

(b) *Percentage.* The same thing may be done from the percentage column above, *i. e.*, 5 per cent. of the .01 c.c. and 5 per cent. of the .1 c.c. tubes revert to make the 90 per cent. of the 1 c.c. tubes up to 100 per cent., leaving 35 per cent. of the .1 c.c. tubes positive as before.

Single Dilution Method.—Frequently determinations are made in one dilution only. In this case the "Percentage Positive" gives the "Score" as where several are used.

Split Dilutions.—Where other "Dilutions" are used than the regular ones, the same methods can be applied by using the corresponding "Dilution" in the computation.

CONCLUSION ARGUMENT

The reason the above simple methods give the "Geometrical Mean" arises from the fact that the ordinary bacteriological dilution scale is in reality a logarithmic scale, and the average dilution is the average logarithm or the logarithm of the "Geometrical Mean." A vast amount of published bacteriological data to be considered at some other time proves that bacteriological results follow a logarithmic probability curve, from which it follows that the median value closely corresponds to the geometrical mean. It is equally probable, therefore that another sample would be greater as less than the geometrical mean. There is nothing in this principle to limit the application of the method, and by intelligent application it can be employed in interpreting all similar forms of data.

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PITTSBURGH MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE seventieth meeting of the American Association for the Advancement of Science was held in Pittsburgh, Pennsylvania, on December 28, 1917, to January 3, 1918. It seems to be a very general opinion of the members who attended that the meeting was practically an unqualified success. The total registration at the office of the permanent secretary was 692.

It is impossible to estimate the number of members who were deterred from attendance by the statement sent to the press by the Pennsylvania Railroad late in December, and by the published letter of Dr. Richards, but it is obvious that no congestion of traffic, and no clogging of trains resulted from the meeting. Of the 692 persons registered, 194 came from Pittsburgh and other parts of Pennsylvania, 122 registering from Pittsburgh alone. The remaining attendance came as usual from all points of the compass, and were distributed on the regular trains arriving at different times, so that their train presence was scarcely to be noticed.

The attendance was distributed as follows: from Pittsburgh and the rest of Pennsylvania, as just stated, 194, New York 84, Ohio 59, District of Columbia 44, Illinois 34, Massachusetts 26, West Virginia 21, Indiana 20, Michigan 18, Wisconsin 15, Maryland, Missouri and Canada 14 each, Iowa and Texas 13 each, New Jersey and Virginia 11 each, California 10, North Carolina 8, Connecticut, Tennessee and Kansas 6 each, Minnesota and Arizona 5 each, New Hampshire, Louisiana and Montana 4 each, Maine, Delaware and Kentucky 3 each, Japan, Nebraska, Utah, Oregon and Colorado 2 each, Rhode Island, Georgia, North Dakota, Arkansas and Wyoming 1 each.

The interest of the meeting was enhanced by the presence of the following foreigners, who were made honorary associates for the meeting: Lieutenant Georgia Abbetti, of the Italian Military Commission; Lieutenant G. P. Thompson, of the Royal Flying Corps of Great Britain; Captain DeGuiche, of the French Military Commission, and Dr. Shigetaro Kawasaki, chief geologist of Korea.

The impressive keynote of the whole meeting was war preparation and efficiency. This was borne out not only in a number of symposia devoted to specific war topics, but also in other discussions, and in other papers, the titles of which would not necessarily lead one to expect a development along the line of war preparation. The local press was keen in noticing this aspect of the meeting, and paid great attention to the papers of the entire session.

The opening general session of the association was held Friday night, December 28, in the lecture hall of the Carnegie Institution. The president of the Association, Professor Theodore W. Richards, of Harvard University, was absent, and Dr. George H. Perkins, of the University of Vermont, senior vice-president, presided. Mr. H. M. Irons, city at-

torney of Pittsburgh, gave an address of welcome on behalf of the mayor of Pittsburgh, to which Dr. Perkins replied.

