

first chapter describes various methods of preparation of thin foils, especially uranium and plutonium, and also methods of making thin uniform foils of many other materials and compounds. The second discusses neutron sources, including natural sources (Ra-Be, etc.), and monoenergetic neutrons from charged particle reactions (essentially the same as the article in *Revs. Modern Phys.*, 21, 635 [1949]). It includes the measurement and calibration of neutron sources and a detailed description of the construction of a BF₃ filled proportional counter. The third chapter gives the elementary theory of the betatron, a brief description of betatron construction and operating circuits, and a method of using the betatron for the production of isolated pulses of γ -rays. The fourth chapter discusses the modulation of cyclotron beams by arc modulation, and deflection modulation, the modulation of Cockroft-Walton and van de Graaf generators by deflection of the ion beam, and the use of these modulated beams in a slow neutron time-of-flight spectrometer. The fifth chapter contains descriptions of two

diffusion pumps used in the project and of various types of vacuum seals and bushings. It also discusses the vacuum evaporation of metals. The sixth chapter covers optical methods and instruments, principally oscillograph cameras and high-speed cameras of various designs.

This short résumé can give only a general idea of the contents of the book. There are more than 160 figures. Many of these are detailed construction drawings, complete circuit diagrams, and graphs. The remainder are photographs, sketches, and block diagrams.

The book is clearly written, and the descriptions of the various techniques are quite complete, including sketches and detailed diagrams. Although some of the techniques are outdated, on the whole the book should make a valuable addition to the experimental physics library.

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Association Affairs

Revision of the AAAS Constitution and Bylaws

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WHEN the Association met at St. Louis in 1946, one of the important actions taken was the adoption of a new constitution (*SCIENCE*, 103, 245 [1946]). It was recognized that the Association's bylaws should have been revised simultaneously so as to conform with the new constitution, but it was not until 1950 that any serious attempt was made to harmonize bylaws and constitution. At that time a committee comprising Kirtley F. Mather, *Chairman*, Clarence E. Davies, Karl Lark-Horovitz, Roger Adams, and Howard A. Meyerhoff, *Secretary*, turned to the task but soon concluded that the 1946 constitution required amendment or replacement. In many particulars it was so specific as to usurp the function of bylaws and, in prescribing certain administrative procedures, it was not only at variance with current practice but precluded the flexibility that is essential to the efficient conduct of business in an organization as large as the AAAS.

At Cleveland, on December 29, 1950, the Council authorized the committee to revise the constitution, in addition to preparing a new set of bylaws. The Council also approved in principle the basic changes that are embodied in the following document, in which constitutional articles and related bylaw provisions are printed consecutively. This document is merely a semi-final draft of a new constitution and bylaws, the final drafts of which, it is hoped, will be placed before

the Council for action at meetings in St. Louis, December 27 and 30, 1952. Conferences with the Association's legal and financial advisers have indicated the need for some revision in Article II, Section 3, of the bylaws; in Article V, Section 2, of the bylaws; in Article XI, Section 1, of the constitution, and several sections in the corresponding article of the bylaws. Other modifications may be prompted by suggestions received from members, who are herewith invited to comment and to send any suggestions to the chairman of the committee or to the Administrative Secretary without delay.

In conformance with Article XI of the constitution now in force, the final drafts of the proposed constitution and bylaws will be published in *SCIENCE* and in *THE SCIENTIFIC MONTHLY* in November, at least one month prior to the annual meeting of the Association, and the Council will be asked to act upon the final drafts at one of its sessions, either on December 27 or December 30.

The most significant change contained in the proposed constitution is in the allocation of responsibilities. At present it is stipulated that "control of all affairs of the Association is vested in the Council, which shall have the power to review and to amend or rescind its own actions and all actions taken by the Executive Committee." It is obvious that the Council is not in a position to assume such responsibilities but must delegate them to carefully selected representatives of its own choosing; hence, in the new constitution it is proposed to give the Council the responsibility of electing the members of the Board of Di-

rectors (which will replace the present Executive Committee), and to this Board will be delegated the duty of managing the business affairs of the AAAS. Inasmuch as the members of the Board will be individually and collectively responsible to the Council, which also retains the power to determine and to define policies, the Council remains the governing and the controlling body, as it should; it merely relinquishes a role it cannot satisfactorily fill—namely, that of being an administrative body.

