet they are retained because scientists have the pious faith that the difficulties may be solved one fine day. So why call this pious faith a 'plausible scientific assumption' when we are dealing with the quantum theory of fields and a 'silly and irresponsible superstition' in the case of astrology? Let us admit that research is often guided by hunches for which we have only little support and let us apply this admission equally to all subjects and not only to those scientists happen to favour for some religious reason!" Feyerabend explains later on that he does not believe in astrology: his point is to compare it to science.

63 *Killing Time*, 141.

64 *Killing Time*, 145.

Like Popper and Kuhn, Feyerabend rejects a system that would claim to be complete. The reasons for this rejection are in part similar to those of the other two philosophers and partly different.

A. The Impossibility of an Exhaustive Scientific Knowledge

Scientific knowledge cannot be complete, for an exhaustive knowledge of the world is impossible: we would have to know the world's story before the world came to an end.[65] We see here an argument very much like Popper's against the verifiability of theories; "no single theory ever agrees with all the known facts in its domain."[66] Like Popper, Feyerabend attributes to the theories of ancient philosophy (Parmenides[67] and Plato[68]) the ambition that modern science has of being exhaustive.

B. Presuppositions (Scientific, Artistic, Linguistic, Ethnic) Limit Empirical Knowledge

The impossibility of an exhaustive scientific knowledge flows not only from the extensive limitations of our observation, but also from its presuppositions. We come back to Kuhn's general idea of paradigms, which Feyerabend repeats in other terms and to which he acknowledges his closeness.[69] Like Kuhn, he refers to an ancient philosopher to note that presuppositions might in fact guide the way in which we see the world: "I was puzzled by Anaximander's idea that the sun and the moon were holes in dark structures containing fire. Did Anaximander see the moon as a hole or was he just speculating? . . . Often when wandering around in the countryside I stared at the silver disk, trying hard to make it appear as a hole, or a glare; I didn't succeed."[70]

---

[65] Cf. *Dialogues sur la connaissance*, Fourth Dialogue.

[66] *Against Method*, 39.

[67] Cf. *Three Dialogues on Knowledge*, 163: "The whole history of physics was tied to the assumption, first formulated by Parmenides, that some things remain unaffected by change."

[68] Cf. *Three Dialogues on Knowledge*, 142: "I am not against theories, I am against a Platonistic interpretation of theories that views them as descriptions of permanent features of the universe."

[69] Cf. for example, *Farewell to Reason*, 156.

[70] *Killing Time*, 140–41.

Feyerabend goes beyond the realm of the natural sciences to affirm the paradigm theory. Art furnishes him with an interesting example. Feyerabend quotes an expert in ancient Greek art who asserts, "No matter how animated and agile archaic [Greek] heroes may be, they do not appear to move by their own will."[71] If cultural (philosophical or religious) presuppositions influence the way we represent the world, perhaps this means they influence the way we see the world. Egyptian art illustrates the same fact. Indeed, the short monotheistic period of Akhenaton turned Egyptian art toward a realistic style: "During the reign of Amenophis IV (1364–47 BC) the mode of representation was changed twice; the first change, towards a more realistic style, occurred merely four years after his ascension to the throne which shows that the technical ability for realism existed, was ready to use, but was intentionally left undeveloped."[72] Of course this last example in fact suggests that the presupposition influenced the representation and not the knowledge.

Anthropological observation goes in the same direction. Witness the example of the Nuers, a Nile tribe, among whom Evans-Pritchard noticed unusual space-time concepts: "the Nuer . . . cannot . . . speak of time as though it was something actual, which passes, can be waited for, can be saved, and so forth. I do not think that they ever experience the same feeling of fighting against time or of having to co-ordinate activities with an abstract passage of time, because their points of reference are mainly the activities themselves, which are generally of a leisurely character."[73] The "discovery of America" caused paradigm shock among European anthropologists who at first could not fit the American Indians into their system.[74]

Language gathers these different presuppositions:

> Whorff speaks of 'Ideas', not of 'events' or of 'facts', and it is not always clear whether he would approve of my extension of his views. On the one hand he says that 'time, velocity and matter are not essential to the construction of a consistent picture of the

---

71 G. M. S. Hanfmann, quoted in *Against Method*, 183.

72 *Against Method*, 184.

