

I INTRODUCTION

SCIENCE AND THE WONDERS OF CREATION

His Holiness Pope Paul VI

We welcome today with special joy the presence among us of scholars who have come from all parts of the world to our small State of Vatican City, to study the Spectral Classification of the Stars. We know that, in the spirit of collaboration, you will confer together on the topics proposed by the International Astronomical Union. We thank you for the honour of your presence and we are glad of this opportunity to show our continued interest in Science and particularly in Astronomy; this interest leads us to maintain the Vatican Observatory and to support our esteemed Academy of Sciences.

Your presence also constitutes an honour to the memory of an illustrious astronomer, Father Angelo Secchi, of the Society of Jesus, who died in February 1878. At the same time, we believe that you share the profound respect with which we evoke the memory of another Jesuit, Father Patrick Treanor, Director of the Vatican Observatory and promoter of this meeting who died last February, almost exactly one hundred years after Father Secchi.

Your present work on Spectral Classification builds upon a truly glorious past, and promises an important extension of astronomical knowledge for the future. As we can see from your programme, you are beginning to explore the spectral features of stellar populations in the nucleus of our own and nearby galaxies, and you even use similar techniques to discover the very faintest Quasi Stellar Objects which seem to lie at the very limits of the presently observable universe.

In this work of Stellar Spectra, Father Secchi was truly

a pioneer. A keen student of solar physics, and most skilled in the design and adaptation of scientific instruments, he was among the first to use a direct-vision spectroscope to study numerous "stellar rainbows." In later years, he attached an objective prism to an astronomical telescope at the Collegio Romano, thus starting a type of research which has been pursued at the Vatican Observatory up to this time, and that we see from your programme figures prominently in all your plans for future work.

With the means at his disposal, limited to the visual range, Father Secchi observed and recorded the spectral characteristic of more than four thousand stars, classifying them into the now famous four types named after him. This week, after one hundred years of zealous search, which covers the entire electromagnetic spectrum and draws upon the most modern data of space telescopes, you will be examining and reviewing many of those stars, to group them into new classification schemes that tell us so much more about their nature and evolution. It is our pleasure to recall here the great accomplishments in this field dating from the work done in 1943 by William Morgan, of our own Academy of Sciences, who, together with Professor Keenan, present with us today, has added a new dimension to this specialty by considering both the surface temperature and the true luminosity of the stars in a new system of classification.

Father Secchi, with true scientific honesty, knew well that he was standing "on the shoulders of giants" and that his own work was only a small contribution to an immense task. He acknowledged how much he owed to Fraunhofer and Kirchoff and Donati of Florence, as well as to his contemporaries Rutherford and Huggins. He praised Huggins' discovery of the gaseous nature of nebulae such as the one in Orion, when he wrote: "the field opened by these astronomers was immense, and I tried to glean ears in it." (A. Secchi, "Chemical News", 1868, Vol. XVIII p. 18).

And near the end of his work he stated: "There remain so many things to learn, because nature is inexhaustible in its wonders: and when we think we have arrived at the end, we find that it is only the beginning... God alone can perfectly comprehend his work in the universe. Fortunate it is that man can have a concept large enough for him to admire the grandeur and beauty of God's handiwork". (A. Secchi, "Le Soleil", Second Edition, Paris: Gauthier-Villars, 1877, Vol. II. p. 483).

You, who work daily in scientific research, are undoubtedly moved by this same spirit, and like Father Secchi will desire to share the fruits of your exploration of God's marvellous universe with your fellowmen. We wish to encourage you in your en-

thusiasm: as you share with each other during this week the details of your discoveries, we urge you to communicate the good news of the wonders of creation to all of us, who are surrounded by such beauty. Help us to lift our hearts and minds beyond the limited horizons of our daily toils, to compass the vast domain of stars and galaxies, and to find beyond them the magnificence and power of the Maker. "Deum Creatorem, venite adoremus!"