twisting B_1 around the objective mounting, and noting the results. As the field is dark, quite faint stars serve.

Before use the level was carefully calibrated.

An observation is made by setting the telescope, pointing east, so that the image of a known star passes the intersection of the cross-hairs, starting a stopwatch, stopping the watch by a clock, reading both ends of the bubble; then pointing west and repeating. This gives the instants of two passages of the star across a small horizontal circle of about 2° or 3° radius; the mean of these is the clock time of transit over the meridian. If there is a change in level reading, this is allowed for by the formulas for the method of equal altitudes, *e.g.*, Comstock's "Field Astronomy," par. 64, equations (108) and (109). As but one star is used, the correction terms depending on declination vanish. Of course the best results are obtained with stars which pass very near the zenith, they being very near the prime vertical. The computations are almost as simple as those with a meridian transit instrument. With the arrangement used, the interval between upward and downward passages is about 16 minutes.

At Manila ten or twelve of the ten-day stars in the American Ephemeris are bright enough and culminate near enough to the zenith for this apparatus. I have made a good many trials, of which a large number were unsatisfactory, the concrete sidewalk on which the tripod stood, and on which I had to move about from one sighting or reading position to another, not being stable enough. However, a position was found where the bubble moved from this cause only an uncertain fraction of a division, and the results in the table were there obtained.

The columns marked "corrections for star time—time-ball time" give the corrections to be added to the time-piece reading, found as above, to give the standard mean time (E. 120°), computed from the geographical position (known to 0.1 sec.), and the star tables, or the same interpolated from the noon-time fall of the Manila Observatory time-ball. As is to be expected, the latter correction is generally found to be smaller, for the time-ball has to drop a short distance for its motion to be perceived.

Taking into consideration the clumsiness of the attachment, the uncertainties of stopwatch readings, the instability of the platform and the inexperience of the observer, the table indicates that under better conditions the method would be exact. It has the great advantage that highly accurate adjustments of collimation axis, etc., are unimportant. It can be extended by observing pairs of stars to give latitude as well as time.

TABLE I

		Correction for		Dif.
		Star Time	Time-ball Time	
1919, XI., 4 ..	γ Pegasi	− 6.95	− 7.5	+0.55
1919, XI., 4 ..	η Piscium	− 6.7	− 7.3	+0.6
1919. XI., 5 ..	γ Pegasi	− 6.4	− 8.2	+1.8
1919, XI., 5 ..	η Piscium	− 7.0	− 8.2	+1.2
1919, XI., 8 ..	γ Pegasi	−10.1	−10.7	+0.6
1919, XI., 9 ..	α Pegasi	+16.8	+16.1	+0.7
1919, XI., 9 ..	γ Pegasi	+17.1	+16.1	+1.0
1919, XI., 9 ..	η Piscium	+16.7	+16.1	+0.6
1919, XI., 9 ..	σ Arietis	+16.1	+16.1	+0.0

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THE AMERICAN SOCIETY OF NATURALISTS

THE thirty-eighth annual meeting of the American Society of Naturalists was held in Ida Noyes Hall and Mandel Hall, University of Chicago, December 30 and 31, 1920.

At the business meeting the treasurer's report was read, showing a balance of $514.09 in the treasury.

On recommendation of the executive committee, the constitution was amended by adding a sentence to the end of Section 1 of Article II. This section now reads:

Section 1. Membership in this society shall be limited to persons professionally engaged in some branch of natural history, as, instructors in natural history, officers of museums and other scientific institutions, physicians, and others, who have essentially promoted the natural history sciences by original contributions of any kind. Any member may present to the executive committee of the society, through the secretary, names of candidates

for membership, and those candidates who are approved by the committee may be elected to membership in the society by a majority of the members present at any meeting of the society. A nomination for membership in the society shall remain in the hands of the executive committee for at least one year before action is taken upon it. The names of candidates not elected to membership within three years of the date of consideration shall be removed from the list of nominees unless renominated.

Professor H. H. Bartlett, University of Michigan, was elected to represent the society on the board of control of Botanical Abstracts, to succeed Professor E. M. East. Dr. J. Arthur Harris is the other representative of the society on the board of control.