73 *Against Method*, 198, quoting E. E. Evans-Pritchard, *The Nuer* (Oxford: Oxford University Press, 1940), 103.

74 Cf. *Dialogues sur la connaissance*, Fourth Dialogue.

> universe', and he asserts that 'we cut up nature, organize it into concepts, and ascribe significances as we do, largely because we are partial to an agreement to organize it in this way' (p. 213), which would seem to imply that widely different languages posit not just different ideas for the ordering of the same facts, but that they posit also different facts. The 'linguistic relativity principle' seems to point in the same direction. It says, 'in informal terms, that users of markedly different grammars are pointed by their grammars towards different types of observations and different evaluations of externally similar acts of observations, and hence are not equivalent observers, but must arrive at somewhat different views of the world.'[75]

C. An Exhaustive Science Is Anti-Humanitarian

Taking up one of Popper's concerns in a slightly different key, Feyerabend fears that a science that aims to be exhaustive may be a bearer of totalitarianism: "[A] scientific education as described above (and as practiced in our schools) cannot be reconciled with a humanitarian attitude."[76]

Scientists themselves, whose formation is a 'brain-washing,' run this danger first of all: "[T]he history of science will be as complex, chaotic, full of mistakes, and entertaining as the ideas it contains, and these ideas in turn will be as complex, chaotic, full of mistakes, and entertaining as are the minds of those who invented them. Conversely, a little brainwashing will go a long way in making the history of science duller, simpler, more uniform, more 'objective' and more easily accessible to treament by strict and unchangeable rules."[77]

Every society that is founded on absolute rules threatens the individual. Moreover, the danger of a cultural imperialism of the triumphant natural sciences endangers other civilizations, for the replacement of one paradigm by another threatens the equilibrium of a whole system:

> Ever since people were discovered who did not belong to the circle of Western culture and civilization it was assumed, almost

[75] *Against Method*, 227.
[76] *Against Method*, 12.
[77] *Against Method*, 11.

> as a moral duty, that they had to be told the truth—which means, the leading ideology of their conquerors. First this was Christianity, then came the treasures of science and technology. Now the peoples whose lives were disrupted in this manner had already found a way of not merely surviving but of giving meaning to their existence. And this way, by and large, was much more beneficial than the technological wonders which were imposed upon them and created so much suffering. 'Development' in the Western sense may have done some good here and there, for example in the restriction of infectious diseases—but the blind assumption that Western ideas and technology are intrinsically good and can therefore be imposed without any consultation of local conditions was a disaster.[78]

D. Can We Get Past Relativism?

Feyerabend's view, as presented up to now, seems to suggest that it is impossible to go beyond the level of the juxtaposition of viewpoints whether collective or individual, and that it is dangerous to try to convince another person. The title and contents of works such as *Farewell to Reason* or *Against Method* seem to justify such fears. The common image of Feyerabend seems not to go beyond this sentence. But if we look more closely, it is not reason as such that our author attacks but a partial use of reason among its other uses.

Actually, Feyerabend dismisses some relativisms: "I have great difficulties with some forms of relativism."[79] He rejects side-by-side relativism and objectivism. For him, the incommensurability of systems is not absolute. We can get beyond it by the discovery of inner contradictions in a theory[80] or because a whole set of factors leads to the total abandonment of a theory.[81] This is possible, albeit difficult, at the scientific level. Is it the same with personal or indi-

---

78 *Three Dialogues on Knowledge*, 74.

79 *Three Dialogues on Knowledge*, 151.

