



Address to the Plenary Session on 'The Origins and Early Evolution of Life'

*John Paul II refers to Pius XI's hope that the Academy would become a *Senatus scientificus*. In relation to the origins of life and the universe the Pope asks: 'How do the conclusions reached by the various scientific disciplines coincide with those contained in the message of Revelation? And if, at first sight, there are apparent contradictions, in what direction do we look for their solution?' John Paul II surveys the Magisterium's comments on the theory of evolution and adds that 'to tell the truth, rather than the theory of evolution, we should speak of several theories of evolution'. Those theories of evolution which 'consider the mind as emerging from the forces of living matter' are 'incompatible with the truth about man'. The human being, indeed, is 'called to enter into eternal life'.*

With great pleasure I address cordial greetings to you, Mr. President, and to all of you who constitute the Pontifical Academy of Sciences, on the occasion of your plenary assembly. I offer my best wishes in particular to the new Academicians, who have come to take part in your work for the first time. I would also like to remember the Academicians who died during the past year, whom I commend to the Lord of life.

1. In celebrating the sixtieth anniversary of the Academy's refoundation, I would like to recall the intentions of my predecessor Pius XI, who wished to surround himself with a select group of scholars, relying on them to inform the Holy See in complete freedom about developments in scientific research, and thereby to assist him in his reflections.

He asked those whom he called the Church's *Senatus scientificus* to serve the truth. I again extend this same invitation to you today, certain that we will all be able to profit from the fruitfulness of a trustful dialogue between the Church and science.¹

2. I am pleased with the first theme you have chosen, that of the origins of life and evolution, an essential subject which deeply interests the Church, since Revelation, for its part, contains teaching concerning the nature and origins of man. How do the conclusions reached by the various scientific disciplines coincide with those contained in the message of Revelation? And if, at first sight, there are apparent contradictions, in what direction do we look for their solution? We know, in fact, that truth cannot contradict truth.² Moreover, to shed greater light on historical truth, your research on the Church's relations with science between the sixteenth and eighteenth centuries is of great importance.

During this plenary session, you are undertaking a 'reflection on science at the dawn of the third

millennium', starting with the identification of the principal problems created by the sciences and which affect humanity's future. With this step you point the way to solutions which will be beneficial to the whole human community. In the domain of inanimate and animate nature, the evolution of science and its applications gives rise to new questions. The better the Church's knowledge is of their essential aspects, the more she will understand their impact. Consequently, in accordance with her specific mission she will be able to offer criteria for discerning the moral conduct required of all human beings in view of their integral salvation.

3. Before offering you several reflections that more specifically concern the subject of the origin of life and its evolution, I would like to remind you that the Magisterium of the Church has already made pronouncements on these matters within the framework of her own competence. I will cite here two interventions.

In his Encyclical *Humani Generis* (1950), my predecessor Pius XII had already stated that there was no opposition between evolution and the doctrine of the faith about man and his vocation, on condition that one did not lose sight of several indisputable points.³

For my part, when I received those taking part in your Academy's plenary assembly on 31 October 1992, I had the opportunity, with regard to Galileo, to draw attention to the need of a rigorous hermeneutic for the correct interpretation of the inspired word. It is necessary to determine the proper sense of Scripture, while avoiding any unwarranted interpretations that make it say what it does not intend to say. In order to delineate the field of their own study, the exegete and the theologian must keep informed about the results achieved by the natural sciences.⁴

4. Taking into account the state of scientific research at the time as well as of the requirements of theology, the Encyclical *Humani Generis* considered the doctrine of 'evolutionism' a serious hypothesis, worthy of investigation and in-depth study equal to that of the opposing hypothesis. Pius XII added two methodological conditions: that this opinion should not be adopted as though it were a certain, proven doctrine and as though one could totally prescind from Revelation with regard to the questions it raises. He also spelled out the condition on which this opinion would be compatible with the Christian faith, a point to which I will return.

Today, nearly half a century after the publication of the Encyclical, new knowledge leads us to recognise the theory of evolution as more than a hypothesis. It is indeed remarkable that this theory has been progressively accepted by researchers, following a series of discoveries in various fields of knowledge. The convergence, neither sought nor fabricated, of the results of work that was conducted independently is in itself a significant argument in favour of this theory. What is the significance of such a theory? To address this question is to enter the field of epistemology. A theory is a metascientific elaboration, distinct from the results of observation but consistent with them. By means of it a series of independent data and facts can be related and interpreted in a unified explanation. A theory's validity depends on whether or not it can be verified; it is constantly tested against the facts; wherever it can no longer explain the latter, it shows its limitations and unsuitability. It must then be rethought.