Professor Leon J. Cole was elected to membership for a term of five years, in the advisory committee of the society, related to the committee on cooperation and coordination of the Division of Biology and Agriculture of the National Research Council, to succeed Dr. A. G. Mayor. The other members of this advisory committee are Bradley M. Davis (4 years, chairman), Ross G. Harrison (3 years), George H. Shull (2 years), and H. S. Jennings (1 year).

The report of the committee on genetical form and nomenclature, authorized at the 1919 meeting of the society, was read, in the absence of the chairman, Dr. C. C. Little, by Dr. Sewall Wright. The society voted to continue the committee and to request it to publish the report in SCIENCE, but deferred discussion of and action upon the report to a later meeting.

The following persons, recommended to the society by the executive committee for election to membership, were duly elected: William H. F. Addison, Roy E. Clausen, Theodore D. A. Cockerell, Frederick V. Coville, George W. Crile, John W. Gowen, A. L. Hagedoorn, Duncan Starr Johnson, William Allen Orton, Charles Vancouver Piper, Harold H. Plough, Brayton Howard Ransom, Mary B. Stark, George L. Streeter, Walter T. Swingle.

The nominating committee presented candidates for vacancies in the offices of president, vice-president and treasurer, who were unanimously elected by the society. Accordingly, the officers for the year 1921 are as follows:

President: Professor Bradley M. Davis, University of Michigan.

Vice-president: Professor Henry E. Crampton, Columbia University.

Secretary: Professor A. Franklin Shull, University of Michigan.

Treasurer: Dr. J. Arthur Harris, Carnegie Institution of Washington.

Additional members of executive committee by virtue of previous office: Professor W. E. Castle, Harvard University; Professor E. M. East, Harvard University; Dr. Jacques Loeb, Rockefeller Institute for Medical Research.

The annual dinner of the society was held at the Hotel Sherman, at 7 o'clock, December 30, with one hundred and thirty-nine in attendance. In the absence of the president, Dr. Jacques Loeb, the after-dinner addresses were made by two charter members, Professors William North Rice and J. Sterling Kingsley, who narrated the story of the foundation and early days of the society.

The program of papers, which occupied Thursday and Friday, December 30 and 31, was as follows:

Thursday morning:

The analysis of a continuously varying character in the wasp Hadrobracon: P. W. WHITING.

Fluctuations of sampling in a population showing linkage: J. A. DETLEFSEN.

Linkage between flower color and stem color in Œnothera: GEORGE H. SHULL. (Read by title.)

The inheritance and linkage relation of shrunken endosperm in maize: C. B. HUTCHISON (introduced by R. A. Emerson).

Relative frequency of crossing-over in microspore and megaspore development in maize: R. A. EMERSON AND C. B. HUTCHISON.

Types of mutation and their possible significance in evolution: A. F. BLAKESLEE.

Linkage of tunicate ear and sugary endosperm and their genetic relations to other maize characters: W. H. EYSTER (introduced by R. A. Emerson).

A case of maternal inheritance in maize: E. G. ANDERSON AND L. F. RANDOLPH (introduced by R. A. Emerson).

I. *Genetic aspects* (Dr. Anderson). II. *Cytological relations* (Mr. Randolph).

Thursday afternoon: Symposium on *General Physiology.*

On the photochemistry of the reactions of animals to light: SELIG HECHT.

The influence of internal secretion on the development and growth of amphibians: E. UHLENHUTH.

The rôle of the hydrogen ion concentration in life phenomena: WM. MANSFIELD CLARK.

The mechanism of injury and recovery of the cell: W. J. V. OSTERHOUT.

Enzyme action as exemplified by pepsin digestion: JOHN H. NORTHROP.

The equilibrium functions of the internal ear: S. S. MAXWELL.

Friday morning:

Differential survival of male and female dove embryos in increased and decreased pressures of oxygen: a test of the metabolic theory of sex: OSCAR RIDDLE.

A decrease in sexual dimorphism during the course of selection with inbreeding: CHARLES ZELENEY.