80 Cf. *Against Method*, 226.

81 Cf. *Farewell to Reason*, 156: "[T]he transition from one theory to another occasionally (but not always) involves a change of all the facts, so that it is no longer possible to compare the facts of one theory with those of the other. The transition from classical mechanics to the special theory of relativity is an example . . . . Entire disciplines (such as the classical theory of the kinematics and the dynamics of solid objects) disappear as the result of

vidual rules of conduct? On this level, the possibility of a "revolution," of a radical change, seems difficult. Feyerabend prefers pragmatic changes through light strokes, one after the other, according to the circumstances: "All we can do is to describe the difficulties we have found in the past and under very specific historical conditions, to live with the world as with a friend and to change our habits when life gets bad."[82]

To sum up: towards the end, Feyerabend partly rejects the relativism that had been his previously,[83] and is groping for a solution: "B. [this is a dialogue where Feyerabend is B] . . . I was a relativist, at least in one of the many meanings of this term, but I now regard relativism as a very useful and, above all, human approximation to a better view . . . A. Which view? B. I haven't found it yet."[84]

IV. Tendencies Common to the Three Systems and Application of Their Principles to Ecumenical and Interreligious Dialogue

Certain common tendencies emerge from the three philosophies of science we have examined, despite the differences among them. Given the fact that we have approached them as "cultural barometers," we will limit ourselves to pointing out these common tendencies. The most obvious point is that scientific knowledge—and from this we extrapolate a characteristic of knowledge in general—is limited by the fundamental questions that each theory aims at answering. Theories are not directly comparable precisely because they answer different questions. Despite certain incompatibilities, however, they may be helpful depending on how they are put to various uses. This does not stop a theory from being proven wrong and from having to be abandoned. A second point to underscore is the fear they have of a theory which strongly asserts

---

the transition (they remain as calculating devices). Professor Kuhn and I have used the term 'incommensurability' to characterize this situation. Moving from classical mechanics to relativity we do not count old facts and add new facts to them, we start counting all over again and therefore cannot talk of quantitative *progress*."

82 *Three Dialogues on Knowledge*, 153.

83 Cf. *Dialogues sur la connaissance*, Fourth Dialogue.

84 *Three Dialogues on Knowledge*, 156–57.

that it is true may lead to a form of totalitarianism and may therefore be dangerous.

We shall now try to show how the principles of the three philosophers explained above are found in the theories of ecumenical or interreligious dialogue. This does not mean that the theological positions we shall be discussing have been explicitly influenced by theories of the philosophy of science, for that is generally not the case. Rather, in my view, they have been unconsciously influenced by a cultural mentality in which the natural sciences set the tone. This mentality has also influenced the philosophers of science, who in turn have helped to shape it.

A. Ecumenical and Interreligious Dialogue as a Comparison of Paradigms

Whatever the truth about mutual influences, the theories we have presented about the relationships among scientific theories will easily be discernable in a good number of assertions concerning ecumenical or interreligious dialogue.

The first example comes from a compilation of opinions on interreligious dialogue provided by Jean-Claude Basset:

> [W]e can distinguish five fundamental attitudes in regard to religious truth, all stamped with relativism; far from being mutually exclusive, they occur to some extent in a context favorable to dialogue. The first and most radical option consists in subtracting the religious domain from the criteria for truth and error . . . . The second very common option reduces religious truths to countless hypotheses that require validation or invalidation by practical experience . . . . [T]his shifts the focus from the alternative true/false towards the alternative good/bad, a sort of moralization of the faith. The third option is cultural or ethnic relativism, which holds that every religious truth is adapted to a given context: the Bhagavad-Gita for Indians and the Koran for Arabs; everyone finds the truth he needs in order to live and nothing is more arbitrary than to transplant a religious tradition into a culture foreign to it. Fourthly, there is an existential relativism for which a religious tradition is not true in itself, abstractly, but only for him who lives by it; this does not prevent another tradition from being true for another believer, or for the same person at another moment of his life . . . . Finally, there is a fifth position that rests upon a distinc-

> tion between the ultimate reality from which religious life draws its essence and towards which it tends, and the expression of this reality in the human response . . . .[85]

In the views presented by Basset, we can recognize certain presuppositions: No system can be asserted to be true in the strict sense; an assertion depends upon its personal and cultural context (like paradigms), every theory is only an imperfect formulation of experience. Basset himself sums up his starting point: "All ecumenical dialogue rests upon an ecclesiological pluralism and a certain relativism as regards the expression of the truth."[86]

B. A Religious Theory Cannot Be Totally Verified

Keeping in mind Karl Popper's remarks about the non-verifiability of scientific theories (which can never be 100% verified), we find almost the same idea in the theory of interreligious dialogue put forth by Rabbi Irving Greenberg:

