be more of them. Above all, then, let us seek to keep company with America in the nurture of science. Let us unhesitatingly allow to the Americans what they have which is as good or better than ours; let us receive it from them gladly. And if we, through unceasing vigorous performance, can preserve for ourselves their respect and their attention, we shall, in the field of the sciences, help to knit closer the natural bond which exists between Germany and America.''

Young Americans have, up to now, gone to Germany to learn from her teachers, but the time has arrived, Waldeyer continues, when German and European students should also go to America to widen their culture. This scientific intercourse between person and person, university and university, academy and academy should be favored in every way possible. ''Let us be as liberal to them as they are toward us in the reception of those who seek knowledge, in offering to them all that they need. Let their published researches be found in our libraries also, at least in the great Royal Library of the capital of the empire. Let us show them in all things that on coming to Germany they come to a people of intellectual affinity, under whose political and social institutions even they, with their free views, may have a feeling of well-being. That they do the same for us can be said, to their praise, by all who have been their guests.''

Germans should act toward America, he believes, as Americans do toward Germany; they should try to form a correct judgment of the scientific work of Americans by personal knowledge; more than hitherto, Germans must instruct themselves by visiting the country itself. It would do no harm if every year a number of German students went to America to widen their horizon. The plan of exchanging university professors, already introduced, is highly commendable and should be further realized. While he does not feel called upon to give advice to Americans as to their future relations to Germany, Waldeyer says that he knows that, if Germans can remain at the high scientific level they have hitherto occupied, Americans will need no advice; they will gladly maintain their old relations as regards science, and will extend them. ''And thus, aside from all else, looking purely at science and its service, will not, in such intercourse, the noblest and highest mission be fulfilled: the advancement and elevation of culture from people to people?''

It is difficult in an abstract to do anything like justice to such an address. All who are familiar with the beauty of Waldeyer's literary expression will desire to read the report in the original.

Lewellys F. Barker.

SCIENTIFIC BOOKS.

A Select Bibliography of Chemistry 1492–1902. By Henry Carrington Bolton. Second Supplement. City of Washington, published by the Smithsonian Institution. (Smithsonian Miscellaneous Collections, Part of Vol. XLIV.) 462 pp.

The first volume of Dr. Bolton's 'Select Bibliography of Chemistry' brought the literature down to 1892. The first supplement continued the work down to the close of 1897. In 1901, Section VIII., 'Academic Dissertations,' was published separately. The present work continues the whole work down to the close of 1902, and adds many titles, especially of academic dissertations, which had been overlooked in the earlier volumes. The following table will give an idea of the space occupied by the different portions of the book: Section I., 'Bibliography,' 5 pages; Section II., 'Dictionaries and Tables,' 6 pages; Section III., 'History of Chemistry,' 11 pages; Section IV., 'Biography,' 15 pages; Section V., 'Chemistry, Pure and Applied,' 162 pages; Section VI., 'Alchemical Literature of the

Nineteenth Century,' 19 pages; Section VII., 'Periodicals,' 11 pages; Section VIII., 'Academic Dissertations,' 167 pages; subject-index, 66 pages.

Doctor Bolton died on November 19, 1903, while the book was passing through the press and most of the proofreading, as well as the preparation of the index, was done by Mr. Axel Moth, of the New York Public Library. This work has been done with a care and excellence that could hardly have been surpassed by Dr. Bolton himself.

Reference has been made in a previous review to the great value of the list of academic dissertations, and increased value is added by the continuation of the list through 1902 in the present supplement. It is to be hoped that at least this portion of the work will from time to time be brought down to date.

In this connection it is interesting to note not only the great amount of this literature but also the sources from which it emanates. The list includes for the five years, 1898–1902, about 2,350 dissertations, or nearly 500 a year. As we should expect, the dissertations from the University of Berlin head the list, about ten per cent. emanating from this source. It is, however, a surprise to find that the rather unfamiliar University of Rostock comes next with only a dozen less dissertations to its credit. Heidelberg stands a little lower in numbers. Next come Munich, Erlangen and Freiburg in Baden, with about 160 each, and then Leipzig, which we should expect to find relatively much higher in the list, with 130. Basel and Marburg are the only other universities which reach 100. Zürich furnishes about 70 dissertations and then come Bern, Breslau, Freiburg in Switzerland, Geneva, Giessen, Göttingen, Halle, Kiel, Tubingen and Würzburg, each with about 50. This list probably furnishes a pretty good index of the quantity of chemical work done at the different universities, but it must not be overlooked that it is a common practise for students to go for their diplomas to a university where the requirements are known to be less rigid than at Berlin or Leipzig.

The loss of Dr. Bolton to the chemical world is great. Aside from his other work in chemistry, in two fields he was almost unique. As an antiquarian he was always bringing up interesting and valuable information from his rich mine of historical knowledge of the early days of chemistry and alchemy. But, perhaps, it is as a bibliographer of chemistry he will be best remembered. His 'Select Bibliography of Chemistry' might almost be considered a monumental work, so great is its scope and so thoroughly is it carried out. While it has the title of 'select' rather than 'complete,' it is remarkable how little material of value is omitted. It is safe to say that his work is final as far as it goes. His bibliographical work is not limited to that which he personally carried out, for he inspired others in the same field. To his influence we owe most of the bibliographies of special elements and allied subjects, which have been published by the Smithsonian Institution, on the recommendation of Dr. Bolton, as the chairman of the American Association committee on indexing chemical literature.

Now that the 'International Catalogue of Scientific Literature' is under way, a part of the work for which Dr. Bolton was so solicitous has become an accomplished fact. The Smithsonian Institution has for the present ceased publishing special bibliographies of chemical subjects, and in view of the immense mass of nineteenth century scientific literature which ought to be indexed and the need of its systematic treatment, this is undoubtedly wise. Under the circumstances it is doubtful if there is longer reason for the continuance of the association committee, of which Dr. Bolton was from the first chairman and moving spirit. In the field of chemical bibliography, he will have no successor.

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SCIENTIFIC JOURNALS AND ARTICLES.

The Journal of Experimental Zoology, Vol. II., No. 3 (August, 1905), contains the following papers: 'A Study of the Germ Cells of Aphis rosæ and Aphis œnotheræ,' by N. M. Stevens. Only one polar body is formed, and there is no reduction in the number of chro-