

SCIENCE AND RELIGION IN THE SIXTH FORM

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IN English universities there has been a growing awareness during the last dozen years or so of the need to integrate science with other sources of knowledge, even with religious knowledge: this independently of any specific Catholic investigation. Faculties of the history and philosophy of science have been started, in which undergraduates reading science can spend a year either before or after taking their degree. It is important for schools to be aware of this, not only because they will be sending pupils on to the university, but because young science teachers will increasingly have their eyes turned towards the implications of their subject beyond the narrow limits of an examination syllabus, and in Catholic schools in particular towards religious instruction. In this moreover they will have greater help from books than has been available in the past. Books on the philosophy of science, or on its relationship to religion, are beginning to appear as a result of the new stimulus, and they ought to be available to the sixth form teacher, or even in the sixth form library. 'Philosophy' is perhaps a rather forbidding word, and there may be dangers in exploring the fringes of the subject: but insofar as it means examining the implications of a specialized subject such as science, and reflecting on the meaning of the knowledge science gives, a teacher must surely have some idea of the work that has been done, and must be ready to discuss the various questions in this field that will spontaneously occur to boys who are listening to radio and T.V. or reading journals, Sunday newspapers, and paper-backed books. Thought nowadays diffuses downwards at an ever increasing rate.

Certainly then the sixth-former should be encouraged to tackle things like the *Penguin Science News*, which contains philosophical articles from time to time; he should be told of discussions on the third programme, or shown them in *The Listener*; a book like Stephen Toulmin's *Philosophy of Science* should not be beyond him. A Catholic teacher will be eligible as a graduate to be a member of the Newman Association Philosophy of Science Group, and receive the quarterly circular in

which questions relating to science and religion are frequently discussed, and books on the subject reviewed. E. L. Mascall's *Christian Theology and Natural Science*, which covers the whole field, may be too difficult for the average sixth-former, but could be referred to from time to time.

This is all very well, but when is time to be found for all these activities? I can hardly emphasize too much the danger of substituting a course on philosophy of science or the relation between science and religion for straight science teaching, whether at school or university. The first job of any scientist is to be good at science, the first job of the science teacher to teach his subject, and there are such temptations, especially at the university, to substitute more interesting sidelines for the essential task, that it must be made plain to sixth-formers that if they neglect their proper work for sidelines, however valuable these might be in themselves, they will be guilty of grave injustice to their parents who pay for them, or to the authorities who provide grants, eventually to those who will employ them to teach others. But once that has been said, it is reasonable to remember that we are human beings as well as specialists, and do naturally want to investigate the connections between the subjects we study. This is a natural desire, and it ought to be encouraged rather than suppressed, provided that a due proportion is kept. Indeed, school is the place to direct these interests, and make sure that the right proportions are observed. No doubt questions will arise both in science classes and when religious instruction is given, at least if these subjects are properly taught. The remark 'the children don't have problems' is a pretty sure indication of bad teaching, lacking any stimulus; worse still, it may indicate that questions are not encouraged in class ('children are here to be *told*') and are therefore being put elsewhere. Yet a science master has a course to teach, examinations to face; he cannot stop to clear up every wider question. He might simply pass the matter on to the religious instruction class. But even ideally this business of being passed on, as in a government office, is apt to be frustrating. And the person teaching religious instruction may not be able to deal with it. Not, I hope, because he too is struggling to complete a syllabus and provide the boys with a set of answers with which to face the alien world: I shall have more to say about that later on. There should certainly be more time for free discussion here. But

the teacher may lack any scientific background, and be doubtful about the validity of the very facts on which the question is based. The only practicable solution seems to me to have joint discussion classes at fairly frequent intervals, at which the people responsible for teaching science and religion are present, and where the matter can be thrashed out. No doubt this is necessary in other subjects too, and if such a discussion could take place only once a week, the scientists might have to wait their turn; but even if that occurred only once in three or four weeks, it would still be useful to be able to refer fundamental questions to it. The questioner would realize that his problem was genuinely going to get attention. By this I mean that it would not be a matter of providing a suitable 'answer' from the apologetics book, but of gently directing a general discussion in which everyone, teachers and pupils alike, would be on equal terms, and which would aim to show no more than the lines along which a solution might one day be found. Sooner or later the boy is going to discover that genuine problems are still open problems; how much better to learn this under wise direction at school than to have it forced on him in an environment alien to religion.