> There is a variety of possibilities. It may be that the pluralists realize that they do not have 100% of the truth—or that faith cannot exhaust 100% of the experience of the divine. Or, pluralism may lead to a more modest admission. The system one adheres to may incorporate 100% of the divine encounter, but the pluralists recognize that this encounter does not cover 100% of the time that the encounter is available or 100% of the human situations to which it speaks. This leaves room for other experiences to take place. There may even be a more modest limitation (soft pluralism, if you will). One may claim that [in] one's system knowledge of the truth is absolute and that the ability of this truth to cover all situations is also absolute, but still it cannot reach 100% of the people, whether it be for cultural or other reasons.[87]

C. Religious Traditions as Partial Adaptations to Their Environment

Popper—but also Kuhn and Feyerabend in distinct ways—sees science as a search for adaptation to the present environment, and

---

[85] Jean-Claude Basset, *Le dialogue interreligieux* (Paris: Cerf, 1996), 266–68.

[86] Jean-Claude Basset, *Le dialogue interreligieux*, 273.

[87] Rabbi Irving Greenberg, "Seeking the Religious Roots of Pluralism: In the Image of God and Covenant," *Journal of Ecumenical Studies* 34 (1997): 389.

hence its assertions are partly limited in time and space. A similar idea shows up in a document of dialogue between Lutherans and Methodists: "Our churches, as historical institutions, have brought to the questions posed by their social environment answers that are at the same time adequate and inadequate."[88]

Popper's evolutionary framework clearly turns up again in John Hick—about whom I have already spoken of in *Nova et Vetera*:[89] "There is indeed a fixed basis or, better, a fixed starting point, for christian belief and worship: but proceeding from that starting point there is a still unfinished history of change as the christian way has been followed through the centuries, meeting new human circumstances and new intellectual climates."[90]

In its official view of ecumenism, the Federation of Protestant Churches of Switzerland (FEPS) starts from the principle of the relativity of positions: "The ecumenical engagement is born out of a critical regard for ourselves that makes us aware of our relativity . . . .No Church wholly possesses knowledge of the Truth, nor the fullness of the Church, nor that of her ministry."[91] This relativity results from a dependency on what the current context holds: "[T]he same declaration or . . . the same action may correspond to the Truth in a given situation and contradict it in another context."[92]

D. Totalitarianism

The idea of a link between doctrinal unity and the inherent danger of authoritarianism is present among certain theologians, although

---

[88] Commission of Dialogue between the World Lutheran Federation and the World Methodist Council, "The Church Community of Grace" (1984), in *Accords et dialogues oecuméniques*, Bilatéraux, Multilatéraux, Français, Européens, Internationaux, ed. André Birmele and Jacques Terme (Paris: Les Bergers et les Mages, 1995), III–9 [here translated from French].

[89] Cf. "La relation entre les religions selon John Hick," *Nova et Vetera* 75 (2000): 35–62.

[90] John Hick, *God and the Universe of Faiths: Essays in the Philosophy of Religion* (London: Macmillan, 1973), 111.

[91] FEPS, *Lignes directrices de l'action oecuménique*, 1994 (manual published and distributed by the FEPS), I.4.

[92] Ibid., I.5.

they do not in general refer to Popper's theory.[93] On the theoretical plane of ecumenical dialogue, Fr. Christian Duquoc states explicitly that ecumenism cannot aim for the unity of the churches, as this would be totalitarian: "[E]cumenism has indeed created an irreversible current, a current of theological thinking that henceforth cannot restrict itself to the limits of a single confession or of a single historical Church. This thinking, coming from a practical experience that is very often a step ahead of the apparatus, saps the unitary ideology that fits hand in glove with violence and has produced so many misdeeds and crimes in the history of Christianity."[94] The very idea of a definite ecclesiological model—in this instance the model of sacrament—is perceived as a violence: "Despite the acknowledgement that the separated Churches are Churches, despite the acceptance of the right to a public opinion within Catholicism, they suffer a violence since the model of unity is already given in a sacramental fashion; the structuring between the visible and the invisible is accomplished in the Catholic institution as it is realized in the Eucharist . . . .Behind this issue sits the violence inherent in the introduction of an institution incarnating the transcendent Truth. The transcendental qualities of the Church professed in the Creed suppress neither the divisions among the Churches nor the internal tensions."[95]

[93] However, we do find this link in Elmar Klinger, "Macht und Dialog, Die grundlegende Bedeutung des Pluralismus in der Kirche," in *Dialog als Selbsvollzug der Kirche?* ed. Gebhard Fürst (Freiburg: Herder, 1997), 151.