The permanent secretary, under instructions from the council, proposed the following amendments to the constitution, which were adopted unanimously:

1. To amend Article 22 of the constitution by omitting after the word "*chemistry*" in the second line, the words "*including its application to agriculture and the arts.*" The article as amended will read:

Sections and Sub-sections

Art. 22. The Association shall be divided into sections, viz: A—Mathematics and Astronomy; B—Physics; C—Chemistry; D—Engineering; E—Geology and Geography; F—Zoology; G—, etc.

2. To amend Article 9 of the constitution by adding in line 8, after the words "*Permanent Secretary*" the words "*and the secretaries of the Sections.*"

(*Note.*—The effect of the above will be to make secretaries eligible for reelection.) The Article as amended will then read:

"*Art. 9.* The officers of the association shall be elected by balloting by the General Committee from the fellows and shall consist of a president, a vice-president from each section, a permanent secretary, a treasurer, and a secretary from each section; that is, with the exception of the permanent secretary, the treasurer and the secretaries of the sections, shall be elected at each meeting for the following one and, with the exception of the treasurer and the permanent secretary *and the secretaries of the sections*, shall not be reelected for the next two meetings. The term of office of the permanent secretary and of the treasurer and of the secretaries of the sections shall be five years."

Dr. W. J. Holland, chairman of the local committee, made certain announcements, after which Dr. C. R. Van Hise, retiring president of the association, gave his address, which had for its title "Some Economic Aspects of the World War," and in this able and strong address President Van Hise set the note for the entire meeting.

This was followed by a reception in the foyer of the Carnegie Institution by the members of the local committee and their wives.

Certain special items on the program of the week may be especially mentioned on account of their war bearing.

Section C held a symposium on "Education in Chemical Engineering."

Section M held an important symposium on "Factors concerned in an Increased Agricultural Production."

Section I listened to a paper by Hon. John Barrett on "The War and the New Pan-America," and before this same section, Howard E. Coffin, president of the Aircraft Board at Wash-

ington, spoke on the subject of "General Standardization."

Section B held a general interest session on the subject of "Relationship of Physics to the War."

Section G with the Botanical Society of America and the American Phytopathological Society, held a joint session on "War Problems in Botany."

Dr. Vernon L. Kellogg, formerly of the Belgium Relief Commission, and now with Mr. Hoover's board in Washington, gave an exceedingly strong address before the Entomological Society of America on "The Biological Aspects of the War."

Section I held a special symposium on "War Problems."

Section F held a symposium on "Contributions of Zoology to Human Welfare," in which many war problems were discussed.

Section K held a very important symposium which was packed to the doors, on the subject of "Medical Problems of the War." This symposium included an address by Lieutenant George Loewy, of the French Army, on "The Treatment of War Wounds by the Carrel Method," which was illustrated by moving pictures.

The School Garden Association of America held a symposium on "Organization of War Gardens."

The Association of Economic Entomologists discussed the two following topics at length: "Insects and Camp Sanitation," and "How the Entomologist can assist in increasing Food Production."

The Botanical Society of America, and the American Phytopathological Society held a symposium on "Phytopathology in relation to War Service."

Many of these papers will be published in subsequent issues of this journal, and abstracts of many more will also appear.

The affiliated societies meeting with the association at Pittsburgh were as follows: American Federation of Teachers of Mathematical and Natural Sciences, American Physical Society, Optical Society of America, American Electrochemical Society, Society for the Promotion of Engineering Education, Paleontological Society of America, American Society of Naturalists, Entomological Society of America, American Association of Economic Entomologists, Ecological Society of America, Wilson Ornithological Club, Botanical Society of America, American Phytopathological Society, American Society for Horticultural Science, American Fern Society, American Microscopical Society, American Psychological Association, American Metric Association, American Nature Study

Society, The School Garden Association of America, Society of American Foresters, Society of the Sigma Xi, Gamma Alpha Graduate Scientific Fraternity, Phi Kappa Phi Fraternity.

The local arrangements for the meeting had been made in a very efficient manner by the local committee, of which Dr. W. J. Holland, of the Carnegie Museum, was chairman, and Dr. S. B. Linhart, of the University of Pittsburgh, was secretary. All the meetings were held in the buildings of the University of Pittsburgh, The Carnegie Institute of Technology and the Carnegie Institute.