It is hoped that the members of the Association, as well as of the Council, will endorse this proposal, which will enable the administrative staff, under the direction of the Board of Directors, to carry on the ramified business functions more efficiently and with fewer legal involvements than can be achieved under the 1946 constitution. The draft of the proposed constitution and bylaws follows.

Constitution—Article I

Section 1. The American Association for the Advancement of Science was incorporated by an act of the General Court of the Commonwealth of Massachusetts in 1874. The Association is a nonprofit scientific and educational body.

Section 2. The objects of the American Association for the Advancement of Science are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

Bylaws—Article I

Section 1. The objects of the Association shall be accomplished by conducting meetings and conferences of those interested in various branches of science and education, producing and distributing publications, administering gifts and bequests as prescribed by the donors thereof, supporting research, making awards to recognize accomplishments in science, cooperating with other organizations in the advancement of science, and engaging in such other activities as shall have been authorized by the Board of Directors.

Constitution—Article II

Section 1. The membership of the Association shall consist of Members, Fellows, and Associates. Individuals in any of these three groups may become life members, emeritus members, and sustaining members in accordance with the provisions of Section 5 of this Article and with such relevant rules as the Board of Directors shall have prescribed.

Section 2. Members. Any person, institution, or organization may be admitted to the grade of Member. Each Member shall have such rights and privileges and shall pay such annual dues as the Board of Directors shall have prescribed.

Section 3. Fellows. Any person who shall have made a meritorious contribution to science may become a Fellow of the Association under such procedures as the Board of Directors shall have prescribed.

Section 4. Associates. Any person who shall have a record of leadership in any field related to science and who wishes to cooperate in the advancement of science

may become an Associate of the Association under such procedures as the Board of Directors shall have prescribed.

Section 5. (a) Life Members. Any person making the Association a life-membership contribution of such amount as the Board of Directors shall have prescribed may be admitted to life membership. Each Life Member shall be exempt from the payment of annual dues and shall have all the privileges of an annual member throughout life.

(b) Emeritus Members. Any individual annual member may be admitted to emeritus membership under such conditions as the Board of Directors shall have prescribed. Each Emeritus Member shall be exempt from the payment of annual dues and shall have all the privileges of an annual member throughout life.

(c) Sustaining Members. Any person making to the Trust Funds of the Association a sustaining membership contribution of such amount as the Board of Directors shall have prescribed shall be the founder of a Sustaining Membership, which shall bear his name and shall be maintained in perpetuity as a trust. Each incumbent of a sustaining membership shall have all the privileges of a life member. The first incumbent of a sustaining membership may be either the founder himself or another person named by him, as he may choose. On the death or resignation of an incumbent, the Board of Directors shall name another person to hold the membership throughout life.

Bylaws—Article II

Section 1. Members who have paid dues for fifty years may be excused from further payments and still retain all the privileges of membership.

Section 2. Members may be elected by the Board of Directors to be Fellows of the Association and Fellows so elected shall remain Fellows only so long as they retain membership. If a Fellow discontinues his membership and subsequently rejoins the Association, he shall automatically again become a Fellow from the time of rejoining, without another election. Members are eligible to nomination for fellowship if they have contributed to the advancement of science either by the publication of original research or in other significant manner. Nominations for election to fellowship may be made by any three Fellows or by the administrative secretary or by the section committee in whose field the nominee's scientific work mainly lies.

Section 3. The Board of Directors may exclude from the Association anyone who has made improper use of his membership or whose membership is regarded as detrimental to the Association.

Constitution—Article III

Section 1. The officers of the Association shall be (a) general officers elected from among the Fellows by ballot of the Council, and (b) administrative officers elected by the Board of Directors as prescribed in Section 3 of this Article.

Section 2. General Officers. The general officers of the Association shall be a president-elect, a president, a retiring president, and a vice president for each section. The term of office of the president-elect and of the vice presidents shall begin on the January 15 following their election. At the close of the one-year term of the president-elect he shall become president, and at the close of the one-year term of the president he shall become retiring president. In the event of a vacancy in the office of the president, the president-elect shall become president. In

the event of a vacancy in the office of president-elect, the Board of Directors shall make a pro tempore appointment to hold until the vacancy shall have been filled by ballot of the Council. In the event of a vacancy in the office of vice president the Board of Directors shall fill the vacancy by appointment.