[94] Christian Duquoc, *Des Eglises provisoires. Essai d'ecclesiologie oecuménique* (Paris: Cerf, 1985), 9. Cf. ibid., 7–8: "The multiplicity of churches, far from having to be marginalized as an unfortunate accident of our history, forms on the contrary the starting point of theological thinking in ecclesiology. Forgetting the empirical multiplicity orients us towards idealistic thinking; then the Church we are talking about is no longer our historical Church, easy to spot, but its ideality. There is but a little distance from ideality to the imposing of norms on concrete reality, and from the imposing of norms to repressive practices. If the ideal Church is one and holy and if this perfection is projected onto an empirical Church, this Church has no choice but to excommunicate the churches that have no right to this privileged relationship with ideality. Our history has illustrated the practical and violent excesses of this kind of thinking."

[95] Christian Duquoc, *Je crois en l'Eglise. Precarité institutionnelle et Règne de Dieu* (Paris: Cerf, 1999), 134.

V. The Future of Dialogue on the Basis of These Premises

On the basis of the above premises, what is the future of ecumenical dialogue (and, *mutatis mutandis*, of interreligious dialogue)?

For FEPS, ecumenism cannot go beyond the plurality of confessions: "The goal is not a standardization, but a confessional plurality that is trans-confessional and sensitive to the context of expressions of the Church that are mutually questioned."[96] Of course this view of ecumenism is not unanimous among Reformed theologians,[97] but the fact that it was clearly affirmed as the official position of Swiss Protestants shows at least that it exists. Along the same lines, David Tracy thinks that we must give up dreams of universalism and that "the particularity of each tradition will gain in intensity."[98] For Jean-Claude Basset, the current shape of Western civilization "is conveyed," in the end, "by the abandonment of all metaphysical discourse and the giving up by the social sciences of any global view of reality and of humanity for the sake of a sectional analysis of which the main criterion is internal coherence. . . . In religious life, pluralism entails the disappearance of a recognized scale of values for the sake of more or less autonomous institutions, making relative, thereby, every system of thought and all practical experience, religious or not. This reducing to relative is twofold: every system is but one among others, and it has only a relative value in the individual's life; indeed, it has become rare that one is ready to die for his faith . . . ."[99]

---

[96] FEPS, *Lignes directrices*, I.6.

[97] In 1984, when the international commission on dialogue between Anglicans and those of the Reformed tradition envisioned such a view of ecumenism, it was rejected. Cf. Anglican-Reformed International Commission, *God's Reign and Our Unity: The Report of the Anglican-Reformed International Commission 1984* (London and Edinburgh: SPCK and The Saint Andrew Press, 1984), nos. 106 and 110, 67–69.

[98] Cf. David Tracy, The *Analogical Imagination: Christian Theology and the Culture of Pluralism* (New York: Crossroad, 1987), 459: "At least for those who hold to the ideal of an analogical imagination, the dreams—the all too universal dreams—of Arnold Toynbee and other abstract universalists will not prove the route to follow. Rather the particularity of each tradition will gain in intensity as its own focal meaning becomes clearer to itself and others, as its ordered relationships for the whole come more clearly into analogical view."

[99] Jean-Claude Basset, *Le dialogue inter-religieux*, 264.

A. Parallels between Scientific Dialogue and Religious Dialogue

We have seen some parallels between certain conceptions of scientific dialogue and dialogue among religious systems. The use of paradigms (as basic questions that determine the worth and limits of a system) and the idea that no system is complete are the dominant elements.

Before treating the difference between the kinds of knowledge—scientific and that of faith—we should comment on the specifically theological view of dialogue. Some questions have to be asked. For example, it is true that every religion approaches certain questions in a privileged fashion: For the person who above all wishes to escape the bodily condition, the answer of the body's resurrection might seem inappropriate. But it remains to be seen if every fundamental question is equivalent, especially in the case of a revelation where it is not only man who asks the questions but God first of all.

