

light smut attack. The seed was harvester thrashed and showed considerable injury to the seed coats permitting maximum bluestone injury. The tests were replicated from 2 to 9 times and the average tabulated.

The results compiled from repeated tests demonstrate the effectiveness of copper sulphate dust when mixed with equal parts of calcium carbonate dust in the control of bunt attack due to seed-borne spores. No damage to seed germination occurred. Copper carbonate dust was equally effective. These dusts, especially the copper sulphate adhered tightly and completely covered all parts of the seed wheat. The process of shaking the wheat in dusting removed a large portion of the bunt spores. Two ounces of the dusts per bushel are considered ample. Copper sulphate and lime are available everywhere at low cost. Further experimentation in representative areas in the wheat belt of the United States is desirable before the dust methods are put into practise among farmers.

W. W. MACKIE,
FRED N. BRIGGS

COLLEGE OF AGRICULTURE AND
U.S.D.A. COOPERATING,
BERKELEY, CALIF.

THE AMERICAN ASTRONOMICAL SOCIETY

THE twenty-fourth meeting of the society was held on September 1 to 4, 1920, at Smith College, Northampton and Mt. Holyoke College, South Hadley, Massachusetts. The members lived at the Gillett House, one of the residence halls at Northampton. This was the first occasion on which the society had met regularly at a woman's college, and it was a double pleasure to visit two such institutions, and especially to find in what flourishing condition are their observatories and astronomical departments.

There were five sessions for papers at Smith, and two at Mt. Holyoke, where the society went on the second day. A special feature of the meeting was the conversazione at which various exhibits were shown, in-

cluding the latest work of the 100-inch telescope at Mt. Wilson.

Sir F. W. Dyson, Astronomer Royal, Greenwich, was elected as an honorary member of the society.

The officers for the ensuing year are:

President—Frank Schlesinger.

Vice-presidents—Walter S. Adams, Otto Klotz.

Secretary—Joel Stebbins.

Treasurer—Benjamin Boss.

Councilors—S. I. Bailey, W. J. Hussey, H. N. Russell, V. M. Slipper, Caroline E. Furness and John A. Miller.

The representatives of the society on the National Research Council will hereafter be elected in the same manner as the officers of the society. The present members on the Division of Physical Sciences are: W. W. Campbell, H. N. Russell and Joel Stebbins; and these three together with the president of the society, Frank Schlesinger, and W. S. Eichelberger form the executive committee of the American Section of the International Astronomical Union. The committee will organize the American preparation for the triennial meeting of the union in 1922.

About seventy members of the society were in attendance at the meeting, and fifteen new members were elected. The list of papers, abstracts of which are printed in *Popular Astronomy*, was as follows:

The spectra of some variable stars: W. S. ADAMS and A. H. JOY.

Note on the spectrum of T Pyxidis: W. S. ADAMS and A. H. JOY.

Personality in the estimation of tenths: SEBASTIAN ALBRECHT.

Observations of variable stars at the McCormick Observatory: HAROLD L. ALDEN.

Parallax determinations of bright stars: HAROLD L. ALDEN and S. A. MITCHELL.

Variable stars in Messier 22: S. I. BAILEY.

Concerning results of observed gravitational light deflections: LOUIS A. BAUER.

Ghosts and oculars: LOUIS BELL.

On telegraphing the position of a celestial object: ERNEST CLARE BOWER.

Notes on the classification of long period variables: LEON CAMPBELL.