Section 3. Administrative Officers. The administrative officers shall be an administrative secretary, one or more associate or assistant secretaries, a treasurer, and, in addition, a secretary for each section. The administrative secretary, the associate or assistant secretaries, and the treasurer shall be elected by the Board of Directors. The secretaries of the sections shall be nominated from among the Fellows by the respective section committees and elected by the Board of Directors. The terms of office of each administrative officer shall be determined by the Board of Directors. The Board of Directors shall fill vacancies in the administrative offices.

Section 4. The duties of the officers shall be customary to those of the office and as further defined in the bylaws.

Bylaws—Article III

Section 1. The administrative secretary shall serve as secretary to the Council and to the Board of Directors; he shall be in charge of the Association's offices and shall manage the affairs of the Association in accord with procedures determined by the Board of Directors. He shall be an ex officio member of all standing committees.

Section 2. The treasurer shall perform the usual duties and those assigned in the bylaws.

Section 3. Reports of the administrative secretary and the treasurer shall be made in the manner prescribed by the Board of Directors.

Constitution—Article IV

Section 1. The Council shall perform duties prescribed in the constitution and shall act as an advisory body in matters pertaining to the general policies of the Association.

Section 2. The Council shall consist of (a) the president-elect, the president, retiring president, the vice presidents, secretaries of the sections, the administrative secretary, the treasurer, and the eight (8) elected members of the Board of Directors; (b) one Fellow elected by each regional division of the Association; and (c) the representatives of affiliated organizations as provided in Article VIII of this constitution. Each Council member shall serve until his successor shall have taken office. The president shall be chairman of the Council; if the president shall be unable to serve as chairman at any session, the Council members in attendance shall elect a chairman for that session. Twenty (20) members of the Council shall constitute a quorum for the transaction of business.

Section 3. The Council shall meet during the annual meeting of the Association and at other times on the call of the president or upon the written request of twenty (20) members of the Council.

Bylaws—Article IV

None.

Constitution—Article V

Section 1. The Board of Directors is the legal representative of the Association and as such shall have, hold, and administer all the property, funds, and affairs of the Association.

Section 2. The Board of Directors shall consist of eleven (11) members, the president-elect, the president, the retiring president, and eight (8) Fellows elected by the Council, two each year, for a term of four years. At any election of members of the Board of Directors not more than one Fellow serving his fourth consecutive year as an elected member may be re-elected. In the event of a vacancy in the office of an elected member of the Board of Directors, his successor for the remainder of the year shall be elected from among the Fellows by the Board of Directors and, for the remainder of the unexpired term, his successor shall be elected by the Council at the next annual election. Five (5) members of the Board of Directors shall constitute a quorum for the transaction of business. The retiring president of the Association shall be chairman of the Board of Directors. If he shall be unable to serve at any session of the Board, the Board members in attendance shall elect a chairman for that session. The administrative secretary and treasurer shall be ex officio members of the Board of Directors without vote.

Section 3. The Board of Directors shall hold four (4) meetings a year, one of which will be at the annual meeting. The Board of Directors shall also meet at the call of the chairman.

Section 4. The Board of Directors shall appoint such committees as may be necessary to aid in the management of the Association. The duties of standing committees shall be stated in the bylaws.

Section 5. The term of office of each of the eight (8) regularly elected members of the Board of Directors shall begin on January 15 following his election, and each shall serve until his successor shall have taken office.

Bylaws—Article V

Section 1. The committees shall be standing as provided in the bylaws or special as the Board of Directors approves.

Section 2. The Investment Committee shall advise the Board of Directors regarding purchase and sale of securities for the Association and shall make recommendations to the Board of Directors on financial questions. The Investment Committee shall consist of five (5) members appointed by the Board of Directors and selected from outside the Board of Directors, and the treasurer and administrative secretary. Each appointed member shall serve a term of five years, the term of one member expiring on January 15 of each year. Each shall serve until his successor shall have taken office.

Section 3. The Committee on Affiliation and Association shall review applications for affiliation or association with the Association and make recommendations thereon to the Board of Directors. The committee shall consist of five (5) members appointed by the Board of Directors. Each member shall serve a term of five (5) years, the term of one member to expire on January 15 of each year. Each shall serve until his successor shall have taken office.

Section 4. The Publications Committee shall give continuing scrutiny to the publications of the Association, the policies pertaining thereto, and make recommendations thereon to the Board of Directors. The committee shall consist of five (5) men appointed by the Board of Directors. Each member shall serve a term of five (5) years, the term of one member to expire on January 15 of each year. Each shall serve until his successor shall have taken office.