Furthermore, while the formulation of a theory like that of evolution complies with the need for

consistency with the observed data, it borrows certain notions from natural philosophy.

And, to tell the truth, rather than *the* theory of evolution, we should speak of *several* theories of evolution. On the one hand, this plurality has to do with the different explanations advanced for the mechanism of evolution, and on the other, with the various philosophies on which it is based. Hence the existence of materialist, reductionist and spiritualist interpretations. What is to be decided here is the true role of philosophy and, beyond it, of theology.

5. The Church's Magisterium is directly concerned with the question of evolution, for it involves the conception of man: Revelation teaches us that he was created in the image and likeness of God.⁵ The Conciliar Constitution *Gaudium et Spes* magnificently explained this doctrine, which is pivotal to Christian thought. It recalled that man is 'the only creature on earth that God has wanted for its own sake'.⁶ In other terms, the human individual cannot be subordinated as a pure means or a pure instrument, either to the species or to society; he has value *per se*. He is a person. With his intellect and his will, he is capable of forming a relationship of communion, solidarity and self-giving with his peers. St. Thomas observes that man's likeness to God resides especially in his speculative intellect, for his relationship with the object of his knowledge resembles God's relationship with what he has created.⁷ But even more, man is called to enter into a relationship of knowledge and love with God himself, a relationship which will find its complete fulfilment beyond time, in eternity. All the depth and grandeur of this vocation are revealed to us in the mystery of the risen Christ.⁸ It is by virtue of his spiritual soul that the whole person possesses such a dignity even in his body. Pius XII stressed this essential point: if the human body takes its origin from pre-existent living matter, the spiritual soul is immediately created by God.⁹ Consequently, theories of evolution which, in accordance with the philosophies inspiring them, consider the mind as emerging from the forces of living matter, or as a mere epiphenomenon of this matter, are incompatible with the truth about man. Nor are they able to ground the dignity of the person.

6. With man, then, we find ourselves in the presence of an ontological difference, an ontological leap, one could say. However, does not the posing of such ontological discontinuity run counter to that physical continuity which seems to be the main thread of research into evolution in the field of physics and chemistry? Consideration of the method used in the various branches of knowledge makes it possible to reconcile two points of view which would seem irreconcilable. The sciences of observation describe and measure the multiple manifestations of life with increasing precision and correlate them with the time line. The moment of transition to the spiritual cannot be the object of this kind of observation, which nevertheless can discover at the experimental level a series of very valuable signs indicating what is specific to the human being. But the experience of metaphysical knowledge, of self-awareness and self-reflection, of moral conscience, freedom, or again, of aesthetic and religious experience, falls within the competence of philosophical analysis and reflection, while theology brings out its ultimate meaning according to the Creator's plans.

7. In conclusion, I would like to call to mind a Gospel truth which can shed a higher light on the

horizon of your research into the origins and unfolding of living matter. The Bible in fact bears an extraordinary message of life. It gives us a wise vision of life inasmuch as it describes the loftiest forms of existence. This vision guided me in the Encyclical which I dedicated to respect for human life, and which I called precisely *Evangelium Vitae*.

It is significant that in St. John's Gospel life refers to the divine light which Christ communicates to us. We are called to enter into eternal life, that is to say, into the eternity of divine beatitude.

To warn us against the serious temptations threatening us, our Lord quotes the great saying of *Deuteronomy*: 'Man shall not live by bread alone, but by every word that proceeds from the mouth of God'.¹⁰

Even more, 'life' is one of the most beautiful titles which the Bible attributes to God. He is the *living God*.

I cordially invoke an abundance of divine blessings upon you and upon all who are close to you.

1 Cf. *Address to the Academy of Sciences*, n. 1 (28 October 1986); *L'Osservatore Romano* English edition (24 November 1986), p. 22.

2 Cf. Leo XIII, *Providentissimus Deus*.

3 Cf. AAS 42 (1950), pp. 575-576.

4 Cf. AAS 85 (1993), pp. 764-772; *Address to the Pontifical Biblical Commission* (23 April 1993), announcing the document on *The Interpretation of the Bible in the Church*: AAS 86 (1994) pp. 232-243.

5 Cf. *Gn* 1:27-29.

6 N. 24.

7 *S. Th.*, I-II, 3, 5 ad 1.

8 Cf. *Gaudium et Spes*, n. 22.

9 '*Animas enim a Deo immediate creari catholica fides nos retinere iubet*' (*Humani Generis*, AAS 42, 1950, p. 575).

10 *Dt* 8:3; cf. *Mt* 4:4.