and working problems—similar mental training to that afforded by mathematics.

(2) Training of the memory in the technic of the art. Much of the memory work involved is in learning to make the physical motions necessary adroitly and with fair speed. To achieve this result requires constant effort and much repetition.

(3) Practice in learning how to work. The student should learn not to waste time, to plan his work in advance, and make every minute count to the best advantage. If the courses are well planned he will have to learn this lesson or put in hours of extra work. To turn out work in quantitative analysis is largely a question of planning work in advance. Let the student remember that it is the man who looks ahead who will later have the chance to look behind.

(4) An increase in self-reliance and resourcefulness. When a precipitate appears where it is not expected, the student will not resign in despair but will logically review his steps and figure out in all probability what it must be and govern himself accordingly.

(5) Development of neatness and care in the manipulation of apparatus and in the recording of data and the calculation of results. In the very nature of things neatness and care are prime requisites in quantitative work. The exercise of the constant care and the neat cleanliness which are necessary to accurate analysis strengthens these attributes for use under similar conditions in other fields.

(6) Education in dependability and integrity. Nothing is so dangerous to the success of an analytical chemist as dishonesty in obtaining his results. There are few dishonest analysts in industrial work, for they can not hold their positions. Honesty not only is the best policy, but it is also the best sense, for ethical values are recognized by all educated men. Let the analyst remember that he is a scientist and that in common with all scientists his motto should be "veritatem quaerero," to seek the truth. It is what it is and not necessarily what he thinks it should be.

(7) Encouragement of the use of scientific methods in finding out realities, in discovering the truth. The methods of quantitative analysis are based on facts and it recognizes the value of conclusions founded on observation. It gives the thinking student a distrust of, even disgust for, conclusions reached by a line of reasoning which is based on assumptions.

(8) Admiration and respect for nature and natural laws. When the instructor rejects a student's erroneous results, thereby necessitating the repetition of an analysis, he explains that the results are wrong because of some error that the student himself introduced and not due to some supernatural agency, that the laws which govern the process are immutable. Admiration and respect for nature and natural laws are indeed among the chief by-products in the study of any pure science.

Quantitative analysis is one of the delectable handmaids of civilization. The student often realizes her worth from a dollars and cents point of view, but he often does not realize that, in wooing the lass for her money alone, he overlooks some of her charms. There are certain lessons she can teach that so enrich the student that in later years he will not have to depend on her money for his living. These are some of the by-product values of quantitative analysis.

WALTER S. FROST
UNIVERSITY OF NEW HAMPSHIRE

THE UNION OF AMERICAN BIOLOGICAL SOCIETIES

THE Union of American Biological Societies was formally organized by a meeting of the Council, composed of representatives of the various societies composing the Union, in Washington on April 26 last. The constituent societies were represented as follows:

American Association for the Advancement of Science: At large, B. E. Livingston, Henry B. Ward.
Section F, Herbert Osborn.
Section G, C. O. Appleman.
Section N, C. A. Kofoid.
Section O, R. W. Thatcher.

American Association of Anatomists: Henry H. Donaldson, G. L. Streeter.

American Association of Economic Entomologists: A. L. Quaintance, William Moore.

American Dairy Science Association: C. W. Larson.

American Genetic Association: G. N. Collins, Sewall Wright.

American Physiological Society: C. W. Greene (A. J. Carlson also appointed, but not present).

American Phytopathological Society: Donald Reddick, C. L. Shear.

American Society of Agronomy: Firman E. Bear, R. W. Thatcher.

American Society for Horticultural Science: C. P. Close, J. H. Gourley.

American Society of Naturalists: H. S. Jennings, A. Franklin Shull.

American Society of Zoologists: W. C. Allee, F. R. Lillie.

Botanical Society of America: B. M. Duggar, J. R. Schramm.

Ecological Society of America: C. C. Adams, R. F. Griggs.

Entomological Society of America: A. N. Caudell, A. G. Böving.

Society of American Foresters: I. W. Bailey, W. N. Sparhawk.

The following were also present:

Representing the Temporary Executive Committee of the Union: I. F. Lewis, C. E. McClung.