Moreover, when one says that no system possesses the whole truth, he often means by this that no system can deny all truth to the others. It is true that the Catholic Church, for example, does not deny that there are found in other Christian denominations or in other religions elements of truth or sanctification, but that does not mean that the Catholic Church must cease affirming that the whole of the means of salvation is found in her:

> [S]ome and even very many of the significant elements and endowments which together go to build up and give life to the Church itself, can exist outside the visible boundaries of the Catholic Church: the written word of God; the life of grace; faith, hope and charity, with the other interior gifts of the Holy Spirit, and visible elements too. All of these, which come from Christ and lead back to Christ, belong by right to the one Church of Christ . . . .It follows that the separated churches and communities as such, though we believe them to be deficient in some respects, have been by no means deprived of significance and importance in the mystery of salvation. For the Spirit of Christ has not refrained from using them as means of salvation which derive their efficacy from the very fullness of grace and truth entrusted to the Church . . . .For it is only through Christ's Catholic Church, which is 'the all-embracing means of salvation' that they can benefit fully from the means of salvation.[100]

[100] Vatican II, Decree on Ecumenism *(Unitatis Redintegratio)*, no. 3.

In talking in this context of the fullness of truth in the Catholic Church, it is not a question of denying all truth to non-Catholics (nor of denying the possibility of the beatific vision), for in this instance it is not a question of systems or communities totally exterior to each other but of a more or less complete integration in the same work of the salvation offered to all human beings in Christ.

B. Comparison of Scientific Knowledge and Knowledge from Faith

To grasp the limits of what the theories of the philosophy of science can bring to theology, we must define the different kinds of knowledge. This is all the more worthwhile since the philosophy of science, as presented here, is not the whole of philosophy (it asks few properly metaphysical questions).

The theories of scientific knowledge draw their force first of all from the widespread idea that scientific knowledge is *the* knowledge that is sure and trustworthy, the one that gets concrete results and provides real help—unlike religion or philosophy. This widespread prejudice combines with a growing awareness of the limits of scientific progress to arrive at the following conclusion: The most powerful knowledge is limited; therefore all our knowledge is limited.

It is important to grasp the difference between scientific knowledge and knowledge from faith. Both appeal to reason in order to organize the elements of knowledge whose first source is not reason itself, but either the senses (in the case of science) or divine revelation (in the case of faith). In both cases, the given is elaborated by reason: Science reflects on the basis of sense knowledge as generally relayed by instruments, and perceived with the help of theories; knowledge from faith reflects on what God has transmitted through created means (Church, Scripture).

St. Thomas Aquinas compares the kind of certitude that is proper to science and that proper to faith (he understands by "science" the rational knowledge that is based on certain sense knowledge, which remains at the root of the more elaborate definitions in use today): "[O]n the part of its cause . . . a thing which has a more certain cause, is itself more certain. In this way faith is more certain than those three virtues [among them science], because it is founded on the Divine truth, whereas the aforesaid three virtues are based on human reason. Secondly, certitude may be considered on the part of the

subject, and thus the more a man's intellect lays hold of a thing, the more certain it is. In this way, faith is less certain, because matters of faith are above the human intellect, whereas the objects of the aforesaid three virtues are not. Since, however, a thing is judged simply with regard to its cause, but relatively, with respect to a disposition on the part of the subject, it follows that faith is more certain simply, while the others are more certain relatively, i.e., for us."[101] The principles are clear: science has greater evidence because it is more immediate; faith is not evident (which belongs to its very definition because its object is in itself not seen[102]), but it is sure from the viewpoint of its cause, which is the revelation God makes of Himself.