Unless some free discussion of this kind goes on, it seems to me that we shall be in grave danger of producing some sort of double-truth theory in our pupil's minds. Earlier on at school it seems surprisingly easy to keep one's knowledge in separate compartments: the history books are put away and the geometry books produced in a way somewhat disconcerting to adult minds. But this should no longer be happening by the time the sixth form has been reached. Comparisons will be made, and contrasts drawn, between methods of reaching truth in different studies. A contrast may well appear between say the living accounts of genuine experiments in the new science text-book and the dead atmosphere of stifled enquiry in the battered old apologetics text-book that has served generations of boys. It may even be possible to draw a rather similar comparison between those who teach these subjects. Certainly the science in some apologetics books is grossly and obviously out of date, even when correct. Theories which are rightly being taught in the science classes will be grudgingly accepted or even rejected out of hand. But if these contrasts are not carefully explained—and authority which causes them to arise is hardly likely to encourage their discussion—the result is

a double-truth theory. One thing is to be believed during the first period, quite the opposite during the second. Surprisingly, such things can happen; but double-truth dissolves at the first contact with University life, and gives way to that cynical scepticism which is all too common among Catholic undergraduates who have been taught doctrine badly at school. We must at all costs avoid double-truth: but at the same time it is perfectly correct to see differences in method between the different ways of reaching truth. In fact it seems to me important that these differences should be clearly pointed out and discussed from time to time, so that no misunderstandings can arise. It may be helpful if I devote the second part of this paper to giving a very general outline of what can be said about comparative methods, and about the relation of scientific to religious knowledge.

The differences of method in reaching truths of different orders is seldom adverted to at school, and yet it can easily cause greater uneasiness than explicit head-on clashes between, say, science and religion. In mathematics and science a boy gets used to being asked for strict proofs, which he realizes are universally accepted. Perhaps by the time he is doing sixth-form work this view will have been slightly modified so far as science is concerned; it is time for him to realise that the verification of scientific theories presents some problems. Still, on the whole, the picture is a valid one, of a solid core of strictly verifiable truth. Now we know that revealed truth cannot be 'proved' in this way. But how often the books present it as though it could. They give an immediate impression of proving revelation by logical arguments as rigorous as those in a text-book of mathematics, as liable to produce conviction in all men as is a demonstration of, say, the atomic theory of matter. Not much experience in later life is needed to show that they do not, that their effect is rather what St Thomas called the *irrisio infidelium*. I am not suggesting that the authors of the books in question actually suppose that revelation can be demonstrated. Being theologians they are aware that the rigidity is only in appearance, that the terms they use are analogical, that the roots of their doctrines lie in the sheer fact of scripture. But those who use their books, and lack theological training, do not know this: they take the arguments at their face value, and are led into error by this misunderstanding. So it must be clearly shown what

