

A Revolutionary Anniversary

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The Royal Astronomical Society of London, oldest scientific organization of its kind, recently observed its Sesquicentenary. In our years of global turmoil and megalomaniac convulsions, that century-and-a-half after the foundation of the Society by Sir William Herschel represents an incomparable leap in man's understanding of the world he lives in and the universe he contemplates. Historians of science confidently compare this last period of the extent of man's astronomical advancement to the entire period of some six thousand years since the dawn of civilization.

The panorama and magnitude of expanded horizons was eloquently displayed by a series of appropriate addresses by leading British astronomers. The setting was also very well chosen. It took place in the historical Royal Institution of Great Britain, famous for a galaxy of distinguished past directors, great physicists and chemists in the years of triumphant expansion of physical science. Sir Bernard Lovell, director of Jodrell Bank Radio Astronomy Laboratories, who presided over the anniversary observances, opened the solemn session in the very same Lecture Theater where, more than a century before, Faraday had offered his sensational lectures

on the wonders of electricity of which he was the great discoverer and leading pioneer. Sir Bernard gave an introductory exposition of the breathtaking growth of celestial science since the prevailing primitive world views at the time that the founder of the Society, William Herschel, "broke the gates of heavens" as stated on his memorial inscription in Westminster Abbey.

After Sir Bernard's initial introduction, first speaker was to have been Professor Sydney Chapman, past President of the Commission of the International Geophysical Year. This great geophysicist is synonymous with the Chapmanian term geomomy. With his sudden death only ten days before celebration, his devoted friend, Professor Cowling of Leeds University, read his prepared address. It was humanly the warmest presentation of the glorious vista of our Earth, starting with a quotation from Genesis through man's struggle for the realization of our planet's sphericity all the way to the complexities of geomagnetism. Then followed Dr. Blackwell, Savillian professor of astrophysics at Oxford, who reviewed not only the discoveries but the riddles still extant in our planetary system. Supposedly long ago, Laplace had solved these with his once triumphant deterministic mathematical equations.

Next, the Astronomer Royal, Sir Richard Woolley, discussed the fabulous breakthrough into cosmic space beyond our solar system.

It happened in the form of Herschel's rather vague notions of distances of stars to the daring study of the shape of our own Milky Way star system. Herschel's great revelation was really when he created the notion of "Island universe," when this assiduous and untiring observer noted the spiral patches of light beyond our own galaxy. The marvelous and stupendous quantitative breakthrough in the 19th Century occurred 18 years after the foundation of the Society when, in 1838, Bessel measured with reasonable accuracy the distance of one of the nearest stars outside our solar system. It was an astounding realization of the vastness of cosmic space and its emptiness when the increasing precision of measurement revealed that it would take well over 30 million years to reach the nearest star, traveling at 100 miles per hour.

An exciting session took place in the historical hall when two modern astrophysicists confronted each other. Fred Hoyle, Plumian professor of astronomy at Cambridge, presided over the session in which Sir Martin Ryle of Cavendish Laboratory—sometimes called "laboratory of genius"—expounded the most up-to-date topic, the problem of quasi stellar objects or simply quasars, in which he is one of the greatest pioneers. His address was modestly formulated as "Extra-galactic nebulae."

The confrontation of these two astrophysicists represents two dif-

ferent hypothetical attempts in the explanation of the origin of the universe. Both hypotheses, of course, start with the phenomenon of the observed expansion of the universe in the form of receding external galaxies. Yet, Fred Hoyle's "steady state" hypothesis advocates the perpetual creation of atoms that balances the dissipating matter through cosmic expansion. On the other hand, Martin Ryle from his observational facts appears to support the initial explosion of a once extremely compact universe, the so-called "big bang" hypothesis, due to the existence of the microwave background of our observable universe some eight billion light years distant. Both Fred Hoyle and Martin Ryle seem to enjoy their friendly learned disputes as they eagerly search any observational facts in support of their respective speculations.

There was a social climax to the Sesquicentenary of the oldest astronomical society. It was a gala reception offered by the Lord Mayor of London, Sir Ian Bowater. This took place in the majestic medieval Guildhall. All three premises, the Ambulatory, Great Hall and Crypt, had the most fabulous floral decorations I have ever seen. According to strict English tradition it was a formal, dignified occasion with glittering display, and was culminated by a solemn message proclaimed to the hushed audience from the Patron of the Society, H. M. Queen Elizabeth II.