By invitation: L. A. Rogers, R. J. Haskell.

The following By-Laws were adopted:

1. *Officers.* The officers of the Council shall be a president, secretary, and treasurer. The president and secretary shall be members of the Council. The treasurer shall be a member of one of the constituent societies of the Union.
2. *Tenure of office.* The president and secretary shall take office after the close of the annual meeting of the Council at which they are elected, and serve until the close of the next annual meeting, except that the officers elected at the first meeting of the Council shall serve at that meeting also. The treasurer shall be elected for three years.
3. *Executive committee.* The executive committee of the Council shall consist of the president and secretary and three other members to be chosen by ballot at the annual meeting of the Council.
4. *Vacancies.* Vacancies in the offices or in the executive committee shall be filled by the executive committee.
5. *Duties.* The duties of the officers shall be those usually pertaining to their respective offices. The duties of the executive committee shall be to carry forward all projects referred to it by the Council; to recommend new projects to the Council; to review projects proposed by members of the Union and make recommendations to the Council concerning them; to consider and recommend additional societies for membership in the Union; to nominate committees; to fill vacancies in the offices or committees; to determine times and places of meeting of the Council and of the executive committee; to prepare the annual report of the Council; and to perform such other functions as the Council may direct.
6. *Committees.* The executive committee shall appoint a committee on bibliography and publication and such other committees as the Council may direct.
7. *Relation to other organizations.* The Council shall take cognizance of the work of the National Research Council, the American Association for the Advancement of Science, and other similar organizations, with a view to cooperation and avoidance of unnecessary duplication of effort.
8. *New members.* Upon recommendation of the executive committee, the Council may admit additional societies to membership in the Union, and determine their representation in the Council.
9. *Finances.* The Council shall have power to receive and administer funds for the promotion of the purposes of the Union. Investments shall be made by the treasurer with the advice and consent of the executive committee. For the defraying of current expenses, the Council shall recommend assessments upon the member societies, to be distributed in such manner as the Council shall determine.
10. *Meetings.* The Council shall meet annually at such time and place as the executive committee shall determine and at other times on call of the executive committee.
11. *Amendments.* These by-laws may be amended at any regularly called meeting of the Council by a majority of those present and voting, provided notice of the proposal to amend, together with a copy of the proposed amendment, is mailed by the secretary to each member of the Council at least two weeks in advance of the meeting.

The report of the Committee on Bibliography and Publication, appointed on April 23, 1922, in conjunction with the National Research Council, was presented by the Chairman, J. R. Schramm. The recommendations of the Committee were adopted, and the Committee was instructed to prepare for publication a report of its work.

It was moved and carried that an American Commission on Zoological Nomenclature, to cooperate with the International Commission, be appointed in consultation with the societies most interested.

In connection with the annual meetings of the societies, the executive committee was instructed to appoint a coordinating committee to arrange the meetings of the various societies with as little conflict as possible.

Officers were elected as follows: President, C. E. McClung; Secretary, I. F. Lewis; Treasurer, A. L Quaintance; additional members of Executive Committee, E. W. Allen, C. W. Greene, and C. A. Kofoid.

I. F. LEWIS,
Secretary

SCIENTIFIC EVENTS

COOPERATION IN SCIENTIFIC WORK

A PLENARY session of the International Commission on Intellectual Cooperation, instituted by the assembly of the League of Nations, has been held at Geneva under the presidency of Professor Bergson. According to a report in the *Journal of the American Medical Association,* the commission approved the action of its subcommittee on bibliography recommending, in view of the impossibility of establishing at the present time a complete international library, the coordination of libraries already existing in the principal centers. The subcommittee recommended also the publication of a bibliographic index and conferences of experts on analytic bibliography to coordinate the work of reviewers and existing libraries, and thus prevent duplication of effort.

The commission decided to transmit to the Council and to the Assembly of the League of Nations a draft agreement for the protection of property rights in scientific work, as elaborated by Professor Ruffini, of Turin, formerly minister of public instruction in Italy. The request is made that the several governments establish protection for authors of scientific discoveries analogous to that accorded by law to the artist and the author. The establishment of an inter-