This difference between science and faith is in fact the general difference between knowledge from faith and knowledge through reason, including when we speak of knowledge of God. Faith is distinguished from knowledge through natural reason alone precisely by the fact that it is sure knowledge.[103]

Up to this point, we can say that the current uncertainties in regard to the certitude of scientific knowledge do not directly concern faith. Still, another question arises in regard to faith, which is the relationship between divine revelation and contemporary believers. In other words, if God reveals something, will a believer adhere to it with certainty? But how do we know that it is God revealing it? This is the question that comes up in ecumenical dialogue. This is what stands out most clearly in the text published in 1963 by the World Conference on Faith and Order at Montreal (which at that time included the main Protestant, Orthodox, and Anglican Churches; the Catholic Church would join in 1968). Among other things, this conference dealt with tradition[104] and rehabilitated it in Protestant theology. However, this text came up

---

[101] *Summa Theologiae* 2–2, q. 4, a. 8.

[102] Cf. *ST* 2–2, q. 4, a. 1.

[103] This is what the First Vatican Council underscores when it quotes St. Thomas on this point. Cf. Vatican I, Constitution *Dei Filius*, Denz. 3004–3005.

[104] The text concerning tradition—the second section of the Montreal document—is found, e.g., in Günther Gassmann, ed., *Documentary History of Faith and Order* (Geneva: WCC Publications, 1993). Henceforth this document will be cited as "Montreal," with references to the numbered paragraphs.

against a problem: since Tradition is found in various (denominational) traditions, how do we know to what extent each of these traditions is or is not faithful to Tradition?[105] The solutions put forward, which are actually the enumeration of the solutions implemented historically in the different churches, do not solve the problem, as the same Commission on Faith and Order recognized in 1998: "Montreal helped to overcome the old contrast between 'sola Scriptura' and 'Scripture and tradition' and to show that the different hermeneutical criteria in the different traditions belong together. . . . But Montreal did not fully explain what it means that the one Tradition is embodied in concrete traditions and cultures."[106] The question that arises then is one of knowing how the believer can know, among the various propositions of faith, if, when, and how God reveals Himself. It is a matter of comparing different systems and uncovering the truth in them.

A question like this cannot be sidestepped, for God has chosen to reveal Himself to human beings thanks to human beings, and consequently, faith must have as a condition that it be proposed to human beings not only by God, but—usually—by other human beings[107] also, with the risk of error that this implies.

What is the Catholic answer to this question? Put briefly, whoever believes that God reveals Himself will also willingly believe that God takes care that His revelation is not lost. Otherwise, it would be more or less useless from the start. The Second Vatican Council puts it in these terms: "In His gracious goodness, God has seen to it that what He had revealed for the salvation of all nations would abide perpetually in its full integrity and be handed on to all generations."[108] The reason God reveals Himself and the reason He takes care that His revelation is not lost are identical. The text continues by specifying how this preservation

---

[105] Cf. Montreal, no. 48: "Is it possible to determine more precisely what the content of the one Tradition is, and by what means? Do all traditions which claim to be Christian contain the Tradition?"

[106] Faith and Order, *A Treasure in Earthen Vessels*, An instrument for an ecumenical reflection on hermeneutics (Geneva: WCC Publications, 1998), nos. 16–17.

[107] Cf. *ST* 2–2, q. 6, a. 1.

[108] Second Vatican Council, Constitution *Dei Verbum*, no. 7.

was assured: "Therefore Christ the Lord . . . commissioned the Apostles to preach to all men . . . . This Gospel had been promised in former times through the prophets, and Christ Himself had fulfilled it and promulgated it with His lips . . . . In order to keep the Gospel forever whole and alive within the Church, the Apostles left bishops as their successors, 'handing over' to them 'the authority to teach in their own place.' "[109] The text specifies further that maintaining revelation and deepening the understanding of it include all the members of the Church according to their various charisms.[110]

The current state of ecumenical dialogue highlights the question of authority, but does it in renewed fashion compared to what might have been seen in the past. There is certainly no question of reducing the theologian's work to a repetition of what the Magisterium says (depending on the denomination). Nor is it a question of a test of strength among the authorities of the different Christian denominations to see who will wind up giving in to whom. What is at stake is knowing who can say at a given moment what is the common faith. Without this, ecumenical dialogue cannot arrive at unity.

