

We men of science at least need not share their views or their fears. Our feet are set, not on the shifting sands of the opinions and of the fancies of the day, but on a solid foundation of verified truth, which by the labors of each succeeding age is made broader and more firm. To us the past is a thing to look back upon, not with regret, not as something which has been lost never to be regained, but with content, as something whose influence is with us still, helping us on our further way. With us, indeed, the past points not to itself, but to the future; the golden age is in front of us, not behind us; that which we do know is a lamp whose brightest beams are shed into the unknown before us, showing us how much there is in front and lighting up the way to reach it. We are confident in the advance because, as each one of us feels that any step forward which he may make is not ordered by himself alone and is not the result of his own sole efforts in the present, but, is, and that in large measure, the outcome of the labors of others in the past, so each one of us has the sure and certain hope that as the past has helped him, so his efforts, be they great or be they small, will be a help to those to come.

MICHAEL FOSTER.

INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

REPORT OF THE PROVISIONAL INTERNATIONAL COMMITTEE.

At the Second International Conference held in October, 1898, Professors Armstrong, Descamps and M. Foster, Dr. S. P. Langley, Professors Poincaré, Rücker, Waldeyer and Weiss were appointed to act as a Provisional International Committee, power being given to them to appoint substitutes, if any of those named were unable to serve, and also to co-opt two new members.

The delegates attending the Conference were requested to take steps in their respective countries to organize local committees charged with the study of all questions relating to the International Catalogue of Scientific Literature, and to report within six months to the Provisional International Committee. The delegates were also requested to obtain information and to report at an early date to the Provisional International Committee as to what assistance, by subscription or otherwise, towards the support of the Central Bureau may be expected from their respective countries.

The Provisional International Committee was instructed to frame a report, not later than July 31, 1899, which was to be issued by the Royal Society, and incorporated in the decisions of the Conference.

The Committee decided to co-opt an Italian and a Russian member. The Russian Government accepted the invitation, and, on the nomination of the Imperial Academy of Sciences, Mons. Th. P. Köppen, Librarian of the Imperial Public Library, St. Petersburg, became a member of the Committee.

The Committee received unofficial information that the Italian government proposed to nominate a delegate, but that he could not attend the present meeting of the Committee.

Professor Waldeyer being unable to serve, the German government appointed Professor Schwalbe in his place, but requested that he might be accompanied by Professor Klein their two delegates to have but one vote.

The Committee met in London at the Rooms of the Royal Society on August 1-5, 1899.

The following attended: Professor H. E. Armstrong, Sir M. Foster, Professor F. Klein, Mons. Th. P. Köppen, Professor H. Poincaré, Professor A. W. Rücker, Professor B. Schwalbe, Professor E. Weiss.

It was agreed—"That each country represented on the Committee has only one vote."

Reports upon the scheme for the International Catalogue prepared by the Royal Society, framed in pursuance of Resolution 21, of the Conference of 1898, which had been forwarded from the following countries, namely: Austria, Belgium, France, Germany, Netherlands, Sweden, Switzerland, United States of America, together with statements of the steps proposed to be taken for carrying out the Catalogue in India, Japan and Mexico, were received and fully considered by the Committee in the course of the meeting.

A discussion then took place on the following conditions, laid down by the German government, as those under which alone Germany was prepared to take part in the enterprise:

1. Die sachlichen Nachweise (subject entries) sollen wegfallen und in der unter III, 2 gegebenen Einschränkung durch die Anwendung mehrfacher Ordnungssymbole ersetzt werden.

2. Bei der Festlegung der den Titeln im System zukommenden Plätze durch Ordnungssymbole soll im Allgemeinen die Regel gelten, dass jeder Titel nur an einer Stelle unterzubringen ist.

3. Der sachlich geordnete Theil der Buchausgabe soll in allen Disziplinen lediglich aus den Titeln zusammengestellt werden, und zwar ausnahmslos unter Voranstellung des Verfassernamens.