can and what cannot be demonstrated. It must be clearly said that doctrines such as the Trinity cannot be proved, but are truths presented to our faith. Yet at the same time it must be said that our faith is reasonable, not blind, and that our beliefs can be presented convincingly to those who do not yet accept them. But it must explicitly be shown that religious truth rests on evidence in a very different way from that in which mathematical or scientific proof does; that the method of proof, if it can so be called, is very different from the strict deduction proper to mathematics or from the methods by which scientific truths are verified. As Newman states plainly in the *Grammar of Assent*, the reasonableness of religious truths comes home to us by the convergence of a multitude of probabilities rather than by strict logical demonstration, somewhat as we reach the truths that we live on an island, or are bound to die. These things are none the less certain for not being demonstrable in a way suited to other types of knowledge. Now it is probable that in the lower forms of the school, children will have been taught their religion in just this common-sense way, reading the scriptures, learning about the liturgy, learning stories of the saints: it will all have added up and produced its conviction in a perfectly natural way. And in the sixth form it is indeed time to analyse this knowledge of religious truth more fully, to see how it hangs together, to relate scripture to doctrine, to history and archaeology, and so on. It is not the purpose of this paper to ask how best that can be done. All I want to ensure is that it is not completely undone by baldly presenting boys with books which at least superficially appear to substitute a quite different method of approach, suited to very different disciplines. Let them be told quite clearly that such scientific methods are out of place in understanding the foundations of their faith, and consequently in presenting it to unbelievers. Nevertheless the contrast thus made between science and religion must certainly not leave the impression that one is developing while the other is dead. The development of doctrine, its essentially historical mode of being, is surely a theme to appeal to boys who are probably being taught the sciences by similar historical methods and are learning to look on them as constantly expanding to conquer new worlds. If the necessary distinctions are clearly made (I need not discuss them here) something of that same excitement of discovery can be conveyed in teaching religious subjects also.

Such contrast and comparison between two school subjects is, I am sure, stimulating and helpful; yet at the same time makes it all the more important not to muddle the two together in any way. For though it is natural and right to relate together the different types of knowledge unified in any one person, science considered in the abstract is for the most part neutral to religion. Such a statement perhaps requires explanation. We distinguish the secondary causes that control the natural order from God the first cause, in virtue of which they act. These secondary causes are the proper study of the various sciences. Now it is true that since God can only be known through his created effects, the theologian has also to study secondary causes, those in particular which constitute God's revelation of himself in the order of grace. Here a possibility of conflict arises, which I shall touch on shortly. But in the natural order the study of secondary causes properly belongs to the sciences. Certainly these causes, considered as effects of the first cause, point towards God, but the reasoning that shows this is not, as such, scientific. Some care is necessary here. In presenting such reasoning to sixth-form boys it is important not to give it a pseudo-scientific form. The very phrase 'a proof of God's existence' can be misleading, since 'proof' is a word normally used of the very different thought employed in science and mathematics. St Thomas, it may be remembered, always spoke of the arguments as ways, which lead the mind up to God, and in this sense it is hardly too much to say that they constituted the basic pattern which controlled all his theological thinking. They formed the framework in which creatures could be set in right relation to their creator, for they asserted in every context the total transcendence of God. It is not then good enough if we put them over rather rapidly at the beginning of a course, often in versions that have little relation to those of St Thomas. But properly understood they will throw light on questions such as that at present under discussion, that of the relationship between science and religion. For they prevent our thinking of God as a cause in the same sense that secondary causes are. Secondary causes are discovered by the scientist's wish to explain the particular character of some effect under examination; the first cause is asserted as that on which all causes themselves depend for their being. But in that case the first cause cannot itself explain why a particular natural event comes about. A particular explanation

is required. What in one sense of the word 'explains' everything, in the scientific sense explains nothing. Science is adequate to investigate nature, and it would therefore be a grave mistake constantly to be dragging God into the science classes at school.

This mistake has certainly been made in the past, and has probably been one of the greatest factors in bringing religion into disrepute among scientists. Wherever science fails to yield a satisfactory answer, there is a temptation to appeal to the first cause, as though nature were a continuous miracle. Where for instance Newton found the theory of gravitation inadequate to account for all the planetary motions, he asserted that they must be directly due to the activity of God. Another century of investigation resolved the difficulty, and God seemed to have been eliminated. There are examples nearer home. As yet we cannot account for the passage from non-living creatures to living; and a gap exists, which science cannot explain. There are those who say that science will never explain it and that God is required as direct cause. If in a few decades it becomes possible to synthesize life in the laboratory, it will look as though religion has lost yet another battle. It can hardly be sufficiently emphasized that we should not look for God in the gaps that exist in our knowledge; he is to be found in and through all our knowledge, by reasoning that is philosophical rather than scientific. The greatest care is needed to make sure that this point is clearly made before our children go out to face the muddled thinking of the world at large.

