

# Introduction to a Meeting of the Secretariat For Scientific Questions

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The SIQS was responsible for arranging a meeting held in St. Albans, England on 24 September 1998 as part of the Pax Romana Conference that continued during the following three days. The theme of the Day was “The Place of the Scientist in the Life of the Church.” In order to stimulate thought and discussion the following reflections were circulated to members before the meeting.

Science and its associated technologies influence our lives in many ways from the material to the ideological, and this raises many pressing moral problems that are the concern of the Church. Scientists have long recognised that we have a responsibility to ensure that sound information is available. In the last century J.C. Maxwell wrote that “... we are daily receiving fresh proofs that the popularisation of scientific doctrines is producing as great an alteration in the mental state of society as the material applications of science are affecting the outward life. Such indeed is the respect paid to science, that the most absurd opinions may become current, provided they are expressed in language, the sound of which recalls some well-known scientific phrase. If society is thus prepared to receive all kinds of scientific doctrines, it is our part to provide for the diffusion and cultivation, not only of true scientific principles, but of a spirit of sound criticism, founded on an examination of the evidences on which statements apparently scientific depend.”

People look to the Church for guidance on moral problems, and this can be given in different ways. Theologians can articulate general principles, but to be useful these must be applied to particular problems and this requires a detailed knowledge of the factual situation. It is often a matter of complexity and difficulty to do this, and it can only be done with the specialised knowledge of the scientists. Continuing co-operation between theologians and scientists is necessary to build up a reliable body of knowledge on contemporary problems.

It is for the bishops and the episcopal conferences to decide whether to make a statement on a particular problem. It is sometimes maintained that bishops should confine themselves to enunciating general principles, leaving their application to others. Alternatively, they can themselves say how the principles should be applied, and this requires a detailed knowledge of the actual situation which they may not be able to supply by themselves.

There are many reasons why a statement might be desirable. Thus, for example, Government decisions are often made on grounds of short-term selfish expediency for short-term economic gain and with an eye on the next election, with scant regard for moral principles. It is the mission of the Church to insist that human rights be respected, that Government policies should take into account the effects on other countries and on future generations. Thus episcopal statements have been devoted to nuclear warfare, the care of the environment, pollution of the earth, nuclear power stations, aid for poorer countries and similar issues. It may be desirable to sensitise people to the possible implications of current practices, or to warn against unsuspected dangers. All such statements require careful preparation both on the theological and scientific levels, and this can only be done by a commission of carefully-chosen experts.

These problems are made more difficult by political pressures. Thus a popular contemporary concern is the environment, and numerous organisations have been established to promote the care of the earth. Often they are driven more by emotion than by reason, and have hidden political agenda. It is then very likely that well-meaning people give their support to policies that are eventually harmful. So far, Church statements on the environment have confined themselves to broad generalities, and so they have little effect.

Sometimes a problem arises suddenly, and an immediate response is expected. This can only be provided if the problem has already been studied in depth for some years; it is just not possible to produce a satisfactory response on the spur of the moment. Any statement must be completely sound both theologically and scientifically; if it is not then it simply invites derision.

It is particularly important to be clear about what the scientist can and cannot do. First of all, what do we mean by a scientist? Certainly we mean someone who has devoted several years of study to the science leading to a bachelor or masters degree, followed by some years of research. Anyone venturing to speak as

a scientist should be willing to show that he is qualified to do so. It is too often the case that the knowledge required is underestimated. In this connection Duhem remarked at a Conference that “If we want to handle with competence and fruitfully the questions which are of the domain common to metaphysics and to positive science, let us begin by studying the latter for ten, for fifteen years; let us study it, first of all in itself and for itself, without seeking to put it in harmony with such and such philosophical assertion.” Later on, he described his experiences in a letter: “My opinion was asked concerning the scientific part of the problem. Then, I told squarely all those good Catholic philosophers that if they obstinately continued talking of science without knowing of it a single word, the freethinkers would hold them up for ridicule; that in order to speak of questions where science and philosophy touch one another, one must have done ten or fifteen years study of the pure science, and that, if they had not become men with deep scientific knowledge, they must remain silent.”