Constitution—Article VI

Section 1. The Association shall be organized in sections in accordance with the fields of interest of its members, as determined by the Council. Each member of the Association may designate the section in which he wishes to be enrolled and may designate an additional section in which he is interested.

Section 2. The vice president for a section shall be ex officio chairman of that section.

Section 3. The affairs of each section shall be managed by a section committee consisting of (a) the chairman and the secretary of the section; (b) other members of the Council who are primarily enrolled in the section; and (c) four (4) Fellows, one elected each year by the section committee for a term of four (4) years. No person shall serve concurrently on more than one section committee. If an elected member of a section committee shall have resigned or died, his successor for the remainder of the unexpired term shall be elected from among the Fellows by the Board of Directors, from nominations made by the section committee. One third of the members of a section committee shall constitute a quorum for the transaction of business.

Section 4. The section committee of each section shall promote the work of the Association in its own field and may organize subcommittees for that purpose. It shall arrange such section programs as it shall deem desirable for meetings of the Association, either separately or in cooperation with other sections of the Association or with independent societies. With the approval of the Board of Directors a section committee may arrange section meetings to be held at places and times other than those of Association meetings.

Bylaws—Article VI

Section 1. Council representatives of affiliated organizations which are not specifically related to an established section of the Association may be assigned to section committees in accordance with their requests.

Constitution—Article VII

Section 1. Regional divisions and local branches of the Association may be authorized by vote of the Council, for the purpose of promoting the work of the Association in their respective territories.

Section 2. Each regional division or local branch shall elect its officers for such terms as it shall prescribe and shall hold its meetings and conduct its affairs as it shall deem desirable, subject to the relevant provisions of this constitution and of the bylaws of the Association, and to such special provisions as the Board of Directors of the Association shall have established.

Bylaws—Article VII

Section 1. Regional divisions authorized by the Council have full control of their meetings, of their affiliations with other scientific organizations, and of all activities to promote the advancement of science in their territory.

Section 2. The Pacific Division (organized in 1915) includes members of the Association resident in British Columbia, Washington, Oregon, California, Idaho, Nevada, Utah, and the Hawaiian Islands.

Section 3. The Southwestern Division (organized in 1920) includes members of the Association resident in Arizona, New Mexico, Colorado, Sonora, Chihuahua, and Texas west of the 100th meridian.

Section 4. The Alaska Division (organized in 1951) includes members of the Association resident in Alaska.

Section 5. Each division shall receive for its expenses an annual allowance not to exceed one dollar for each of its members in good standing.

Constitution—Article VIII

Section 1. To facilitate cooperation between the Association and other organizations, and among the latter, the Council may, on recommendation of the Board of Directors, elect an organization to be an official affiliate.

Section 2. Each organization thus designated an affiliate shall be entitled to name one Fellow of the Association to represent it in the Council; if it has more than 100 members who are Fellows of the Association, it shall be entitled to name an additional Fellow to represent it on the Council.

Section 3. On recommendation of the Board of Directors, the Council may elect an organization to be an official associate. Associated organizations shall have the same rights and privileges as affiliated organizations except for representation on the Council.

Bylaws—Article VIII

Section 1. The names of affiliated and associated organizations shall be published from time to time as directed by the Board of Directors.

Section 2. Affiliated academies of science shall receive for research an annual allowance of fifty cents for each of their members who is also a member in good standing of the Association.

Constitution—Article IX

Section 1. The Association shall hold an annual meeting each year at such time and place as the Board of Directors shall have determined. Other meetings of the Association or of its sections may be authorized by the Board of Directors.

Bylaws—Article IX

Section 1. The programs and arrangements for the Association meetings shall be under the general direction of the Board of Directors.

Constitution—Article X

Section 1. The publications of the Association shall be issued in such manner as the Board of Directors may direct.

Bylaws—Article X

Section 1. The publications of the Association shall be (a) SCIENCE, (b) THE SCIENTIFIC MONTHLY, (c) *Proceedings*, and (d) such other special publications as the Board of Directors may direct.

Section 2. The Association shall not be responsible for statements or opinions advanced in papers or in discussions at meetings of the Association or its sections, divisions, or branches, or printed in its publications.

Section 3. The Association reserves the right to copyright, at the discretion of the Board of Directors, any of its papers, discussions, reports, or publications.

Constitution—Article XI

Section 1. The deposit, investment, and disbursement of all funds shall be subject to the direction of the Board of Directors.

Bylaws—Article XI

Section 1. All funds shall be paid into the business office of the administrative secretary, where they shall be entered in the books of the Association, and deposited to the account of the treasurer in a bank designated by the Board of Directors.

