

downward to a point and united to the upper cylindrical portion by the common rim, along which the flower clusters were developed. The two tubes were practically free from any connection with each other, except at the end and each bore upon its exposed surface leaves and branches, the inner one, of course, in a lesser degree. Many of these branches were hollow and often somewhat flattened or fasciated.

The cultural conditions in the locality are such that the pea vines are almost a complete loss in the absence of stock to which it could be fed, the only use possible being to turn them under as green manure. The loss to the grower was total and was measured by the cash outlay, not only for the seed in the first instance but for all labor upon the field, and the maintenance of the force of pickers, for a number of days in anticipation of a possible crop. Seed of known parentage will hereafter be used in the locality where the above observations were made. F. E. LLOYD,

Secretary.

SCIENTIFIC BOOKS.

International Catalogue of Scientific Literature. First Annual Issue. N—Zoology. Part I., Author Catalogue. Part II., Subject Catalogue. London, Harrison & Sons. 1904. Pp. xvi + 1528.

This work is planned to include the zoological literature for the year 1901, although one is compelled to analyze the preface in order to determine the period covered, since no record of its extent appears on cover or title page of either part. According to information printed on the cover the manuscript of this volume was completed in August, 1903, and the printed copy is dated February, 1904, although the work seems not to have been generally distributed until some months later.

Part I. contains the general explanations with the scheme of classification and an index thereto in English; and this matter is repeated in French, German and Italian. Following these the author catalogue fills 260 pages and

lists 5,918 titles. Part II., which is about three times as voluminous, contains at the close a list of journals with abbreviated titles and the topographical classification. More than 1,100 pages are filled with the subject references proper. The system used has been the subject of extended discussion in SCIENCE and calls for no further notice here. The addition to each phylum of a list of names of new genera and species will commend itself to all as a most desirable feature.

Such bibliographic work is not new in the zoological field, and several of the similar enterprises already in existence have achieved noteworthy success. The oldest of these is the *Zoological Record*, which is especially full along taxonomic lines, while the *Zoologischer Jahresbericht* manifests a confessed morphological bias. Both of these, but more especially the latter, include an analysis of the subject matter of publications cited, whereas the admirable literature lists of the *Zoologischer Anzeiger* only hint at the contents of a publication by its classification. The *Bibliographia Universalis* of the Concilium Bibliographicum forms a subject catalogue comparable directly with the publication under consideration. A comparison of this volume with the results achieved by the other agencies noted will constitute a fair test of its value to workers in zoology.

In respect to promptness in appearance the 'International Catalogue' is certainly at an abnormal disadvantage in the first year of its history; whether this is sufficient excuse for its publication from one to two years later than the same material was available through the other agencies will depend upon individual judgment. At least its belated appearance should enable it to equal the results of other bibliographies. A close approximation of titles listed gives over 6,600 for the *Zoological Record*, over 8,000 for the *Zoologischer Anzeiger* and over 8,400 for the *Concilium Bibliographicum* as against the 5,918 entries in author list of the 'International Catalogue.'

The character of the subject catalogue has been tested both topically and taxonomically. On the taxonomic side Professor Weltner, of

Berlin, has called attention in a recent article* to the treatment of the sponges, where only 27 papers are included out of 82 which appeared during the year 1901. Among those omitted are some of first importance, while even of the references given the entries under special headings are incomplete and erroneous. The reports on Porifera in the *Zoological Record* and in the *Archiv für Naturgeschichte* appeared in advance of the date given for the completion of this manuscript, and yet the latter is much less satisfactory.

He might also have added that the insufficiency of the work on Porifera goes to show governmental red tape in this enterprise and lack of real control on the part of the scientific staff, since, according to the title page, the very man stands sponsor for this volume who had already published one of the admirable bibliographies cited by Weltner as worthy of emulation.

Dr. T. Wayland Vaughan has published in SCIENCE† a comparison of the work on Coelenterata here with the cards of the Concilium Bibliographicum, and the *Zoological Record*. He found that "the Concilium Bibliographicum procured 70 per cent. of the references, the *Zoological Record* for 1901, 63 per cent., and the 'International Catalogue' 40 per cent." "Works of importance published in practically every country are left out." Promptness in appearance was in inverse ratio to completeness.