- Notes on changes in the spectrum of η Carinæ:* ANNIE J. CANNON.
- A probable factor in the widening and increase in wave-lengths of the spectrum lines near the limb of the sun:* RALPH E. DELURY.
- The constancy of the solar wave-lengths and the possibility of determining the solar distance therefrom:* RALPH E. DELURY and H. R. KINGSTON.
- Notes on the solar rotation:* RALPH E. DELURY and JOHN L. O'CONNOR.
- Map of Mars in 1920 and method of producing it from drawings:* A. E. DOUGLASS.
- A photometric study of γ Camelopardalis:* R. S. DUGAN.
- The photometric fields of three Yerkes telescopes:* ALICE H. FARNSWORTH.
- Circulation of calcium floccula about sun-spots:* PHILIP FOX.
- Note on Nova Cygni No. 3:* EDWIN B. FROST.
- Some recent photographs taken with the 100-inch Hooker telescope:* GEORGE E. HALE.
- The Mount Wilson photographic map of the sun-spot spectrum:* GEORGE E. HALE and FERDINAND ELLERMAN.
- The orbit of the spectroscopic binary H. R. 6385:* W. E. HARPER.
- The light-curve of Eros in 1914: A correction to the results previously published:* MARGARET HARWOOD.
- A curious effect of superposition of two photographic plates:* F. HENROTEAU.
- A graphical construction for obtaining the period of a phenomenon:* F. HENROTEAU.
- Nova Cygni No. 3. Preliminary results:* F. HENROTEAU and J. P. HENDERSON.
- The spectroscopic binary ν Eridani:* F. HENROTEAU and J. P. HENDERSON.
- New lines in the spectrum of oxygen:* C. C. KIESS.
- Velocity-curves for spectroscopic binaries:* EDWARD S. KING.
- Photometry of eclipsed moon:* EDWARD S. KING.
- The eclipsing binaries μ^1 Scorpii and ν Puppis:* ANTONIA C. MAURY.
- Parallax results obtained at the Yerkes Observatory:* OLIVER J. LEE and GEORGE VAN BIESBROECK.
- Photographic zenith tube at the U. S. Naval Observatory, 1915.9-1920.0:* F. B. LITTELL.
- The systematic errors of stellar parallaxes determined by photography at the Leander McCormick Observatory:* S. A. MITCHELL.
- Absorption of the photographic rays by the atmospheric water content:* GEORGE HENRY PETERS.
- The spectroscopic orbits and absolute dimensions of the eclipsing variables TX Herculis and γ Cygni:* J. S. PLASKETT.
- When an eclipse prevented a war:* WILLIAM F. RIGGE.
- Direct micrometrical observations of the sun. Exact formulas:* E. D. ROE, JR.
- The mensurational properties of the photographic plate:* FRANK E. ROSS.
- A solution of R minus D observations:* ARTHUR J. ROY.
- The radial velocities of ten Oe5 stars:* W. CARL RUFUS.
- On the probable diameters of the stars:* HENRY NORRIS RUSSELL.
- Radiation pressure and celestial motions:* HENRY NORRIS RUSSELL.
- The astronomical aspects of aether theory versus relativity:* L. SILBERSTEIN.
- Progress in photo-electric photometry, with a new light-curve of Algol:* JOEL STEBBINS.
- The investigation of plate errors in photographic photography:* HARLAN TRUE STETSON.
- Arlington time signals:* R. MELDRUM STEWART.
- Temperature compensation of chronometers:* R. MELDRUM STEWART.
- Canadian transcontinental longitudes:* R. MELDRUM STEWART.
- Notes on the variables 9.1914 and RT Vulpeculæ:* S. D. TOWNLEY.
- A new method of observing the position of the centre of the sun:* R. W. WILLSON.
- The orbits of Carinæ, Doradus, and Sagittarii:* RALPH E. WILSON and C. M. HUFFER.
- The orbit of the spectroscopic binary H. R. 8800:* REYNOLD K. YOUNG.
- The stationary calcium lines in early type stars:* REYNOLD K. YOUNG. JOEL STEBBINS, Secretary

SCIENCE

A Weekly Journal devoted to the Advancement of Science, publishing the official notices and proceedings of the American Association for the Advancement of Science

Published every Friday by

THE SCIENCE PRESS

LANCASTER, PA.

GARRISON, N. Y.

NEW YORK, N. Y.

Entered in the post-office at Lancaster, Pa., as second class matter