70 per cent. alcohol. When examined under the microscope, smears rightly stained with brazilin show the chromosomes brownish-black or black, the cytoplasm pink or straw colored and the cell wall colorless. The small chromosomes of Oenothera at the prophase, in rings or chains, are distinctly clear. Threads in synizesis stages can be easily observed. After correct differentiation which may last from 5 to 10 minutes, the slides are washed in 70 per cent. alcohol and 95 per cent. alcohol (5 to 10 minutes each). They are then passed (2 to 5 minutes each) through (*a*) absolute alcohol, (*b*) mixture of equal volumes of absolute alcohol and cedar oil, (*c*) mixture of equal volumes of xylol and thin cedar oil, (*d*) mixture of 9 parts xylol and one part cedar oil and finally (*e*) absolute xylol. The preparations are mounted in Canada balsam. Critically sharp and clear figures are shown by the preparations when viewed in the microscope with oil immersion objective, and the use of Wratten filters may even be dispensed with.

JOSÉ M. CAPINPIN

BIOLOGICAL LABORATORY,
PRINCETON UNIVERSITY

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

JOINT MEETING OF THE EXECUTIVE COMMITTEE OF THE AMERICAN ASSOCIATION AND THE EXECUTIVE COMMITTEE OF THE PACIFIC DIVISION

THE executive committee of the American Association met in joint session with the executive committee of the Pacific Division at the Faculty Club of the University of California, Berkeley, on Wednesday, September 17. The following members were present: Cattell, Curtiss, Millikan and Morgan, of the national executive committee, and Barnett, Benfield, Clausen, Loeb, Martin, Moore, Smith, Vaughan and Luck, of the Pacific Division. Morning and afternoon sessions were held. The following items of business were transacted:

1. The minutes of the meeting of April 27 were ordered approved as circulated.

2. A report of the permanent secretary under date of September 1, 1930, was presented. The financial condition of the association was shown to be satisfactory, although the need of caution in embarking upon new expenditures of any considerable magnitude was indicated. Receipts have increased with growth in membership, but expenditures have grown steadily as the activities of the association have expanded. It is becoming increasingly desirable that local guarantees for the support of the meetings be large enough to cover the costs without drawing upon the current funds of the association. Plans have not been formulated for financing the newly inaugurated summer meetings. About $2,500 of the current funds for 1929–30 will be carried over into the new fiscal year. In addition, there are reserves of approximately $7,200 in the publication, meeting and emergency funds. The membership of the association now exceeds 19,000, an increase of 600 in the past year, and of 7,500 during the decade, 1920–1930. About 50,000 letters will be sent out in October to members of associated organizations inviting the recipients to membership in the American Association. Fifteen thousand others will be circularized before the Cleveland meeting. The new fellowship nomination plan has resulted in the nomination of several hundred candidates by the respective section committees. The total number of fellows now approximates 6,000.

3. The resignation of Dr. S. F. Trelease from the secretaryship of the council was announced. Dr. Trelease is also withdrawing as program editor, a position which he has ably filled for a number of years. A committee was appointed consisting of J. McK. Cattell, D. R. Curtiss and B. E. Livingston to nominate, for consideration by the council, successors to Dr. Trelease.

4. The chairman summarized an extensive report from Dr. Rodney True, secretary of the committee of one hundred on scientific research. The work of the committee in encouraging and promoting the adoption of adequate salary scales by universities has received commendation. The committee seeks authority to solicit from some suitable foundation an appropriation of $20,000 to further this phase of the work. It proposes that a representative be engaged to study the policies on salary, research, retirement provisions and teaching load, as practiced within a large number of American colleges and universities. The secretary of the committee of one hundred on scientific research was instructed to call a meeting of the committee at Cleveland to consider the work and organization of the special committees.

5. The relations between the social and natural sciences in the Pacific Coast region were considered. The special committee, appointed to inquire into these relationships, reported that steps should be taken in the organization of the Pasadena meeting to develop a special program for the social sciences. Specific

recommendations with this end in view were made. The committee is in agreement that the time is ripe for the promotion of close relationships between these two fields of knowledge. The committee was authorized to coopt three members in the social and economic sciences within the Pacific region.