A dominant color mutation of the guinea-pig: SEWALL WRIGHT.

Some conclusions regarding the influence of the endocrine glands upon amphibian development: BENNET M. ALLEN.

Chromosomes and the life cycle of Hydatina senta: A. FRANKLIN SHULL.

Inheritance of eye-defects induced in rabbits: M. F. GUYER AND E. A. SMITH.

The bearing of Mendelism and mutation on the theory of natural selection: C. C. NUTTING.

The inheritance of size in rats: HEMAN L. IBSEN.

Inheritance of a secondary sexual character and the effects of lethal factors in Colias philodice: JOHN H. GEROULD. (Read by title.)

A recessive mutation in haemolymph pigment in Colias philodice: JOHN H. GEROULD. (Read by title.)

Duplicate factors for cotyledon color in soy beans: C. M. WOODWORTH (introduced by J. A. Detlefsen).

Some variation in color pattern of mammals: LEON J. COLE AND JESSIE MEGEATH.

Inheritance of checks and bars in pigeons: SARAH V. H. JONES (introduced by Leon J. Cole).

Friday afternoon:

Selective fertilization and the rate of pollen tube growth: D. F. JONES.

Genetic studies in Crepis: E. B. BABCOCK.

A quantitative study of mutation in the second chromosome of Drosophila: H. J. MULLER.

A genetic analysis of "low crossover stock" produced by selection: ELMER ROBERTS (introduced by J. A. Detlefsen).

The inheritance of small deviations from bilateral symmetry: F. B. SUMNER. (Read by title.)

Relation between chaff color and pubescence in a cross between wheat and emmer: H. H. LOVE. (Read by title.)

The mutant type "crossveinless" in Drosophila virilis and D. melanogaster: ALEXANDER WEINSTEIN AND C. B. BRIDGES.

A. FRANKLIN SHULL,
Secretary

THE AMERICAN SOCIETY OF ZOOLOGISTS

THE American Society of Zoologists held its eighteenth annual meeting at the University of Chicago in conjunction with Section F of the American Association for the Advancement of Science and in association with other biological societies on December 28, 29 and 30, 1920.

Due the absence of the secretary, H. V. Neal was elected secretary *pro tem.*

The Constitution was amended by adding a new type of membership as follows:

Foreign zoologists, not members of this Society, may be elected Honorary Fellows upon unanimous recommendation of the Executive Committee by a majority vote of the members present at any meeting of the Society. Honorary Fellows shall not be required to pay dues.

The By-Law providing for affiliation with the American Society of Naturalists was amended to eliminate this affiliation.

The following were elected to membership in the Society: Royal N. Chapman, University of Minnesota; James Arthur Dawson, Dalhousie University; Leslie Clarence Dunn, Connecticut Agricultural Station; Ernest Melville DuPorte, MacDonald College; Charles McLean Fraser, University of British Columbia; William Marion Goldsmith, Southwestern College; Norman McDowell Grier, Washington and Jefferson College; Selig Hecht, Creighton Medical College; Walter N. Hess, DePauw University; Minna E. Jewell, Milwaukee-Downer College; Thestle T. Job, Loyola University School of Medicine; Rokusaburo Kudo, University of Illinois; Ralph S. Lillie, Department of Pure Science, Nela Research Laboratories; William A. Lippincott, Kansas State Agricultural College; Henry G. May, Rhode Island State College and Agricultural Experiment Station; Irene McCullough, Sophie Newcomb College; Richard Anthony Muttkowski, University of Idaho; J. M. D. Olmstead, Toronto University; Thomas Elliott Snyder, Bureau of Entomology U. S. Department of Agriculture; Wilbur Willis Swingle, Yale University; Charles Vincent Taylor University of California; Clarence Lester Turner, Beloit College; Asa Orrin Weese, University of New Mexico.

Among other items the secretary reported the death of two members, E. L. Michael and George D. Allen. The membership roll before the election of new members contained 305 names of members in good standing. The American Association for the Advancement of Science had recognized election to membership in the society as a certification of eligibility for Fellowship in the association.