At the same time it must also be emphasized that there are other problems which cannot be tackled by purely scientific methods. Though we must avoid the mistake of substituting other types of thought where science eventually has the right to decide, and so give the quite false impression of continuous retreat, there are questions where it can be shown that scientific methods cannot settle the matter. Boys will be taught that there is indeed an unbridgable gap between men and animals, that the human soul is directly created by God. Let it be made quite clear that this is no last ditch to which Catholic thought has had to retire on being driven from earlier strongholds, but is a reasoned position which had been clearly agreed on by thinkers long before the beginning of the scientific age. Yet at the same time there must be absolute insistence on man's psychosomatic unity, and

on the right of science to contribute much to our knowledge of that unity, if a peculiarly dangerous form of double-truth theory, based on the Cartesian idea of the human soul, is not to be introduced. This will produce not merely speculative error, but far more dangerous emotional instability. There is no need to develop this point at length, as much has been written on it in recent years, but it would seem that teaching which produces a false fear of everything material and natural is still too common in many of our schools. Boys have to be prepared not only for a world in which the findings of modern psychology are the commonplaces of conversation, but for a world in which love and marriage have also to be faced, and whether or not this is done with the Church's sacramental help depends very largely on the way these matters have been looked at in school.

A word should perhaps be said, before I end, on the possible clash between science and religion over knowledge that depends strictly on revelation. It is no longer a question of the type of reasoning we employ, but rather of how to interpret given facts. Fortunately the days have long since gone by when the Bible was supposed to be teaching us an inferior kind of natural science; its true function, and its proper interpretation, are now too well understood everywhere to need discussion here. Nevertheless we have to deal with particular facts in the created order, and the possibility of contact with science and the humanities is real enough. Perhaps a word should be said about evolution in particular. The evidence for evolution has become very much stronger in the last few decades, since the genetic mechanism on which natural selection works has been more fully understood, and no reputable biologist would doubt it as a general theory. Let it be taught then as any other scientific theory is, ungrudgingly. On the other hand, as *Humani Generis* points out, the particular question of human evolution still presents considerable difficulty, which is certainly not resolved by a facile body-soul dichotomy. Let us trust boys to understand and accept this when it is put freely to them. Yet they must not be led to suppose that this is a concession forced from the Church in the teeth of fact. Prominent English Catholics, at any rate, accepted the possibility of evolution from the earliest period—one thinks of Newman, or of Bishop Hedley's *Dublin Review* article in 1871—in marked contrast to the struggles of Protestant thinkers. We need not insist that Catholics never make

mistakes, need not try to whitewash the Galileo affair, for instance, but there is equal need to speak out where insight and vision have been shown.

There are many other particular questions which I have not touched on in this paper; the general lines on which they may be tackled should be clear. All I would plead is that these issues should be freely raised and freely discussed at school, whether in the sixth form or before. There can be nothing more dangerous than to send boys out into the world ignorant that difficulties exist, unless it is sending them out armed with the snap answers of a text-book. Let them realize that the difficulties are genuine ones, and that a lifetime of thought may be insufficient to resolve them fully. Let them see that the Church does not merely admit, she insists that scientific knowledge has its proper place under the providence of God, and that a true faith not only need not fear the discoveries of modern science, but can welcome them as it always has and always will welcome knowledge that is true.



THE RELIGIOUS EDUCATION OF CHILDREN

ROSEMARY HEDDON

THE whole man must be the holy man, the deprivations of evil made good, the darkness of sin enlightened, the faculties and powers of mind and body integrated and controlled by the will, the whole fired by the flame of charity. This is God's will for each of us, the work which never ceases and at which we must hammer day by day. Everyone concerned with the religious education of children must have these considerations in mind. But who are they? All too often the phrase is taken in the narrow sense of the school teacher, or the priest who teaches the catechism class. 'They' will prepare him for his first Confession, his first Holy Communion, and in due time for Confirmation. The responsibility is 'theirs'. There are signs that this attitude is beginning to change, but do we as teachers realize