4. Die Zettelausgabe soll als offizieller Theil des Unternehmens wegfallen.

5. Die Beitrittserklärung soll zunächst nur auf fünf Jahre erfolgen.

It was Resolved:

1. That the issue of a Card Catalogue be postponed for the present.

2. That a paper shall be entered in the Catalogue in more places than one only when this is rendered desirable by its scien-

tific contents. No exact limits to the numbers of entries to be allowed to single papers can at present be fixed. This must be determined by the Central Bureau after adequate experience. Until such limits are determined, if the Central Bureau is of the opinion that in the returns made by any regional bureau the numbers of entries to single papers do not correspond to the scientific contents, it shall be its duty to intervene; such intervention, however, to be based not on individual cases, but upon an average. As regards the order of arrangement of entries in the final sub-divisions, in general this shall be in accordance with authors' names, except the subject demand other treatment.

The English members thereupon made the following statement:

The conditions under which the German Government agree to take part in the establishment of the Catalogue, viz.:

(A) That in general each title should be entered in one place only; and

(B) That 'subject entries' and 'significant words' must not be used, differ so materially from the scheme formulated by the two Conferences, and so seriously affect the whole character of the enterprise, that the English members feel that they have no power to accept them without consulting the Royal Society upon the matter.

With respect to (A), if the condition be interpreted in accordance with the decision arrived at by the International Committee in Resolution 2 (see above), the difficulty is materially lessened.

With respect to (B), however, they feel sure that the restriction of entries to titles only will so largely diminish the value of the Catalogue, bringing it below that of various indices and reports already existing, and hence so lessen the sale as to render the financial success of the enterprise extremely doubtful, if not impossible.

They quite understand the reasons which have led the German Government to pro-

pose the restrictions in question, but they are of opinion that those reasons do not necessarily hold good for all countries.

And the objections which they entertain to the proposal would be lessened if liberty were given to individual Regional Bureaux when they find it necessary or desirable, in one or more of the places in which a paper is referred to, to make use of modified titles describing the contents of the paper better than the title itself. The extent to which such use of modified titles can be made must, of course, be subject to the control of the International Catalogue Council.

The English members cannot assume that even if it be thus changed, the conditions proposed by the German Government will be accepted by the Royal Society; but they desire, before bringing the whole matter before the Royal Society, to be informed of the views of the German Government in respect to the proposed change.

Moreover, so grave a departure from the scheme for providing a Catalogue, which should unquestionably be the best of its kind, could only be recommended if all the principal countries also consent. In particular, as the American delegate was unfortunately unable to attend the Conference, it will be necessary that the whole question at issue should be communicated to him, and that American opinion should be ascertained.

The German delegates expressed their willingness to submit this statement to their Government.

It was Resolved:—That separate schedules shall be provided for the following branches of science:

- A. Mathematics.
- B. Mechanics.
- C. Physics.
- D. Chemistry.
- E. Astronomy.
- F. Meteorology (including Terrestrial Magnetism).

G. Mineralogy (including Petrology and Crystallography).

H. Geology.

J. Geography (Mathematical and Physical).

K. Paleontology.

L. General Biology.

M. Botany.

N. Zoology.

O. Human Anatomy.

P. Physical Anthropology.

Q. Physiology (including Psychology, Pharmacology and Experimental Pathology).

R. Bacteriology.

And that the branches of Science be indicated by the letters of the alphabet in consecutive order as registration letters.

Schemes for Physics, Mineralogy, Petrology, Crystallography, Geology, Paleontology, Geography, Botany, Zoology and Physiology were adopted; and schemes for Mathematics, Mechanics, General Biology, Chemistry, Human Anatomy, Psychology, Bacteriology, Physical Anthropology, Astronomy and Meteorology were also approved for adoption, subject to the introduction of minor alterations by Committees to whom they were referred with the instruction to complete such revision and return the schemes to the Royal Society by the end of September at latest.

A general introductory section common to all sciences was adopted.

It was agreed that complete lists of new species would be required in the case of several of the sciences.

With reference to the cataloguing of the applications of science—

It was Resolved:—That technical matters of scientific interest shall be included in the catalogue, but shall be referred to under the appropriate scientific headings.

