

which are waiting to be put into action. Enthusiasm is lost before there is a fair start in investigation. When enthusiasm is lost everything is lost, and the graduate schools are all too full of persons who are carrying out researches as a matter of duty and not as a matter of personal inward necessity.

No one can be a "zealous" investigator unless the investigation of some particular problem is absolutely necessary for his comfort, unless he is unhappy if not at work on it, unless there is an inner flame which will not let him rest. Such an attitude of mind can be obtained only by continued contact with natural phenomena, by a realization of the kinship with nature which makes us carry the joy of companionship from the realm of human beings to all nature whether living or non-living. We know the man who is interested in his fellow-men because he wishes to use them for financial gain. We do not wish to follow his example. The same type of man is to be found in science, the man who sees in nature only a means for obtaining material gain. The true type of investigator, however, is he who delights in the existence of a universe which yields secrets to his tender regard. I remember when I was a boy our neighbors used to bring their sickly house plants to my mother to keep for them until they regained full vigor. When asked why they did so well for her she always said, "They grow so well for me because I love them."

So let me urge upon you the cultivation of a relationship with nature and its problems based upon direct and personal intimate contact with it. The problems you are engaged in solving then become your own problems, their solution becomes necessary for your happiness. Your soul can not have peace until they are solved.

CHARLES ZELENY

## SCIENTIFIC EVENTS

### AMERICAN ASTRONOMY<sup>1</sup>

IN the year 1840 the Dana House Observatory of Harvard College was established by the aid of public funds and private subscription, with William Cranch Bond as director. It

<sup>1</sup> From *Nature*.

was not the first college observatory in America, and other eminent American astronomers had lived earlier in the century, but the date may be taken as the beginning of systematic astronomical observation in the western continent. The U. S. Naval Observatory was established in 1844, and the present Harvard Observatory founded, largely by generous help from private benefactors, in 1846. Other institutions of the period might be named where the science of astronomy of position was pursued, and this, with the splendid work on planets, satellites, comets, asteroids, nebulae and the astronomy of the solar system generally done at Harvard by W. C. Bond and G. P. Bond, and afterwards by Winlock, is to be considered representative of the astronomy of the United States in the succeeding forty years. The accession of the late Professor E. C. Pickering to the directorate of the Harvard Observatory in 1877 marks the beginning of the astronomical era in which we now live. Spectroscopy, stellar physics, and stellar statistics are the principal features. Professor Pickering's work was stellar photometry on a wholesale scale. Stellar spectroscopy and the determination of the radial velocity of stars by its means had been begun by Huggins in 1864; the photographic plate came into general use as an adjunct to the astronomer's equipment in the decade 1880-90, and these three items have formed the basis of the work of the American observatories of recent creation. The Lick Observatory, with the 36-inch telescope, was completed in 1887 at the expense, as every one knows, of an American business man. The Yerkes Observatory came into existence in 1897, and the observatory at Mount Wilson in 1904. These things are recalled at this moment because, during the past week, English astronomers have been gratified by a visit from a delegation of astronomers from across the Atlantic who were on their way to take part in the establishment of an International Astronomical Union at a conference now being held in Brussels (July 18-28).

At a meeting of the Royal Astronomical Society on July 11, specially arranged for the purpose, the visitors spoke in turn of the work

on which they are each engaged, and the contrast between the astronomy of to-day and of sixty years ago is apparent. The absolute magnitude of a star or its actual luminosity independent of its distance is now a commonplace and forms the subject of many investigations. Certain peculiarities of spectrum have been correlated with the absolute magnitude in cases in which the latter is known, and, generalizing from this, a method has been devised for finding from the spectrum the absolute magnitude, and therefore the parallax, of stars. Professor W. S. Adams, to whom this conception is due, was constrained to say that the data on which his first list of parallaxes was based are capable of improvement, but this research is as yet in its early stages. Dr. Seares, also of Mount Wilson, has devised new photographic methods for determining the colors of stars, and a correlation between color, spectral type and absolute magnitude is being established. Professor Benjamin Boss, of the Dudley Observatory, whose name is associated more with geometrical astronomy than with physical, had some interesting facts to tell about the difference in direction of motion of the classes of stars known as the Giant and Dwarf, which is a distinction depending on luminosity.

Dr. Schlesinger, of Allegheny, and Professor Joel Stebbins gave details of their work in determining the variation of brightness of variable stars, the method of the photo-electric cell used by the latter being a very recent adaptation of physics to astronomy not unknown in England; whilst Professor Campbell, director of Lick Observatory and president of the delegation, refrained from speaking of his well-known observations of radial velocity, but told his audience of the observations of the Lick Observatory party on the occasion of the eclipse of June 8, 1918. An attempt was made to detect the Einstein effect, or a light-displacement effect from any cause, by comparison of a photograph of the stars round the sun with a photograph of the same field in the night sky, but the comparison failed to show any displacement of this nature. It is regrettable that the Harvard Observatory was not represented owing to the recent death of Professor E. C. Pickering.

This brief sketch of the proceedings at this meeting is sufficient to show the trend of modern astronomy. It was impressing to see so many men, comparatively young, who are devoting themselves to abstract science. That there is similar progress on this side of the Atlantic reference to recent volumes of the *Monthly Notices* will show. Here, as counterpart to the brilliant invention of new methods of attack by observation above recorded, we have development by mathematical theory and the statistical discussion of results.

#### ORGANIZATION OF THE AMERICAN METEOROLOGICAL SOCIETY

AN American meteorological society is being formed and will be definitely organized at the A. A. A. S. meeting in St. Louis next December.

The *purpose* of this society is to fill the need for an easy interchange of ideas among those interested in atmospheric phenomena and their effects on man, and thereby to promote instruction and research in these important subjects. There never has been a national association in this large field in America.

The accomplishment of these objects may be brought about (1) by general meetings with the A. A. A. S., and local meetings at other times; (2) by using the *Monthly Weather Review*, the only meteorological magazine of the United States, as a medium for publishing meteorological and climatological articles, and (3) by issuing a monthly leaflet containing news, announcements, notes, and queries.

The principal sources of membership will be, teachers of meteorology (about 200), Weather Bureau employees (around 300), former Signal Corps and Navy meteorologists (nearly 600), and the numerous corps of amateur meteorologists. Dues of \$1 a year should be sufficient to cover all expenses of the monthly leaflet and arrangements for meetings.

The need for considerable meteorological work in connection with military and naval operations during the war and our present expanding demands for weather forecasts not only at the surface but also at various levels in the free air makes the present the opportune time to capitalize the war-time interest