The Holy See

MESSAGE OF HIS HOLINESS BENEDICT XVI
TO ARCHBISHOP RINO FISICHELLA,
RECTOR MAGNIFICENT OF THE PONTIFICAL LATERAN UNIVERSITY, ON THE OCCASION OF THE INTERNATIONAL CONGRESS
"FROM GALILEO'S TELESCOPE TO EVOLUTIONARY COSMOLOGY. SCIENCE, PHILOSOPHY AND THEOLOGY IN DIALOGUE"
[30 NOVEMBER - 2 DECEMBER 2009]

To my Venerable Brother
Archbishop Rino Fisichella
Rector Magnificent of the Pontifical Lateran University

I am pleased to address my greeting to all the participants in the International Congress on the theme: "*From Galileo's telescope to evolutionary cosmology. Science, philosophy and theology in dialogue*". I extend a special greeting to you, Venerable Brother, who have promoted this important time of reflection in the context of the International Year of Astronomy, to celebrate the fourth centenary of the invention of the telescope. My thoughts also turn to Prof. Nicola Cabibbo, President of the Pontifical Academy of Sciences, who has collaborated in the organization of this Meeting. I cordially greet the eminent people who have come from various countries in the world and are honouring these days of study with their presence.

When one opens the *Sidereus Nuncius* and reads Galileo's first words, one is immediately struck by the Pisan scientist's wonder at all that he himself had achieved: "I propose great things in this brief treatise for the observation and contemplation of scholars of nature", he wrote. "Great, I say, because of the excellence of the subject in itself, for its newness, unknown in past centuries, and also for the instrument through which these same things are manifested to our sight" (Galileo Galilei, *Sidereus Nuncius*, 1610, translated [into Italian] by P.A. Giustini, Lateran University Press 2009, p. 89). It was the year 1609 when Galileo first pointed skyward an instrument which "I myself devised", he wrote, "enlightened at the outset by divine grace": the telescope. It is easy to imagine what he saw; his awe became excitement and enthusiasm which prompted him to write: "Without

any doubt it is a great thing to add innumerable other stars to the immense multitude of fixed stars that until today it has been possible to discern with the natural faculty of sight, and which exceed by more than ten times the number of ancient stars already recorded" (ibid.). The scientist was able to observe with his own eyes what, until that moment, had been no more than controversial hypotheses. It would not be wrong to presume that at this sight Galileo's profoundly believing mind must have been opened, as it were quite naturally, to prayerful praise, making his own the feelings expressed by the Psalmist: "O Lord, our Lord, how majestic is your name in all the earth!... When I look at your heavens, the work of your fingers, the moon and the stars which you have established; what is man that you are mindful of him, and the son of man that you care for him? Yet... you have given him dominion over all the works of your hands; you have put all things under his feet..." (cf. Ps 8: 1, 3-7).

With this discovery, the cultural awareness of facing a crucial point in the history of humanity increased. Science was becoming something different from what the ancients had always thought it to be. Aristotle had made it possible to arrive at the certain knowledge of phenomena starting with evident and universal principles; Galileo then showed in practice how to approach and observe the phenomena themselves in order to understand their secret causes. The method of deduction gave way to that of induction and prepared the ground for experimentation. The concept of science that had remained the same for centuries was now changing, entering into a modern conception of the world and of humankind. Galileo had delved into unknown paths of the universe; he was opening the door wide to observe ever more immense expanses in space. It is probable that over and above his intentions, the Pisan scientist's discovery also made it possible to go back in time, prompting questions about the very origins of the cosmos and making it clear that after emerging from the Creator's hands, the universe also has a history of its own; "groaning in travail", to borrow the Apostles Paul's words, in the hope that it would be "set free from its bondage to decay and obtain the glorious liberty of the children of God" (Rom 8: 21-22).

Today too the universe continues to give rise to questions to which mere observation does not succeed in giving satisfactory answers: the natural and physical sciences alone do not suffice. Indeed, if the analysis of the phenomena remains closed in on itself, it risks making the cosmos seem an insoluble enigma. Matter has an intelligibility that can speak to the human mind and point out a way that goes beyond the mere phenomenon. It is Galileo's lesson which led to this thought.

Was it not the Pisan scientist who maintained that God wrote the book of nature in the language of mathematics? Yet the human mind invented mathematics in order to understand creation; but if nature is really structured with a mathematical language and mathematics invented by man can manage to understand it, this demonstrates something extraordinary. The objective structure of the universe and the intellectual structure of the human being coincide; the subjective reason and the objectified reason in nature are identical. In the end it is "one" reason that links both and invites us to look to a unique creative Intelligence (cf. Benedict XVI, *Address to young people of the Diocese of Rome*, 6 April 2006).

Questions on the immensity of the universe, its origins and its end, as well as on understanding it, do not admit of a scientific answer alone. Those who look at the cosmos, following Galileo's lesson, will not be able to stop at merely what is observed with the telescope; they will be impelled to go beyond it and wonder about the meaning and end to which all creation is ordered. At this stage philosophy and technology have an important role in smoothing out the way towards further knowledge. Philosophy, confronting the phenomena and beauty of creation, seeks with its reasoning to understand the nature and finality of the cosmos. Theology, founded on the revealed word, examines the beauty and wisdom of the love of God who has left his imprint on created nature (cf. St Thomas Aquinas, *Summa Theologiae*, Ia, q. 45, a. 6). Both reason and faith are involved in this gnoseological act; both offer their light. The greater the knowledge of the complexity of the cosmos, the greater the number of instruments that can satisfy it will be required. There is no conflict on the horizon between the various branches of scientific knowledge and of philosophy and theology. On the contrary, only to the extent that they succeed in entering into dialogue and in exchanging their respective competencies will they be able to present truly effective results to people today.

Galileo's discovery was a crucial landmark in the history of humanity.

It led to other great discoveries, with the invention of instruments that have made the technological progress achieved precious.

From the satellites that observe the various phases of the universe which has paradoxically become smaller to the highly sophisticated machines used by biomedical engineering, everything shows the greatness of the human mind which, according to the biblical commandment, is called to "subdue" the whole of creation (cf. Gn 1: 28), to "till" it and "keep" it (Gn 2: 15). Nevertheless a subtle risk is always involved in so many breakthroughs: namely, that human beings may trust only in science and forget to lift their gaze to the transcendent Being, the Creator of all, who in Jesus Christ revealed his Face of Love. I am sure that this Congress' interdisciplinary approach will enable the importance of a unitive vision the result of a common effort for real scientific progress in the contemplation of the cosmos to be grasped.

I gladly accompany your academic commitment, venerable Brother, as I ask the Lord to bless these days as well as the research of every one of you.

From the Vatican, 26 November 2009

BENEDICT XVI