work in various lines. Plans for the new building had been exhibited at this session of the academy. This building will cost about $1,300,000, this money being provided by the Carnegie Corporation, and $200,000 had been provided by a score of private donors for the purchase of the ground. The edifice will be worthy of standing in the group of patriotic, philanthropic, international and memorial structures, and here the National Academy of Sciences and her daughter, the National Research Council, may live together in peace and happiness.

The president then asked Dr. William H. Welch to speak on the new School of Hygiene and Public Health founded at Johns Hopkins University and endowed with six millions from the Rockefeller Foundation. Dr. Welch said that the prevention of disease in communities as distinct from the cure of disease individually was comparatively a new profession. The beginning of the public health work may be traced back to the seventeenth century, when three great discoveries were made. One was Captain Cook's success in preventing scurvy in his long voyage in the Pacific by the use of vegetable vitamines. The second was the discovery of the cause of "Devonshire colic," which was found to be due to lead poisoning from the drawing of cider through lead pipes. The third was the introduction of vaccination for smallpox. The Napoleonic wars set back work in this direction as in others, but in the great reform year of 1848 the English Parliament passed the Public Health Act. Then began a campaign directed against filth and for sanitation, water supply and sewage disposal. Now with our new knowledge of the causes of infection and epidemics, public health can be guarded as never before. Yellow fever has been swept from its old haunts, malarial fever can be controlled and typhoid has become so rare that it is difficult to teach it for want of cases. In Baltimore last year a single death from typhoid aroused great excitement among the students who were eager to attend the autopsy as the only opportunity they had to become acquainted with this disease. The new school is to be composed of men and women who are to make the prevention of disease the primary aim of their life work. There are four members of the National Academy of Sciences in the faculty of the School of Hygiene and Public Health.

At the close of the evening Dr. Hendrik Anton Lorentz, of the University of Leiden, was asked to speak and responded with characteristic geniality. He recalled his visit to the United States sixteen years ago and told how glad he was to accept the invitation of the Carnegie Institution of Washington and the California Institute of Technology, Pasadena, where he has been lecturing. Now on the eve of departure he expressed his gratitude for the kindness that had been showered upon him in various parts of the United States which was, he felt, more than he deserved and was, as he had discovered in some cases, due to the fact that he was taken for the Viennese surgeon, Dr. Lorenz. Everywhere he found earnest young men engaged in research which promised great things for the future of science in America. He found nothing to criticize, but took the opportunity of suggesting that perhaps the strenuous life and feverish activity of Americans might be benefited by somewhat of the Dutch restfulness of his own land.

EDWIN E. SLOSSON

THE EDWARD C. PICKERING MEMORIAL

THE wonders of the sky present such a fascinating appeal to the general public that large numbers of telescopes are sold each year to the amateur who with keen delight views the marvels of Saturn's rings, the everchanging appearance of Jupiter and his satellites, and the glories of the nebula of Orion. These and many other objects are observed with the greatest of eagerness, and books on descriptive astronomy are bought and are read with great avidity. The pleasures brought by the new telescope are all the more enjoyed if the instrument arrives during the summer season. Then it may be taken out into the garden or on to the roof top and the pleasure is unalloyed by biting winds, cold hands or freezing feet. With the coming of autumn and winter the telescope is used less frequently, and the warmer weather of spring and summer is looked forward to

with anticipation. (The writer of this article looks back with anything but the keenest of joy to working for thirteen hours at night at the Yerkes Observatory with the thermometer at twenty-six degrees Fahrenheit below zero). Very frequently the keenness of the astronomical thrills becomes gradually dulled, the small telescope has not sufficient power to show the more remarkable objects in the sky, clouds and cold weather interfere with observing—and soon the telescope is brought out but seldom, and finally is offered for sale.

Many of these amateur star-gazers might have had their interest continued if only their work at night could have had some object other than personal pleasure. The American Association of Variable Star Observers has been of very great value to astronomy by organizing the owners of two-, three-, four- or five-inch telescopes and showing them how they can cooperate with the professional astronomer using larger telescopes to observe the class of objects in the sky known as variable stars. As their name signifies, these stars vary in brightness, sometimes being bright, sometimes much fainter. There are more than three thousand of such stars known in the the sky. The variations of some stars like Betelgeuse, β Lyræ or δ Cephei can be followed by the naked eye, some of the stars at minimum brightness can be seen with a five-inch telescope, while others become so faint at minimum that they are almost or quite invisible in the largest telescope in existence. Some of these variables have a period from maximum to minimum which is quite short, measured by an interval of a few hours or a few days in length, some of the periods are measured in hundreds of days. Some of the periods are quite regular, some are very irregular. The well-known Algol changes in brightness by one component eclipsing the other. There are other stars like SS Cygni, V. Geminorum, and SS Aurigæ that are normally faint, and suddenly and for some reason for which as yet we have no adequate explanation greatly augment their brilliancy, the last of the three stars named above may increase its brightness one hundredfold in twenty-four hours. There are thus many varieties of variable stars most of which need careful and systematic observation, and consequently an observing program can be chosen which can be adapted to the aperture of the telescope used.

