

MIRA, SECOND LARGEST STAR, COULD
ENGULF EARTH'S ORBIT

(Courtesy of "Science Service")

A GLOBE of glowing gases 250,000,000 miles in diameter, so vast that if the Sun were placed at its center there would be sufficient room for the Earth to revolve in its customary orbit; such is the nature of the star Omicron Ceti, known to the ancients as Mira, "the wonderful," because of its remarkable and periodical variations in brilliance. This was made known recently at the Carnegie Institution of Washington which announced measurements completed at the Mount Wilson Observatory, Pasadena, California.

The observations from which these measurements were calculated were made by Francis G. Pease, astronomer at the observatory, using the great 100-inch reflecting telescope, the largest in the world. The method employed was one invented by Prof. A. A. Michelson of the University of Chicago. A device called an interferometer is attached to the top of the telescope, and from its readings the apparent diameter of the star may be calculated. This is the angle between two lines coming from opposite edges of the star and meeting at the earth. In the case of Mira, the apparent diameter is about six-hundredths of a second of arc, the same as that of the head of an ordinary pin five miles away!

Obviously this apparent diameter has no direct relation to the actual size, for a small object nearby may appear larger than a much greater one at a distance. By other means, however, the distance of the stars may be determined, and when known, the actual diameter may be calculated. Thus, Mira is about 165 light years away. A light year is the distance that light can travel in one year, about 6,000,000,000,000 miles; it can encircle the earth seven times in a second! The distance of Mira is, therefore, too many billions of miles to think about.

Since 1920, when Michelson's method was first applied to the measurement of stellar diameters, Mr. Pease has

ously advanced, and which located the Sun in a peripheral spot tens of thousands of light years from the system's center. By 1924, Edwin Hubble at Mount Wilson was beginning his demonstrations that other external galactic systems comparable to our Milky Way also exist. His studies of the variable stars in the Andromeda Nebula (M31) showed that it was nearly a million light years away (later revised to two million), and contained billions of stars similar to our Sun and others in our neighborhood. Nonscientist members of the A.S.P. stayed informed about these discoveries through lectures like the Stahl series, through the Society's meetings, and through a new medium which is the subject of our next chapter.

Chapter 10:

The Leaflets and the Library

In 1925 the Society began one of its most successful ventures, aimed at its lay members. The president in that year, Bernard Benfield, a San Francisco engineer, conceived the idea of a series of small (vest-pocket sized) leaflets, written by professional astronomers, discussing astronomical topics in a nontechnical way. The first of these appeared in May 1925, funded by Benfield, and was a review of the variable star Mira by James Stokley; the second, by Robert Aitken, was on Mars. (Stokley, the author of the first A.S.P. *Leaflet*, was then a young science writer working for Science Service. Sixty years later, after a long career as reporter, author, and planetarium director, he would win the A.S.P.'s Klumpke-Roberts Award for his contributions to popularizing astronomy.)

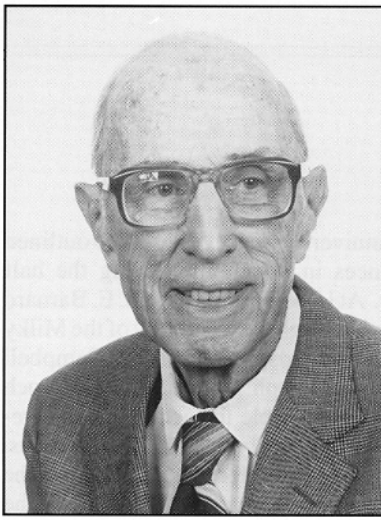
The *Leaflets* were so popular that within a year or so they were appearing almost every other month, and then monthly in 1933. In 1937 they expanded from four pages to eight. The articles, often by noted astronomers, paved the way for modern astronomy magazines such as *Sky & Telescope* and *Mercury*. Astronomy was changing rapidly and the *Leaflets* brought news of many of the important new theories and discoveries to amateurs and laypeople around the world. Edwin Hubble described observations of redshifts in the spectra of galaxies in Leaflet No. 23, in 1929; Milton Humason discussed redshifts and the expanding universe theory in 1931, and again in 1936. Robert Trumpler wrote about the ubiquity of dust in the Milky Way (a discovery he had made in 1930) in *Leaflets* in 1931 and 1932.

The first page of the first A.S.P. Leaflet, written by James Stokley.