Ecumenical dialogue between Catholics and Anglicans—whatever the status of other serious difficulties that have to be taken into account might be—has, better than any other, shed light on the questions we are dealing with here, and has put forward some answers: "In some situations, there will be an urgent need to test new formulations of faith. In specific circumstances, those with this ministry of oversight *(episcope)*, assisted by the Holy Spirit, may together come to a judgment which, being faithful to Scripture and consistent with apostolic Tradition, is preserved from error . . . . Such infallible teaching is at the service of the Church's indefectibility."[111] The text then takes up—and the fact is an event in itself—the possibility of an infallible declaration by the Bishop of Rome.[112]

---

[109] Ibid.

[110] Cf. *Dei Verbum*, no. 8.

[111] "The Gift of Authority. Report of the Anglican-Roman Catholic International Commission," *Origins* (1998): 120–32, no. 42.

[112] Cf. "The Gift of Authority," no. 47: "Within his wider ministry, the Bishop of Rome offers a specific ministry concerning the discernment of truth, as an expression of universal primacy . . . . Such authoritative teaching is a

To sum up, the diversity of systems or traditions in matters of faith is an obstacle to the certitude proposed by faith. God Himself, knowing the inconstancy of human beings, has equipped His revelation with the means to preserve it throughout the centuries.

VI. Conclusion

Despite their notable differences, Popper, Kuhn, and Feyerabend are united in illustrating the growing awareness of the limits of scientific knowledge, though certainly without denying its entire value. The chief determining factor in this awareness seems to be the division of the sciences into different systems that are not totally compatible. Moreover, two partly incompatible systems may both rest upon a certain experimental basis, which makes the choices between them extremely complicated. Different systems may have a value commensurate with the goal they are pursuing: to answer a precise question. Two different questions lead to different perceptions of the same object.

From this situation—and from other factors—there arises in contemporary culture a doubt whether it is possible to affirm that one system is truer than another (even if one of the systems is false). This also proves true in the field of religion, and with somewhat similar arguments: Each system answers a question asked at a well-determined moment and place, and cannot be directly compared to another system whose questioning is different from the start. Total relativism may result: What is true for one may not be for another, and we cannot go beyond that. If such is the case, ecumenical (and interreligious) dialogue no longer consists in seeking eventual unity, but only in amiably finding out what the others are thinking.

There is of course an element of truth in the fact that every religious system is tied to certain initial questions arising from history (think of the link between the Christian Easter event and the slavery of the Hebrews in Egypt). Yet, if this link is a total dependency,

---

particular exercise of the calling and responsibility of the body of bishops to teach and affirm the faith . . . . This form of authoritative teaching has no stronger guarantee from the Spirit than have the solemn definitions of ecumenical councils. The reception of the primacy of the Bishop of Rome entails the recognition of this specific ministry of the universal primate. We believe that this is a gift to be received by all the churches."

it becomes impossible for God to reveal Himself to human beings in such a way that they can subsequently know Him and be in communion with Him in different times, places, and cultures. The same goes for the very specificity of revelation and of faith in relation to the purely human forms of knowledge; this question is more profound than even theories of ecumenical dialogue.

We should give the last word to St. Irenaeus of Lyons. He is answering the Gnostics of the second century who held that the faith of the Church depended on what Christ and the Apostles had been able to say to the great masses according to their ability to understand. In his day, then, the idea is already present that the faith is limited by the questions asked and the answers that the hearers are capable of receiving.[113] Irenaeus clearly sees that if such is the case, revelation can add nothing to the opinions already present in the world:

> [W]e say to them, that if the Apostles used to speak to people in accordance with the opinion instilled in them of old, no one learned the truth from them, nor, at a much earlier date, from the Lord; for they say that He Himself did speak after the same fashion. Wherefore, neither do these men themselves know the truth; but since such was their opinion regarding God, they had just received doctrine as they were able to hear it. According to this manner of speaking, therefore, the rule of truth can be with nobody; but all learners will ascribe this practice to all [teachers], that just as every person thought, and as far as his capability extended, so was also the language addressed to him. But the advent of the Lord will appear superfluous and useless, if He did indeed come intending to tolerate and to preserve each man's idea regarding God rooted in him from of old.[114] NV

[113] Cf. Irenaeus of Lyons, *Adversus Haereses*, Book 3, ch. 5, no. 1.
[114] Ibid., Book 3, ch. 12, no. 6.