Largely through the enthusiastic efforts of Wm. Tyler Olcott of Norwich, Conn., the American Association of Variable Star Observers (or the A. A. V. S. O.) was organized in 1911 with seven observers. In ten years the membership has grown to three hundred, and the total observations made has the amazing number of 120,000. The present plan of the A. A. V. S. O. is that its members are observing systematically the changes in brightness of more than three hundred stars of long period. The stars under observation can be followed until with diminishing brightness they become invisible with the small apertures employed. These stars, however, can still be seen with telescopes of larger size in the hands of the professional astronomer. By a plan of cooperation, therefore, the members of the A. A. V. S. O. can observe the variables when bright while Harvard with its twelve or fifteen-inch telescope and the McCormick Observatory with its still larger aperture of twenty-six inches can observe when faint, and thus the stars can be kept under almost continual observation, except when the stars are too near the sun. Each month each observer sends his observations to Harvard College Observatory where the observations are collected together and are then published in *Popular Astronomy*. This immediate publication is of great value in keeping alive the interest of the amateur for each observer can see that his observations are of value in fixing the brightness of the stars and even the beginner can experience the thrill of finding that his observations perhaps fit in beautifully with the magnitudes determined by observers of greater skill.

Professor Edward C. Pickering, the late director of Harvard College Observatory, was keenly enthusiastic about the work of the A. A. V. S. O. for he recognized the very great value of this organization. And now to perpetuate its work and to increase its value to astronomy the Association of Variable Star Observers is asking for an endowment to bear the name, the Edward C. Pickering Memorial.

The income from this fund is to be entirely devoted to variable star research, none of it being required for "overhead" or for equipment. Through an arrangement with Professor Pickering's successor, Dr. Harlow Shapley, Harvard College Observatory is to put the second floor of its library building at the disposal of the A. A. V. S. O. for its offices, and is to allow the use of one of the domes on the observatory grounds to house the largest telescope owned by the association, that recently acquired through the generous gift of Mrs. C. A. Post of Bayport, L. I.

Professor Pickering was so well known to members of the A. A. A. S. and to readers of SCIENCE that it is felt that many will wish to contribute to such a worthy cause as the Edward C. Pickering Memorial. Contributions should be sent to Wm. Tyler Olcott, Norwich, Conn., or to Leon Campbell, Harvard College Observatory, Cambridge, Mass.

S. A. MITCHELL

J. D. MITCHELL

MR. J. D. MITCHELL died at Victoria, Texas, on February 27, 1922.

Some years ago when the writer was about to go to Texas for the first time, he made the rounds of a number of scientific offices at Washington to obtain such information as he could about the natural history of Texas. Wherever he went, whether to entomologists, ornithologists, ichthyologists or botanists, the same advice was given. That was to go to Victoria and see Mr. J. D. Mitchell. A man whose knowledge had made such a deep impression upon the leaders in several departments of science must certainly have been in some degree remarkable.

At Mr. Mitchell's house in Victoria he had large collections of animals of all classes. From day to day the house was visited by ranchmen, doctors, school children and others to ask about various points connected with natural history. Thus, technical men as well as persons from the ordinary walks of life were alike influenced by the learning of the man.

Mr. Mitchell lived for a good portion of his life on a cattle ranch on the coast of Texas. His love of natural history was inherited from his mother, who had extensive knowledge of the plants of Texas and their practical uses. Later he moved to Victoria where circumstances gave him an opportunity to devote most of his time to work on natural history. In 1904 he became connected with the Bureau of Entomology and made important contributions to several of the larger southern problems like those of the cotton boll weevil and the cattle tick. In fact, his pioneer work on the cattle tick was an important factor in the notable project of eradication which has now permanently removed the pest from more than three fourths of its original range in the United States.

Mr. Mitchell had no technical training. He was an example of the vanishing type of devoted naturalists who pursue the subject out of pure love for nature. He never described a new species. Although he collaborated on many publications of the Bureau of Entomology, he published only one paper, dealing with the poisonous snakes of Texas. Nevertheless, it is fitting that this note about his career should be published in this journal. He was a fountain of accurate information for technical men and was a modest, patient and painstaking imparter of knowledge. His life showed the enjoyment which comes from the contact with nature and was thus an inspiration to others.

W. D. HUNTER

HOUSTON, TEXAS

SCIENTIFIC EVENTS

ANNUAL TABLES OF CONSTANTS

THE confederation of French scientific societies has renewed for the year 1922 its contribution of 40,000 francs in support of Annual Tables. The total subscription in France to this project during the year 1921 was 80,000 francs.

At the approaching meeting of the International Union of Pure and Applied Chemistry which is to be held at Lyons in June, the matter of organizing the work of Annual Tables upon a solid financial basis will come up for consideration. This important international project has had a very precarious existence