Section 2. All bills against members and others shall be made and collected by the business office of the administrative secretary.

Section 3. All expenditures shall be made in accordance with the budget of appropriations as adopted by the Board of Directors.

Section 4. All payments shall be made upon competent certification as to correctness and proper authorization by the business office from a Business Office Account kept in a bank designated by the Board of Directors.

Section 5. The treasurer shall reimburse the Business Office Account for payments made therefrom upon orders signed by the administrative secretary of the Association; or in the absence or temporary incapacity of the administrative secretary by an associate or assistant administrative secretary of the Association.

Section 6. Checks against the accounts of the Association will bear two signatures, from a list of individuals determined by the Board of Directors.

Section 7. The securities of the Association may be bought, sold, or exchanged only upon written order of two of the following: chairman of the Investment Committee, vice chairman of the Investment Committee, treasurer, and administrative secretary.

Section 8. The business office of the administrative secretary shall keep proper accounts of all financial transactions of the Association.

Section 9. The accounts of the Association shall be audited and approved annually by a chartered or other competent public accountant selected by the Board of Directors.

Section 10. The administrative secretary shall have the authority to enter into contracts for the Association, but contract authorizations must be within the budget authorizations made by the Board of Directors.

Section 11. The activities of the Gordon Research Conferences shall be administered according to procedures established by the Board of Directors.

Constitution—Article XII

Section 1. Amendments to this constitution shall be approved by the Board of Directors after publication in substance in *SCIENCE* and *THE SCIENTIFIC MONTHLY* at least one month prior to an annual meeting of the Association and ratified by a two-thirds vote of the Council members present in a Council session of that meeting. Ratified amendments shall be effective upon adoption and shall be published promptly in *SCIENCE* and *THE SCIENTIFIC MONTHLY*.

Bylaws—Article XII

The bylaws may be amended by majority vote of the Board of Directors, provided notification of the proposed amendment has been mailed to each member of the Board at least twenty (20) days prior to the meeting.

Corvallis Meeting of the Pacific Division

Robert C. Miller

California Academy of Sciences, San Francisco

THE Pacific Division of the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE held its thirty-third annual meeting on the campus of Oregon State College at Corvallis, June 16–21, 1952. With 17 associated and affiliated societies participating in a program of some 430 scientific papers, and a registered attendance of 1095 persons, this was one of the largest meetings the division ever held.

In contrast to meetings in metropolitan areas, delegates were fed and housed at the college, and all activities and entertainment centered there, thus making for a compact, well-integrated meeting. The attractive surroundings, the excellent facilities of the college, the atmosphere of friendly hospitality, and the careful planning of the local committee combined to make this not only a successful but a memorable occasion.

Registration headquarters were in the Memorial Union building, which, in addition to housing the Faculty Club and the Student Bookstore, provides dining facilities and commodious, attractively furnished quarters for informal meeting and conversation. The reception to delegates by President and Mrs. A. L. Strand on Tuesday afternoon was held there, as was a social evening following the address on Wednesday by H. A. Spoeher, of the Carnegie Institution of Washington, Stanford University.

Dr. Spoeher, retiring president of the Pacific Division, gave an able and thought-provoking address on "Society in the Grip of Science." He was preceded on Tuesday evening by F. W. Went, of the California Institute of Technology, who spoke on "Climate and Plant Growth," and was followed on Thursday evening by Henry Eyring, of the University of Utah, who spoke on "Some Important Chemical Reactions in Agriculture and Forestry." These three evening lectures, together with the divisional symposium, a chemistry symposium on Friday afternoon, and the meeting of the Council of the division, constituted the only general sessions. The other sessions were given over to the meetings of the associated and affiliated societies.

The divisional symposium, on "Basic Research in Relation to Agriculture and Forestry," included the following papers: "Basic Research in the Improvement of Forestry," by F. I. Righter, California Forest and Range Experiment Station, Berkeley; "Contributions of Rumen Microbiology to Agriculture," by R. E. Hungate, State College of Washington, Pullman; "Electron Microscopy of Biological Objects Prepared by a New Freeze-drying Technique," by Robley Williams, University of California, Berkeley.

The meeting of the Council on Wednesday afternoon was addressed informally by Kirtley F. Mather, retiring president of the AAAS, and by Raymond L. Taylor, Assistant Administrative Secretary. At this meeting action was taken to amend the constitution, to