Vistas in Astronomy, Volume 4. Arthur Beer, ed. 194 pp. Pergamon Press, Inc., New York, 1961. $12.00. *Reviewed by Otto Struve, University of California at Berkeley.*

THE first two volumes of the *Vistas*, published in 1955 and 1956, respectively, were specifically dedicated to Professor F. J. M. Stratton, emeritus professor of astrophysics in Cambridge. The fact that 215 authors contributed 192 articles to those volumes shows not only the esteem which Stratton's work commanded among astronomers all over the earth, but also that he, perhaps more than anyone else, was loved by all and was unkind to no one. The formal occasion of this Festschrift was Stratton's 70th birthday in October 1951. Stratton was not as great a scientist as were two or three of his English contemporaries. But he spent more time and energy helping others. As his Royal Society biographer, Sir James Chadwick, has stated: "Stratton was indeed a man of great quality; his many gifts were used in the service of his fellow-men, with no thought for personal profit of any kind. He has left happy, unclouded memories with all who knew him, for he was a most genuine and lovable man. There was not a particle of base metal in him" (*Biographical Memoirs of Fellows of the Royal Society, Volume 7*, p. 283, 1961).

And now that Stratton is no longer with us, we must congratulate Arthur Beer and the Pergamon Press upon having continued the difficult task of issuing the third, and now also the fourth volumes of the *Vistas*. Those who knew Stratton personally and many who knew of him from their teachers, will always attach to each new volume the two names: Stratton and Beer. Taken together, the volumes of the *Vistas* are destined to become one of several astronomical encyclopedias, like G. P. Kuiper's volumes on the solar system and on the stars and stellar systems, or like the new series edited by Z. Kopal in England, the American *Annals of Astronomy* headed by a committee under Leo Goldberg, and the astronomical volumes of the new German *Handbuch der Physik*. But the *Vistas* have a flavor of their own. For one thing, they cover a wider scope of material. For another, Arthur Beer is perhaps more receptive to new ideas than are some of the other editors, and the articles in *Vistas*, although they were carefully edited, do not sound as though they were all written by one person. Beer must have made a conscious effort to let each author speak for himself.

Volume 4 is relatively short: it contains seven articles. The first, by Arthur Beer, Ho Ping-Yü, Lu Gwei-Djen, J. Needham, E. G. Pulleyblank, and G. I. Thompson, discusses an 8th-century meridian line, established by the Chinese astronomer I.-Hsing's chain of Jnomous, one of which at Yang-chheng observatory is still in existence. This entire article should at least serve to remind that while we can rightly describe all present-day astronomy as "Western" (it makes no difference whether its ancestry was Western) there were several epochs of great progress in astronomy that were totally non-Western in nature. One was the epoch of Chinese astronomy; another was that of the Arab world with the name of Ulugh Bek at the top.

Three articles by Sir Harrie S. W. Massey, Academician L. I. Sedov (Moscow), and A. G. Massevitch and A. M. Lozinsky (also of Moscow) deal with artificial earth satellites.

An article by J. C. Belshé of the University of Cambridge is entitled "Archeomagnetism". This is followed by J. C. de Jager of Holland on "The Development of a Solar Centre of Activity".

The concluding article, and the one that happens to interest the present, very old, reviewer the most, is by Cecilia Payne-Gaposchkin of Harvard and deals with the dispersion in the period-luminosity relation of the Cepheid, pulsating variable stars.

I have often expressed the opinion, and I still feel, that astronomy is a part of physics. Astronomers work with large telescopes and mostly at night (which sometimes upsets the natural rhythm of their bodily functions); physicists often work with small instruments, and usually during the day. What is more important is that with rare exceptions astronomers cannot make experiments. Their theories usually come after the observations have been made. The tendency therefore is to observe everything that can be observed. Some astronomical phenomena are very rare, but fortunately they are often easier to explain than the more frequent phenomena such as those of the some 15 000 variable stars. The astronomer usually does not know in advance whether what he observes is trivial or significant; hence he observes everything. Mrs. Gaposchkin has now demonstrated that some of the bewildering differences are not at all trivial, even though many are not understood.

Schwingungen. Eine Einführung in die theoretische Behandlung von Schwingungsproblemen. By Kurt Magnus. Vol. 3 of Leitfäden der angewandten Mathematik und Mechanik, edited by H. Görtler. 251 pp. B. G. Teubner Verlagsgesellschaft, Stuttgart, 1961. DM 29.80. *Reviewed by T. Teichmann, General Atomic Division, General Dynamics Corporation.*

THE oscillations of physical systems have provided the stimulus for much of the work on ordinary differential equations, and particularly in modern times have served as a useful frame for the discussion of nonlinear equations of particularly important types. In most cases, however, the mathematics is sufficiently interesting and significant in its own right that the investigations quickly diverge from their specific origin, and turn to more abstract if important problems of existence, stability, etc. The impression is thus often left that once one leaves the field of linear problems, very little of simple character can be said about the behavior of the system.

Magnus' book is devoted precisely to filling this gap. The most important categories of physical oscillations are discussed in terms of those aspects of their behavior which are amenable to relatively elementary mathe-