University of Cracow (once more a Polish university). But it would be profitable for the whole world—scientists, statesmen, warriors, philosophers, teachers, pupils and the people in general—to pause and consider what was the real significance of the gift of Copernicus. The corollary of his theory is a world-wide solidarity of human interest. There is no escape from it. If an international holiday were to be added to the many holidays in the various calendars of the world, it should be one on which the birthday of Copernicus is solemnly observed—for he discovered the universe.—*New York Times.*

SCIENTIFIC BOOKS

The British Association for the Advancement of Science: a Retrospect, 1831-1921. By O. J. R. Howarth, O.B.E., M.A., Secretary. 14 x 22 cm., vii + 318 pages, numerous illustrations. Published by the Association, Burlington House, Piccadilly, London, W.1, 1922.

American men of science should find much to command their interest in the attractive volume here cited. The book, which is a very readable summary of the development and achievements of the British Association, is replete with information and suggestion for those who hold membership in our scientific societies and in the American Association for the Advancement of Science—especially for those whose hope for our future rests partly in efforts toward the strengthening of American scientific organization.

In these days when the human value of historical appreciation is so strongly and so rightly emphasized on every hand, when the development of the sciences seems almost on the point of becoming subject matter for a new branch of historical science, it is particularly fortunate that Mr. Howarth has been able to present us with this account, which is in some respects a résumé of the history of British science since 1831. The association was founded in that year. The war that finally ended with Waterloo had left the British people with new insight into possibilities for national improvement. Somewhat parallel to what is happening to-day, many minds became constructively critical and there was clamor for many kinds of reform. Among the reformers were leading men of science, who complained of the "decline of science in England" and advocated an association of scientific men as a means toward the attainment of the improvement that was sought.

The British Association was organized at York, on September 26, 1831. The Reverend William Vernon Harcourt, chairman of the organizing committee, proposed the foundation of an association "having for its objects, to give a stronger and more systematic direction to scientific inquiry, to obtain a greater degree of national attention to the objects of science, and a removal of those disadvantages which impede its progress, and to promote the intercourse of the cultivators of science with one another, and with foreign philosophers." So the association came into existence. It was largely modeled after the Deutscher Naturforscher Versammlung, which had held its first meeting at Leipzig in 1882. That organization is now the Gesellschaft Deutscher Naturforscher und Ärzte. We may note further that our American Association was principally modeled after the British, when the latter was seventeen years old.

In a chapter on "The Association and the Progress of Science" is, among others, an excellent account of the two famous controversies between science and religion through which the British Association passed, the first following the general appreciation of the meaning of Lyell's "Principles of Geology," the second following the appearance of Darwin's "Origin of Species." To American scientists these pages are now specially interesting, for history does seem to repeat itself in our midst.

Throughout its history the British Association has ever held strongly to its aim of bringing science to the non-scientific, to society at large, especially to the public of the cities in which the annual meetings are held. General addresses have frequently been given that "demonstrate to all men that science is thinking with and for them, about matters which must interest and most deeply concern them."

The association has met every year since its foundation, with the exception of the two years 1917 and 1918. It has met at thirty-four cities in the British Isles and has held meetings over-

seas on five occasions—in Canada three times and in Australia and South Africa each once. The York meeting for 1881 was a jubilee, the fiftieth anniversary of the original York meeting. An appendix to the volume presents dates and places of all the meetings, together with biographical notes on the presidents.

Besides holding the annual meetings, the British Association has been active in the initiation of many pieces of research and in the support, through grants, of very many more. A list of grants made in support of research, for the period from 1834 to 1921, is given in an appendix. The association has successfully called the attention of the government to various scientific needs from time to time. It has received some government help, but "to voluntary service in the interests of science the whole record of the British Association stands as one great memorial. Every word spoken at its meetings, every page of its annual reports, represent voluntary effort on the part of individual 'cultivators of science.'"

BURTON E. LIVINGSTON

SAFRANIN AND METHYL GREEN

IN a report last summer made by the Committee on the Standardization of Stains it was stated that good success had been obtained in securing satisfactory samples of almost all the important biological stains with the exception of safranin and methyl green. It is very encouraging now to be able to report satisfactory sources of both of these stains.

Safranin has proved a difficult stain to secure in exactly the right quality, because one is desired which will contrast with both gentian violet and with orange G when used in the Flemming triple stain. The products on the market two years ago when the first samples were collected were generally the textile safranins without much modification and proved to be of too blue a shade to contrast with gentian violet. A sample of Grübler's safranin was compared with them at that time which seemed to give good results, and one manufacturer agreed to duplicate this for the committee. This particular Grübler sample proved, however, to be a mixture of safranin and auramin; and when the American manufacturer made a similar mixture, the resulting shade was found by some of the investigators to be too yellow to contrast with orange G. In one of the laboratories where it was tested, however, it was found to be entirely satisfactory for the particular purpose for which it was used, and it is felt that this mixture may well have its value but should not be sold as a safranin. The matter was in this state when it was finally referred to the National Aniline Company. They have now prepared a safranin which is very pure and considerably more concentrated than any which has before been put on the market. It has been reported upon in the highest terms from every laboratory except the one where best results were obtained with the mixture of safranin and auramin. It seems to give satisfactory results in the Benda stain with light green, also in contrast with both orange G and gentian violet and appears to be identical with the best of the pre-war Grübler safranin O, except that it is more concentrated.

Methyl green is used quite largely in the Pappenheim stain together with pyronin; but it is also used by botanists in staining plant tissue and by zoologists as a chromatin stain, and for staining living protozoa. The first samples of this stain obtained in this country were apparently either methylene green or methyl green with violet impurities, probably methyl violet. Of the samples obtained in the original investigations of the committee none proved very satisfactory; but last summer a sample was obtained from the Providence Chemical Laboratories of Providence, R. I. which has proved as satisfactory as the samples of Grübler's methyl green with which it has been compared. More recently a series of three samples, each one purer than the preceding, have been sent to us from the National Aniline Company. The first sample proved unsatisfactory; the next one submitted proved of good quality, while the most recent sample submitted seems to be one of the purest samples obtainable. There is still some question, however, which of these methyl greens is actually the most satisfactory when judged from the standpoint of performance. Although one laboratory has reported in highest terms of the purest of these samples, two other laboratories found best results with one of the