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Going through this particular volume for the purpose of writing this review proved to be a specially rewarding experience for me. As it happens, this volume contained several articles on topics which I have been planning for a while to study at some depth. While going through them, I was again struck by the general high professional standard which the *Annual Review* is able to maintain year after year, presumably by a judicious selection of authors.

It has been a custom in the last few years to begin with an autobiographical chapter by an eminent astrophysicist. Lives of eminent astrophysicists do not always turn out to be rich in human drama. However, the life of Victor Blanco, the author of the prefatory chapter in this volume, has been truly eventful. The boy who looked after cows and pigs in Puerto Rico was eventually to provide leadership in building the Cerro Tololo Inter-American Observatory in Chile—the major observatory built with US collaboration for studying the southern skies. One also learns about the hazards of doing science in a politically unstable environment, where an elected government was toppled by the dictator Augusto Pinochet while the observatory was being built.

Along with several excellent articles on topics of mainstream astrophysics, this volume has at least two articles on topics which many astrophysicists would consider to be outside the mainstream: one on the search for extraterrestrial intelligence (SETI) by Tarter and the other on chaos in the solar system by Lecar *et al*. Both these topics, however, have a broad general appeal outside the astrophysics community. As we learn from Tarter, some of the SETI projects have been supported by private donations from philanthropists rather than by government funding. Although human beings have wondered from time immemorial if we are alone in the Universe, SETI has become serious science only in the last four decades. Scientists have also wondered if planetary motions in the solar system will always remain the same or will eventually disrupt due to the internal dynamics of the system. In other words, is the solar system stable? A first breakthrough was made by the great Poincaré, more than a century ago. The current state of our understanding is described by Lecar *et al*., who also discuss how the sophisticated KAM theorem can explain why asteroids are not found in certain locations of the solar system.

When we turn to articles on mainstream astrophysics, one fact that becomes very apparent is that much of the excitement in modern astrophysics is due to advances in technology, which lead to new instrumentations and new ways of looking at the astronomical Universe. One of the stated goals of observational astronomy is to see the astronomical objects more sharply, i.e. to increase the resolving power of telescopes and to retrieve information that may have been lost in atmospheric turbulence. Interferometric techniques obviously help us in increasing the resolving power. Kellermann and Moran recount the historical development of radio interferometry over the last few decades, whereas Quirrenbach surveys the newly emerging science of optical interferometry in astronomy.

Apart from finding new things, the new instruments are giving us much better views of well-studied objects as well. Although the structure of stars is one of the better-understood subjects in astrophysics, our understanding declines rapidly as soon as we go out of the surface of a star—even our own Sun. Aschwanden *et al*. tell us how various important plasma processes in the solar corona have been studied in unprecedented detail by three space missions within the last decade: Yohkoh, SoHO, TRACE. Presumably, such plasma processes should be taking place in the coronae of other solar-like stars. Zuckerman reviews the properties of circumstellar disks around stars, first discovered by the infrared astronomical satellite (IRAS) in 1983. One of the reasons for astronomical interest in such disks is that they may give us vital clues about the formation of planetary systems.

How stars are born is one of the aspects of a star's life which we understand least. O'Dell surveys our current knowledge about the Orion Nebula, perhaps the best-studied star-forming region. Jet-like flows in Harbig-Haro objects, which are also star-forming regions, have been discussed by Reipurth and Bally. Apart from recent star formation in our Galaxy, astronomers are interested in studying the formation of first stars in the Universe. The intergalactic medium, which appears ionized now, is believed to have been ionized by these first stars between $z = 30$ and $z = 7$. Loeb and Barkana review this 'reionization' process. Given the fact that galaxies and quasars are now being discovered at redshifts ~ 6, we may be on the threshold of probing this epoch of reionization. Before the stars formed, the first structures should have been forming from a reasonably smooth primordial soup and this process should have released radiant energy to create a Cosmic Infrared Background (CIB). Hauser and Dwek discuss about this CIB, for which the first unambiguous evidence came from the COBE mission about a decade ago.

One philosophically disturbing conclusion of modern astrophysics is that the bulk of matter in the Universe is unseen, in the form of 'dark matter'. Sofue and Rubin revisit the subject of rotation curves of spiral galaxies, which provided evidence for huge amounts of unseen matter even in ordinary galaxies. Unseen matter in the form of supermassive black holes may not be objects confined only to distant corners of the Universe far away from us. Melia and Falcke put together convincing arguments that our own Galaxy has a black hole having the mass of 2.6 million suns at its centre. Very recent developments suggest that even dark matter may provide only a fraction of the density of the Universe. The Universe seems to be filled with mysterious energy which causes self-repulsion and makes the Universe to accelerate as it expands. In other words, the famous 'cosmological constant' in Einstein's general theory of relativity, which Einstein considered the biggest blunder of his life, may finally turn out to be not a blunder after all! This possibility had to be considered seriously when recent observations with the Hubble Space Telescope found distant Type Ia supernovae to be dimmer than what they should be. Leibundgut reviews this finding, which sent a shock wave through the astrophysics community. If standard cosmology forces us to such unusual conclusions, then is there a case for alternative models of cosmology? This issue is assessed critically by Narlikar and Padmanabhan. Even though there are some difficulties associated with the standard big bang cosmology, most of us feel that its successes also have been extraordinary and as of now there is no compelling reason to discard it in favour of alternative models.

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