6. The Xi Sigma Pi Forestry Fraternity was received into membership as an associated society.

7. The Academy of Science of St. Louis was elected an affiliated academy.

8. Resolutions adopted by the Southwestern Division of the American Association at its eleventh annual meeting were received.

9. T. H. Morgan, president of the American Association, was appointed by the chairman to be the representative of the American Association for the Advancement of Science at the inauguration of Robert Gordon Sproul as president of the University of California.

10. The appointment of a representative to the advisory board and council of the Association of International Patentees was deferred pending the receipt of further information.

11. J. C. Merriam was appointed to represent the American Association for the Advancement of Science on the council of the National Parks Association.

12. The election of a permanent secretary to succeed Dr. B. E. Livingston was considered at length. The chairman reported that 144 nominations had been received. Although a preliminary selection of candidates was made, it was agreed that final action must await the settlement of several questions pertinent to the organization and work of the association. There is the possibility of reorganization along regional lines, in the event of which several part-time secretaries would be required. The nature of the responsibilities and duties of the permanent secretary, the desirability of part-time or full-time service, the location of the association headquarters and other related matters require decision before an election is made.

13. The third week of June, 1931, was approved as the time of holding the Pasadena meeting, unless the local committee should regard the fourth week as preferable. The duration of the meeting was left to the decision of the executive committee of the Pacific Division, which, with the local committee, was entrusted with the arrangements and organization of the meeting.

14. On nomination by Walter S. Adams and R. A. Millikan, the executive committee of the Pacific Division elected the following as members of the local committee for the Pasadena meeting:

Paul Merrill, *chairman*, Mount Wilson Observatory.
H. D. Babcock, Mount Wilson Observatory.
John P. Buwalda, California Institute of Technology.
E. C. Watson, California Institute of Technology.
Linus Pauling, California Institute of Technology.
R. O. Schad, Huntington Library and Art Gallery.

15. The committee adjourned to reassemble in October or November at the call of the chairman.

J. MURRAY LUCK, *Secretary,*
Pacific Division

THE NATIONAL ACADEMY OF SCIENCES

AT the autumn meeting of the National Academy of Sciences, held in California from September 18 to 23, the following papers were presented at the meetings held at the University of California and the California Institute of Technology:

Design problems of the Golden Gate bridge: CHARLES DERLETH, JR. (introduced by A. O. Leuschner). A century ago suspension bridges were built with iron chains. Vertical suspenders supported the floor and live load. In 1816 Telford built the Menai Bridge with a 580–ft. span. The bridge over the Danube at Budapest had a 666-ft. span; the Clifton Bridge near Bristol, England, a 702-ft. All had iron chains. The first iron drawn wire cable was introduced in 1816 by White and Hazzard for a foot bridge across the Schuylkill at Philadelphia, span 408 ft. Since then there has been gradual development using straight wire cables. Long spans soon were built in America at New York, Niagara Falls and across the Ohio. Until recently the maximum spans did not exceed 1,600 ft. Modern erection methods, the introduction of the deflection theory, improved devices for cable spinning, etc., have made possible great openings. To-day a 3,500-ft. span is building across the Hudson River and one of 4,200 ft. has been designed for the Golden Gate at San Francisco. Rankine in England and Ritter in Switzerland developed the rigid stiffening truss assuming that the suspended truss remains absolutely rigid under live load, the original cable curve being undisturbed. The assumption involved the elimination of dead load stresses in the stiffening truss. As spans increase, the error of this assumption is serious and uneconomic. For long spans a stiffening truss of reasonable proportions becomes increasingly flexible, changing the shape and deflection not only of the stiffening truss but also of the cable. These distortions can not be neglected. The cable, suspenders and stiffening truss constitute one composite elastic structure. Distortions of one part affect the stresses in all the others. The cable is the most rigid member. The stiffening trusses relatively are slender. Therefore any change in shape of the cable curve causes the total cable tension to affect the stiffening truss. Thus the dead loads in the cable tension introduce stresses due to dead load in the stiffening trusses. In