It was Resolved:—That a general list of journals indexed in the Catalogue, with the abbreviations to be used as references, be issued with the first edition of the Catalogue, and that a supplement giving the additions to this list be issued annually,

and a new edition at the end of five years.

With regard to the frequency of publication of the parts of the Catalogue, it was agreed :

(1) That a volume in each subject be published at least once a year.

(2) That it is desirable that in certain sciences there shall be a bi-monthly or quarterly issued of the Subject Catalogue.

It was Resolved :—That the registration system proposed by the Royal Society be adopted for tentative use in the Catalogue ; and that an alphabetical key of the schedules of classification similar to that illustrated in the Netherlands report shall be issued with each annual volume together with the appropriate schedule, printed in the official languages, to be supplied as may be required.

The establishment of the Central Bureau having been considered :

“It was agreed to recommend that the Royal Society be requested to organize the Central Bureau and to do all work, including framing estimates and obtaining tenders, preliminary to the publication of the Catalogue in 1901 ; but that it shall act in concert with the International Council so soon as this shall be established.”

The English members of the Committee made the following statement with reference to this resolution :

Previous to the actual issue of the Catalogue, the following money responsibilities must be incurred :

(1) Initial expenses connected with the Central Bureau, such as securing rooms, furniture, payment of officials before the first issue, etc.

(2) Contracts for printing the catalogue and other contracts which it may be necessary to make. With respect to the contracts, they could probably be obtained more cheaply if made for the whole of the five years for which the experiment of issuing

the catalogue is to be tried. It would be very difficult to make, for one year only, contracts which may involve the purchase of new machinery, etc., by the printer. The total financial responsibility thus incurred cannot be estimated at less than £10,000. Moreover, it is possible, though we hope improbable, that the scheme may fail, and that the various countries concerned may wish to abandon it. The question therefore arises, who is to be responsible for any sums which might in such a case be due to the printer, or to others with whom contracts had been made ?

The question has been raised whether the Royal Society would be willing to act in the matter.

On this we must remark that even if the Society were to act as a Provisional International Council, no contracts can be signed until after the next Conference (presumably held at Easter, 1900) has decided whether bi-monthly or quarterly parts shall be issued, or whether the total sum to be spent annually shall be limited to a fixed amount.

Hence, no great saving of time would result even if the Royal Society were willing to take a very heavy responsibility. On the whole, therefore, we propose that if and when the regions represented on the Provisional International Committee have assented to its proposals, these proposals shall be communicated to all the countries represented at the last Conference, that they shall be asked to organize their Regional Bureaux and nominate their representatives on the International Council in anticipation of the result of the next Conference, and that the International Council should meet immediately after the Conference.

This International Council would then take up, together with the management, all the necessary financial responsibilities.

Meanwhile the Royal Society would undertake all preliminary steps, obtain tenders,

and lay them before the International Council at its first meeting.

If this would allow the first issue to take place early in 1901, the desired object will be gained, but no greater speed will be attained by entrusting more responsibility to the Royal Society as it could not make definite contracts till after the next Conference.

It was agreed that the resolution preceding this statement shall be interpreted in accordance therewith.

The English members of the Committee undertook to bring the resolution under the notice of the Royal Society, and the other members to call the attention of their governments thereto.

After full consideration, the following statement as to the financial position was adopted :

The finances of the Catalogue will be controlled by the International Council, which, in accordance with regulations adopted by the International Conference of 1898 (Report 27, p. 11), will be bound to " make a report of its doings, and submit a balance sheet, copies of which shall be distributed to the several Regional Bureaux, etc."

The plan which seems the most generally favored is that the contributions of the Regional Bureaux shall take the form of undertakings to purchase a certain number of copies of the Catalogue annually. Various estimates point to the fact that the average contribution thus made by Regional Bureaux of the first rank (which may be called a whole share) will be equivalent to between one-eighth and one-tenth of the whole cost of producing the Book Catalogue.

For the purposes of this report, sales to private persons are not considered, or are supposed to be included in the sum guaranteed by each constituent country. In some cases the Regional Bureau will probably sell to individuals, either directly or through a publisher, those volumes which it does not

dispose of to institutions, and will thus take the risk of the private sales. Whether this plan be adopted elsewhere or not, it is essential that the number of copies which constituent countries undertake to purchase shall together cover the cost of the production of the Catalogue.