Such knowledge and experience, though necessary, is not sufficient. Most scientists have a detailed knowledge of quite a small area of science, often remote from practical concerns. Their specialised studies should however have taught them what science is, how scientific conclusions are established, what are the difficulties and pitfalls, what questions can sensibly be asked and what sort of answers can reasonably be expected. If a scientist is asked a question beyond his competence it is tempting to respond, especially if one has quite other reasons for preferring a particular answer. Scientists are frequently asked for their opinions on a variety of topics, and it requires a strong will to say that one does not know. Public statements signed by a large number of scientists are often suspect because it is unlikely that they will all have the requisite specialised knowledge to be able to form a useful conclusion.

It is relatively easy to make a general statement such as ‘we must care for the earth’ that is so general as to be practically useless. The more specific a statement the more useful it is, and also the more prone to error. It is particularly useful to make a statement that draws attention to a public need that is ignored by politicians of all parties because it is likely to be politically unpopular. The Church can take the long view, unaffected by short-term political considerations.

One of the difficulties of many of the most important problems is that we do not know enough to reach a definite conclusion, and so we have to make decisions on the basis of inadequate knowledge. It is easy to say that we must make more studies until we are certain, but this is dangerous because by then it may be too late. The best action in such cases is a matter of informed judgement. Few of those who write on these questions have adequate knowledge, and it is notable that the strength of the assertion is inversely proportional to the depth of knowledge. Many of these questions are highly controversial, and vociferous pressure groups propagate their views. Sometimes there are obvious commercial interests behind their activities, and they sometimes employ people with some scientific knowledge to give their propaganda a spurious authenticity. It then often requires considerable specialised knowledge to see the deficiencies in their arguments. Such people never listen to contrary arguments; they are not interested in finding the truth. As a result, there is no progress in the discussions; the same statements are made again and again, even when they have been refuted a thousand times.

A theologian who decides to analyse a particular problem needs to be aware of these pitfalls before he begins his work, for otherwise he will accept assertion as fact and thus produce worthless judgements. Likewise a scientist who decides to speak on a particular problem needs to study it in detail for many years.

To illustrate these general statements it is useful to consider a few particular cases, beginning with global warming. It is established that the atmospheric concentration of carbon dioxide in the atmosphere and other so-called ‘greenhouse gases’ is steadily increasing, and it is suggested that this will lead to a gradual rise in the earth’s temperature of about 1 to 3 degrees per century, which in turn will lead to the melting of the Antarctic ice cap, a rise in sea level of about 50 cm. and the inundation of low-lying countries. If this is true, the consequences are so serious that there is a major moral obligation to tackle it as energetically as possible.

The effects of the increase in the level of greenhouse gases is however still controversial. There are highly plausible arguments both for and against global warming, and a full analysis requires a wide range of specialised skills. At present the weight of informed scientific opinion is that global warming is probable enough to be taken very seriously. The next question is what to do about it. This requires a quantitative study of the sources of the greenhouse gases emissions so as to see which are the largest, and whether they can be reduced, eliminated or replaced. For example, an important emitter of carbon dioxide is coal power stations, so we can ask if they can be replaced by other types of power stations that do not emit carbon dioxide, and are not unacceptable on other grounds. This is evidently a rather technical discussion that nevertheless has important repercussions on human society.

In addition to such practical concerns, modern scientific discoveries have profoundly changed our view of the world. The cosmologies of the Hebrews and the Greeks are gone for ever, and with them much of our theological imagery. No longer can we believe that hell is in the centre of the earth, or heaven up in the sky. Our earth is a satellite of a rather ordinary star on the edge of a galaxy of billions of stars, and our galaxy is itself one of billions. that have evolved from a primordial explosion about fifteen billion years ago. This is the universe revealed by modern science, and theologians need to be aware of it and take it into account in their writings, as Aquinas used the philosophical terms of Aristotle in expressing his theology.