A further analysis of the subject catalogue yielded interesting and important results for its evaluation. Under the heading 0020 'Periodicals, Reports of Institutions, Societies, Congresses, etc.' are entered half a dozen reports of individual journeys, excerpted from publications of learned societies and certainly not appropriately classified in this subdivision, while at the same time the leading zoological journals are omitted. Furthermore, such journals as are concerned with single groups merely are entered here in some cases instead of under the fitting special heading, *e. g.*, *Philadelphia, Pa., Students' Entomological*

Association, or International Congress of Ornithology in Paris, 1900. In fact, the technical periodicals seem also to have fared ill in this catalogue for the leading ornithological and entomological journals do not appear in any of the lists.

Such inappropriate entries also occur among individual publications, *e. g.*, the *Sequence of Plumages & Moults* entered under general treatises, the *Reproduction of the Protozoa*, and *Entomological Field-work* cited under addresses. Open to even more serious criticism are such entries as a *Collective Investigation of Indian Culicidæ* and *Studies on Eocene Mammalia* under 0060 'Collections.' Under the same numeral the subheading 'Economics' is also inconsistently and very incompletely treated; but this is, no doubt, a difficult topic to limit precisely. The same can not be said, however, of 0070 'Nomenclature (Principles of)' in which important references are lacking, while 0090 'Technique' has a total of only 14 titles, some of which belong under microscopy or biology, whereas the real list of appropriate references under this heading can not be reduced to less than fifty or seventy-five titles, and the Concilium Bibliographicum gives 110 cards with the date 1901. It should also be noted that the titles given in the 'International Catalogue' have no claim at all to preeminent importance, for trivial items are included and weighty papers omitted. The analysis might be pursued with similar results through the other headings of the catalogue. It is evident that the work has not been done by persons at all familiar with the subject matter. This feature is strikingly shown in the omission of a paper on certain insects entitled, 'Encore quelques mots sur l'élevage des Bacilles,' although two other papers by the same author and in the same journal are duly cited. One can not help wondering whether the missing paper will turn up under botany or bacteriology!

In order to test the accuracy and completeness of the subject references for technical purposes, I chose as a topic the fauna of New Guinea and took for comparison the cards of the Concilium Bibliographicum under the same heading. There were 36 of these cards

* *Zool. Anzeiger*, July 26, 1904, Vol. 27, No. 25, p. 788.

† N. S., Vol. XIX., No. 492, p. 860.

as against 8 references in the 'International Catalogue' and one title was lacking from the cards, whereas 29 were not entered in the 'International Catalogue.' A further study of the author catalogue in the latter showed that in reality but four titles were lacking and one other was incorrectly entered. Of the titles missing from the subject catalogue six were entered under more general headings, since the bibliographer had doubtless followed the error in the titles of the papers; two were entered incorrectly under other geographic divisions, and twenty-one were not listed under any faunistic subdivisions, although seven of these gave positive evidence and two others bore some indication in the title that this region was treated. An analysis of parthenogenesis made in the same way showed nine titles wanting from the 'International Catalogue,' and from the cards only two, both of which were Russian.

A similar test was made in the subject of parasites, where the publications are sufficiently numerous, the notes and references sufficiently hidden, and the places of publication so dispersed as to test very sharply the character of any bibliographic enterprise. Twenty-four references were lacking among the cards of the Concilium Bibliographicum, ninety-three from the subject lists of the 'International Catalogue'; and of these latter forty-eight bore distinct evidence in the title that they treated of parasites of specific groups of animals.

The list of names for new genera and species constitutes, as already noted, an important and most desirable feature of the 'Catalogue.' Here the method of entry is distinctly faulty in that the type is not noted, the locality is not given, the page of first record is not entered and the original form is not cited in connection with those designated as new names. On reviewing the parasitic forms I was able to find many names of new genera and species omitted, even from the papers listed; in all were noted as wanting among Protozoa two new genera and four new species; among flatworms one new genus and eighteen new species; among Nematoda two new genera and ten new species; among parasitic Crustacea

two new genera and four new species. I do not doubt that the actual number wanting is decidedly greater than the figures given.

Some tests were also made to determine the accuracy of the work, both in citation and in the elaboration of the material used. In addition to such as are evident mistakes in printing, there is the usual number of errors of a purely mechanical type, such as reversing the names in a paper of joint authorship, entering papers by two authors of somewhat similar name under a single heading, or ascribing publications to a different author of the same family name. In some instances also papers are included which, according to other authorities, fall within 1900 or 1902. In the one instance, which could be checked here, the 'International Catalogue' is apparently in error. Even in work done by our own countrymen one finds the Washington Academy of Sciences referred to as the National Academy.