The council of the association took action as follows:

1. *Resolved* that the revision of the constitution be not pushed at this time—a report published.

2. *Resolved* that the dues of those members in active service in the army and navy be remitted for the period of the war when the member in question makes specific request in his own case.

3. *Resolved* that the editorial control of the journal *SCIENCE* be placed in the charge of an editorial committee to be named by the committee on policy.

4. *Resolved* that the necessary arrangements can be made at the Post Office Department so that the journal may be sent to the front in Europe by members who desire to do so.

5. Messrs. H. B. Ward, H. C. Cowles and Stewart Paton were elected members of the council.

6. The following were made life members emeritus under the terms of the Jane M. Smith Fund: C. H. Fernald, R. H. Richards, Marshall Calkins and T. J. W. Burgess.

7. Two hundred and seventy-eight fellows were elected from the nominations by especially appointed representatives of the sections who have scrutinized the manuscript list at Washington.

8. *Resolved* that until the next annual meeting, all business of the association be referred to the Committee on Policy with power to act.

9. *Resolved* that the president of the association be requested to appoint a committee of five fellows to cooperate with a similar committee of the Association of University Professors, and with other similar associations in the consideration of methods for the publication in this country of bibliographies progress-reports and abstracts.

10. On motion, the council instructed the permanent secretary to carry into effect the following points at future annual meetings: (a) The meeting places for sections and societies having been once printed, should not be changed. (b) Meeting places for allied interests and societies should be placed as close together as possible. (c) The entire number of meeting places should be grouped as closely as possible. (d) Authorizing the printing of detailed advice to Local Committee for individual distribution to members of such committee.

11. Messrs. Stewart Paton, H. L. Fairchild and H. B. Ward were elected members of the committee on policy.

12. The permanent secretary was granted the

authority to purchase a new electric addressograph for his office.

13. The salary of the assistant secretary, Mr. F. S. Hazard, was raised to \$2,100 per annum, beginning with January 1, 1918.

14. The council endorsed the following resolution coming from Section F: "It is important that in any plans formulated or encouraged by the American Association for the Advancement of Science looking towards the organization and development of national or international bibliographic projects, the existing international bibliographic undertaking for zoology, *i. e.*, the Concilium Bibliographicum in Zurich, long approved by this association and in part supported by numerous grants from its funds, be kept definitely in mind and included in any plan for bibliographic work presented for consideration by the special committee of the council."

At the meeting of the general committee at the Schenley Hotel on the night of December 31, it was decided to hold the next meeting of the association in Boston, Massachusetts, meeting to begin on Friday, December 27, 1918. This decision was adopted with the amendment that the committee on policy be given the power to cancel the meeting, or to change the place for it should they see best to do so. On motion the general committee recommended to the general committee of 1918 that St. Louis be chosen for the place of meeting following Boston.

The following officers were elected, President, John M. Coulter, of the University of Chicago; Vice-presidents as follows:

Section A, George D. Burkhoff, Harvard University;

B, Gordon T. Hull, Dartmouth College;

C, Alexander Smith, Columbia University;

D, Ira N. Hollis, Worcester Polytechnic Institute;

E, David White, U. S. Geological Survey, Washington, D. C.;

F, Wm. Patten, Dartmouth College;

G, A. F. Blakeslee, Cold Spring Harbor;

H, (no election);

I, John Barrett, Washington;

K, Frederic S. Lee, Columbia University;

L, S. A. Curtis, Detroit, Mich.;

M, H. P. Armsby, Pennsylvania State College.

O. E. Jennings, of the Carnegie Museum, Pittsburgh, was elected general secretary for 1918. The following secretaries of sections were then elected:

Section A, F. R. Moulton, University of Chicago;

C, Arthur A. Blanchard, Massachusetts Institute of Technology;

D, F. L. Bishop, University of Pittsburgh;

F, H. V. Neal, Tufts College;

G, Mel. T. Cook, Rutgers College;

H, E. K. Strong, Jr., Washington;

L, B. T. Baldwin, Swarthmore College.

L. O. HOWARD,
Permanent Secretary