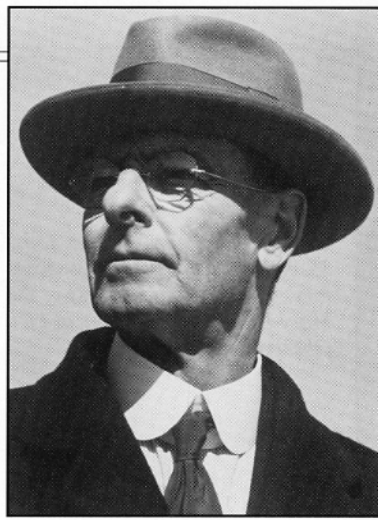
Other *Leaflets* dealt with such wide-ranging topics as comets, supernovae, astronomy and radar (1943), and the planet Pluto (discovered in 1930). Under the editorship of Benfield and A.S.P. Secretary Charles H. Adams, and later of Alfred H. Joy and then Gibson Reeves, the A.S.P. *Leaflets* continued to appear through December 1971, when they were replaced by the Society's new magazine *Mercury*. The final *Leaflet* was No. 510, entitled "Astronomers Look at Lightning," by Leon E. Salanave, who would become the Society's first executive officer.

Benfield's assistant in producing the *Leaflets* was Charles H. Adams, who served as secretary of the A.S.P. for a quarter of a century — from 1925-1950. Adams was born in 1868 near San Francisco, the son of a successful lumber and timber businessman. But while Charles was a student at the University of California, his father's business met with a series of disasters (fires, shipwrecks), and Charles left school to help salvage matters. The family's debts were finally settled, and Charles became an insurance broker and executive secretary to the Merchants' Exchange Association, a post he held until 1940. At some point he acquired a small telescope, with which he enjoyed looking at the sky. In 1919 he wrote a letter to Campbell at Lick, asking for some information about stellar parallaxes; Campbell replied and invited him to join the A.S.P. Adams did so, and soon was actively recruiting members (in 1923 he enlisted about forty new ones).

Adams served on the Board from 1923-1948, and was appointed secretary-treasurer in 1925, a position he continued to hold until he retired for health reasons. During much of his tenure the A.S.P.'s business was transacted at his kitchen table, and the records were kept in his home. His interest in astronomy had a strong influence on his son Ansel, who would become one of



James Stokley in 1983, the year he was awarded the Society's Klumpke-Roberts award. (A.S.P. archives.)



Charles H. Adams. Adams was a most vigorous and dedicated member of the A.S.P., serving as its secretary for a quarter of a century. (Photograph by his son Ansel, courtesy of the Ansel Adams Publishing Rights Trust, all rights reserved.)

the great photographers of the twentieth century. When Charles died in 1951, Ansel and other family members requested that memorial gifts be made to the A.S.P., and the Charles H. Adams Fund was set up, to help support the Society's various publications.

Another concern of the Society in the 1920's was its library. The collection had been rebuilt after the destruction of the 1906 fire; by 1911 it contained about 300 bound volumes and 3,000 periodicals and miscellaneous items. It was housed in the A.S.P. rooms in the Phelan Building in San Francisco; but it was getting very little use, and by 1916 the Directors were wondering how to make the library more useful. In 1917 they voted to move it to the Sutro Branch of the California State Library, in the hopes that it would be more accessible. By 1920 the collection had nearly doubled in size, to 635 bound volumes and 6000 others, all indexed and shelved in the Sutro Branch. In 1924 it was moved again, to the San Francisco Public Library.

By 1927 the Society was in a quandary: it could not afford to rent quarters for the collection, which continued to grow as many observatories sent their publications in exchange for the *P.A.S.P.* In 1929 the library was moved to the Students' Observatory at the University of California in Berkeley. Eventually, the A.S.P.'s collection was merged with the University's, and by today the normal culling process at the University has apparently led to the discarding of most of the A.S.P.'s books.

With the purchase of the Society's own building in 1988, a new effort is being made to build up the library as the A.S.P. begins its second century. A number of members have already donated books and older magazines to the Society's collection and other such contributions are being sought from members, other libraries, and book collectors.

Robert G. Aitken at the micrometer eyepiece of the Lick 36-inch refractor. Aitken was one of the most distinguished and active Society members; he served twice as President, held several other offices and was on the Board of Directors, and was awarded the Bruce Medal in 1926 for his work on double stars — much of which was done with this instrument. (Photograph courtesy of the Mary Lea Shane Archives of Lick Observatory.)

Chapter 11:

Anniversaries

The *P.A.S.P.* for February 1929 marked the fortieth anniversary of the founding of the Society. Robert Aitken wrote to the six surviving founders asking for their recollections of the event, and three responded with letters which were published in that issue. James H. Johnson had been secretary of the PCAPA in 1889; he wrote: "From a modest band of novices led by a few earnest astronomers [the A.S.P.] has evolved into an institution commanding international esteem... And the good work still goes on under capable hands." He also had high praise for Holden at the founding meeting: "I still remember his inspiring zeal... His ideals were high yet practical... Much wise counsel did he give us, and the meeting closed with faith and mighty resolve."

Alfred P. Redington, another charter member, wrote that "In the forty years that have elapsed since that memorable evening it has been a satisfaction to note the growth and progress the Society has attained throughout the world, and the Certificate of Charter Membership, issued to the writer over the signatures of Dr. Holden and Professor Schaeberle, is regarded by him as one of his most valued possessions."

Ten years later, at the annual meeting in 1939, Aitken gave an address on the fiftieth anniversary.