Taking the original estimate formed by the Royal Society, the cost of the Book Catalogue would be £5,600 annually, so that a whole share would be between £700 and £560 per annum. If the lowest remunerative number of sales is equivalent to 350 complete subscriptions at £16 each, this would mean that a whole share entailed the purchase of between 44 and 35 complete sets or an equivalent.

These figures are, however, based upon assumptions which will require revision. The Card Catalogue will, no doubt, be abandoned, and it is proposed that it should be replaced by bi-monthly or quarterly issues. This, therefore, is an expense which has not been allowed for. The number of volumes has been increased from 16 to 17. There is also a general opinion that the estimates of the number of papers to be dealt with on which the original financial estimates were based were too small. Until all these matters have been fully considered and fresh estimates prepared, it appears to be impossible to say more than that it is hoped that the cost of a whole share will not be very much greater than the original estimates.

Estimates on the new conditions will be prepared and circulated during the autumn.

There are, however, three other points to consider :

It will be necessary to establish the Central Bureau and to appoint the officials some months before the first issue of the Catalogue begins. Funds for this purpose, which may be estimated at £2,500, are not included in the annual balance sheet which alone has been prepared.

Further, serious responsibility may also arise on the points referred to in the above statement of the representatives of the Royal Society.

Again, if the subscriptions are paid at the end and not at the beginning of the first year, it will be necessary to borrow funds, the interest on which will be a charge on the undertaking.

Again, if some countries refuse to form Regional Bureaux or to join in the enterprise, their literature will have to be dealt with by the Central Bureau. The cost of this cannot be estimated until it is definitely known whether the International Catalogue will be universally supported.

It was agreed that in reporting to the various governments and bodies concerned, special stress should be laid on the importance of organizing Regional Bureaux without delay.

The English delegates were requested :

(1) To have the schedules approved by this Committee reprinted and issued as soon as possible.

(2) To prepare an amended estimate of the cost of the Catalogue.

(3) To issue a complete programme based on the proceedings of the two Conferences and of this Committee.

(4) To fully inform all countries whose coöperation is desired.

It was agreed to recommend :

(1) That an International Conference, to arrive at a final decision on all matters concerning the Catalogue, be held at Easter-tide, 1900.

(2) That the delegates attending this Conference should be charged with full powers to determine both financial and other questions.

(3) That those chosen to act on the International Council should be delegates to this Conference.

It was agreed—

“That the members of the Committee be

requested to endeavor to obtain from their respective Governments authority to place themselves in direct communication with the Royal Society, as the official channel of communication for all further provisional correspondence on the subject of the Catalogue.”

HENRY E. ARMSTRONG.

M. FOSTER.

F. KLEIN.

TH. P. KÖPPEN.

H. POINCARÉ.

ARTHUR W. RÜCKER.

B. SCHWALBE.

E. WEISS.

AUGUST 5, 1899.

*SECTION E.—GEOLOGY AND GEOGRAPHY OF
THE AMERICAN ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE.*

THE address of the Chairman, Mr. J. F. Whiteaves on ‘The Devonian System in Canada’ has already been printed in *SCIENCE*. The papers presented were as follows :

‘The Geology of Columbus and Vicinity,’ Edward Orton, Columbus, Ohio.

An informal presentation of the facts in connection with the geology of Columbus and vicinity, designed to suggest points, of special interest to the visiting geologists. One matter to which particular attention was called was the occurrence of bowlders of native copper, derived from the Keewenaw copper region. Blocks of Marquette iron ore have also been sparingly found.

‘Glacial phenomena of Central Ohio,’ Frank Leverett, Denmark, Ohio.

A general description of the glacial and interglacial formations of Central Ohio, designed, in part, to cover the region in the vicinity of Lancaster, Ohio, to which an excursion was subsequently made.

The formations recognized in the description are :

1. The Illinoisan drift; 2. A soil and weathered zone (Sangamon) formed on