Modern scientific discoveries are sometimes believed to have philosophical implications, and this also affects the way we think about the world. Often it turns out that these are no more than presuppositions that have been used to interpret scientific results, and that these are not the only ones that are possible. Thus, for example, it is widely believed that quantum phenomena show that the world is indeterminate, acausal and non-local, but further examination shows that this is attributable to philosophical presuppositions. A realist interpretation is also possible and in this context the quantum implications disappear. Secularist attacks on the Church frequently use stories purporting to show the antipathy of the Church to science. Thus Galileo is presented as a martyr of science, forced by the Inquisition to recant his heretical scientific discoveries, Bruno was burnt at the stake and Huxley routed Wilberforce in the debate on evolution. The full analysis of these events puts them in an entirely different light, and this is primarily the task of the historian. Scientists have important contributions to make, and certainly need to be aware of the conclusions.

These are some of the areas where the scientist can contribute to the life of the Church, and they are the concern of the Church as a whole. They thus have a place in the teaching in schools, universities and seminaries, and in books, journals and newspapers.

Many of the subjects taught in schools are affected by science and its applications. Science teachers need to be aware of the Christian roots of modern science and the outstanding contributions that Christians have made to its birth and development. Thus for example in physics and astronomy one can mention Copernicus, Kepler, Galileo, Newton, Faraday, Fresnel, Fraunhofer, Herschel, Volta, Ampere, Ohm, Oersted; in chemistry Lavoisier and Dumas; in biology Pasteur and Mendel and in mathematics Bessel, Cauchy, Gauss and Hermite. The religious instruction classes encounter scientific questions when considering the interpretation of the Bible, and the place of the Church in the contemporary world.

University studies are more specialised, but Catholic uni-versities could provide courses on many of the subjects mentioned. In secular universities it is the task of the Catholic chaplaincies to ensure that the Catholic students are adequately instructed in matters related to science. The same applies to technical colleges and other higher education institutions.

It is vitally important that future priests are well-instructed in matters related to science. Many of them already have some basic scientific training and opportunities should be provided for them to maintain and develop their knowledge. It is generally not practicable to provide instruction in science itself, but ways of teaching the relations between theology and science need special attention. In the course of their parish duties, priests will be asked questions about the relation of science to faith, the Galileo affair, evolution, genetic engineering

and similar subjects, and they should be prepared to give an answer or at least to know of books to which the enquirer can be referred.

All these activities require suitable written material in the form of books, articles and study guides. These need to be available in schools, and in chaplaincy and seminary libraries. There are many such books in print, but they are rather seldom used. Instead, one often finds the latest glossy paperbacks by writers who make it their lifework to undermine Christianity. With a few exceptions, the Catholic Press is a disaster area, with editors that seem to have no understanding of how to treat scientific matters. Serious scientific studies are conspicuous by their absence and for the most part instead of providing objective analyses they simply repeat the secular analyses of the mass media. If a serious article is published, it is almost always followed the next week by intemperate attacks by people who lack the most elementary knowledge of the subject, and the author is often denied the right to reply. It is impossible to make any progress in this way or to provide the information and guidance that is so badly needed.

The many Papal Addresses form a most valuable source of authoritative guidance on matters related to science, though they are often shamefully neglected. Thus one of the most comprehensive analyses of energy problems, including nuclear power, is almost completely unknown, and was ignored by the Catholic Press. These valuable studies should be widely disseminated, if necessary in abridged and simplified form.

These are a few of the questions that are the subject of our SIQS Day in September. We need first of all to examine the situation in detail, and then decide what can be done about it. There are undoubtedly great differences between different countries, and quite possibly the above remarks are quite unrepresentative.

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