As regards accuracy in handling the material treated, I have to record without further comment the chance discovery that among the papers in the *Quarterly Journal of Microscopical Science* two in the March (1901) number are omitted and also two in the May (1901) number. A more extensive test could not be made for lack of time; yet missing titles were noted from several prominent journals.

A lack of uniformity in treatment is very noticeable in the work done by different nations. Thus the English bibliographers have entered chapters in text-books under special headings and also reviews of various articles. Had this been done by other nations it would have added largely. Very likely some such references should be included, and that when they contain valuable critical matter by some specialist on the group under consideration; but it is equally patent that only such a specialist can pass upon the value of such items. From the standpoint of a bibliographer the treatment of these matters must be uniform. The lack of uniformity is further shown by the inclusion of a single article on *Bacillus icteroides* which probably

owed its selection to the occurrence in the title of the phrase 'cold-blooded animals.'

It would require undue space to demonstrate here what the individual observer can easily verify, namely, that there are characteristic differences in the method of treatment given the material by different national bureaus. Some have clearly over indexed, others have been as distinctly deficient. Among German references it was difficult to find errors in classification, while among those of some other nations they were all too frequent.

As a result of a most careful study of this work one is forced to conclude:

1. With respect to promptness, completeness and accuracy the results are distinctly inferior to those already achieved for zoology by several bibliographic agencies.

2. A subsidy for any one of the existing agencies equal to a fraction of the amount spent on this part of the 'International Catalogue' would yield much greater results in giving the investigator actual control of the literature in zoology.

3. The effort to construct a bibliography from materials furnished by numerous national bureaus will not result in the production of a consistent work.

4. A useful bibliography in this field can not be prepared by mere cataloguers, however expert they may be, and however great the means at their disposal for the prosecution of the work.

5. The contention of Weltner and others is abundantly justified that only the specialist in zoology can make a satisfactory analysis of zoological publications, and only he should be allowed to control such work.

6. It is most important to add to the mere record of titles a brief critical annotation regarding the subject matter of each paper. Additional subsidies should be devoted to the improvement of existing agencies rather than to the creation of new organizations.

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SCIENTIFIC JOURNALS AND ARTICLES.

The *Museums Journal* of Great Britain for December has an excellent article 'On Colors

in Museums,' by Hans Dedekam, dealing at some length with the question of what are the best colors for backgrounds for various exhibits. The balance of the number is devoted to reviews and notes, and includes a good review of Dr. Meyer's recent memoir.

THE contents of the January number of the *American Journal of Mathematics* is as follows:

'Some Properties of a Generalized Hypergeometric Function,' by F. H. Jackson.

'Relation between Real and Complex Groups with Respect to their Structure and Continuity,' by Dr. S. E. Slocum.

'Determination of all the Characteristic Subgroups of any Abelian Group,' by G. A. Miller.

'Collineations whose Characteristic Determinants have Linear Elementary Divisors with an Application to Quadratic Forms,' by A. B. Coble.

'Concerning Certain Elliptic Modular Functions of Square Rank,' by John A. Miller.

'Minors of Axi-symmetric Determinants,' by E. J. Nanson.

'On the Forms of Sextic Scrolls having a Rectilinear Directrix,' by Virgil Snyder.

SOCIETIES AND ACADEMIES.

THE NEW YORK SECTION OF THE AMERICAN CHEMICAL SOCIETY.

A REGULAR meeting of the New York Section of the American Chemical Society was held at the Chemists' Club, Friday night, December 9. The following councilors were elected from the New York Section: Messrs. Leo Baekeland, F. D. Dodge, T. J. Parker, W. J. Schieffelin and Hugo Schweitzer.

The regular program of the evening was then taken up and the following papers presented:

The Art of Sizing Paper with Rosin Soaps.

MARTIN L. GRIFFIN.

The subject is introduced by some general considerations pertaining to sizing paper, but deals principally with the claims frequently made, that acid or free rosin sizes are most desired, and that it is the free rosin that is the effective sizing agent in paper.

The author has made a large number of experiments, sizing paper stock in different ways with different reagents, showing conclusively that this is not the case, that free rosin