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We all complain about the growth of population and of vehicular traffic in our cities. But there is one growth which is even much faster: the growth of scientific literature. *The Astrophysical Journal*, the premiere astrophysics journal published from USA, has grown in size by a factor of 30 in the last 50 years and brings out about 20,000 large pages in a year! And there are several other important journals which are growing similarly. Since it is not possible for any ordinary mortal to keep track of this vast amount of technical writing, the *Annual Reviews* serve the very useful purpose of indicating the main trends in the field. The present volume of about 800 pages contains 18 articles out of the 29 articles scheduled.

In spite of the general high quality of writing and the high degree of professionalism in the preparation of this volume, a single annual volume cannot provide a glimpse of the whole of modern astrophysics. Firstly, 11 scheduled articles are missing. Secondly, some important topics covered in the last two or three volumes are left out. Still, browsing through this volume, one gets a general impression of how the field of astrophysics is faring. In any healthy scientific discipline, there is always a coexistence of old and new. There are some review articles on topics which were unheard-of 20 years ago. On the other hand, other articles show that the last word has not yet been said on some subjects which began being studied in the first quarter of the century. The reader will find that some of these classical subjects have become almost new research fields due to the developments in the last few years. For example, although solar active regions have been studied systematically since the 19th century, Howard mentions in his review of this subject, 'The bulk of the results discussed in this review have come in the past five or ten years'.

Some of the classical subjects have been revived under the impact of new observational programmes or new instrumentation. One of the momentous developments in astrophysics in recent years is the launching of Hubble Space Telescope (HST). The only article based directly on the results of HST is a review by Savage and Sembach on interstellar abundance determinations from spectral lines in the ultraviolet which cannot pass through the Earth's atmosphere. Several articles, however, indirectly bear on the findings of HST. By putting the extragalactic distance measurements on a firm footing, HST is trying to pin down the expansion rate and hence the age of the Universe within much narrower error bars than possible previously. This has made scientists confront the question whether the ages of oldest stars as determined by stellar astronomers are consistent with the age of the Universe as established by HST. VandenBerg, Stetson and Bolte review the recent work on the oldest star clusters in our galaxy, whereas Olszewski, Suntzeff and Mateo point out that the old stars in the Magellanic Clouds hold some surprises for us. Apart from HST, there have been other space missions throwing new light on old problems. The *Ulysses*, which flew over the Sun's poles, provided the first reliable information on the solar wind in the Sun's polar regions, as reviewed by Gosling.

Apart from forcing astronomers to revisit classical topics, the new observational techniques have opened up new horizons through discoveries of totally new types of astrophysical objects. Geminga, one of the brightest γ-ray sources, for a long time eluded identification with anything that emits other kinds of radiation. Bignami and Caraveo tell the detective story as to how a multiwavelength hunt eventually led to the identification of Geminga as a neutron star. Infrared astronomy has been one of the most rapidly growing new astronomies in the last few years. Sanders and Mirabel tell us how the unexpected discovery of a large number of highly luminous infrared galaxies necessitated a revision of many prevalent ideas in galactic astronomy. Another important recent astronomical discovery is that of gravitational microlensing – the bending of light by objects in the halo or our Galaxy or in the nearby galaxies. The study of this phenomenon promises to throw some light on the composition of the mysterious dark matter in the halos of galaxies. This subject is reviewed by Paczynski, whose theoretical ideas played a crucial role in the development of this field.

The present volume is a pointer to the growing importance of studying fluid and plasma processes in astrophysical systems. In the last few years, we have become aware of many intriguing fluid flow patterns and magnetic activities in diverse circumstances. A gravitating object can make material in the surrounding region flow inward in a spiral path forming an accretion disk. The gravitational potential energy thereby released often has very queer manifestations, such as driving jets or bipolar outflows from the polar regions. The disk–bipolar flow combination seems to appear in astrophysical systems of vastly differing sizes and scales, from the star-forming regions to the active galactic nuclei. Two articles (one by Bachiller and the other by Hartmann and Kenyon) deal with the complex flow patterns around protostars. Tanaka and Shibazaki argue that X-ray novae involve accretion flow onto a neutron star or a black hole from a low-mass binary companion. The centre of our own Galaxy has some characteristics of an active galactic nucleus, with evidence for inward gas flow and strong magnetic fields. Recent research on this subject is summarized by Morris and Serabyn. Lin and Paploizou show that the theory of accretion disks has now become sophisticated enough for meaningful comparisons with observations. One of the major challenges in the study of astrophysical plasmas is to understand why magnetic fields are ubiquitous in the astrophysical Universe. Beck and co-authors cogently argue that the magnetic fields of galaxies must be produced by the dynamo process. We have already mentioned the review articles on the solar active regions and the solar wind, indicating that the Sun still remains perhaps the best cosmic laboratory for hydrodynamics and plasma physics. The review article by Horanyi on dusty plasmas is a recognition of the growing importance of this subject in understanding various solar system phenomena.

The prefatory chapter by Evry Schatzman, the doyen of French astrophysics, is unusually rich in human drama. Born of Jewish parents, he had to remain underground during the Nazi occupation and was active in the Communist Party. After the war, he took the leadership in building up a tradition of astrophysics in France. He strikes a note familiar to us Indians when he talks of a time when French astrophysicists had to visit USA regularly to remain scientifically up-to-date. Eventually, however, he saw the growth of a proud astrophysics community in France, who did not feel such needs. When shall we see the growth of a similar proud astrophysics community in India?

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