parts of the world, with representatives of all the well-known centers and schools of tropical medicine. Donations will be gratefully acknowledged by the president if sent to him at Manson House, 26, Portland Place, W.1.

THE Grenfell Association held a dinner at the Hotel Victoria, London, on July 2, when an appeal was made in aid of the endowment fund to carry on Sir Wilfred Grenfell's work in Labrador. Sir George Broadbridge, who presided, said that the funds necessary to maintain the schools and hospitals, industrial centers and agricultural stations which Sir Wilfred Grenfell had started had come almost entirely as the result of his own personal appeal on his lecturing tours. They felt that he should be relieved of the fatigue of these lecturing tours and so have greater freedom for the increasing claims of Labrador. The supporters of his work in Canada, Newfoundland and the United States had raised an endowment fund of £120,000, and it was hoped to raise a sum in Great Britain worthy of the man and his work. Their aim was to secure at least £50,000 within the next three years as a fitting tribute to the life work of one of the most remarkable Englishmen of his day in the oldest British possession overseas.

THE General Assembly of Tennessee, the session of 1931, passed an act authorizing the Fish and Game Commission, which has jurisdiction and control of the lands and property on the shores of Reelfoot Lake, to set apart for the Tennessee Academy of Science some suitable building and such amount of lands adjacent to the Lake, not exceeding ten acres, for the establishment of a biological station for carrying on research work, the property and building to be under the management and control of the Academy of Science without the payment of rent or other payment to the state. The General Assembly also made an appropriation of $2,500 to be expended out of the Fish and Game Fund and rentals for state property around Reelfoot Lake by the Department of Fish and Game, under the commissioner of agriculture, for necessary buildings, plant outfit and grounds for the biological station.

DISCUSSION

THE BASIC SCIENCES AT THE CHICAGO CENTENNIAL EXPOSITION, 1933

THE city of Chicago having been incorporated as a village in 1833, a group of its leading citizens decided, some two or three years ago, to celebrate the centennial of this event by holding an international exposition. This decision, however, was arrived at only after this group of gentlemen were thoroughly satisfied that they had a theme for an exposition which would make it not a mere repetition of other exhibitions, but a center to which people might come and discover for themselves a new view-point, a changed state of affairs. This theme was found in the ministrations of pure science to industry and to society. The dependence of commerce and manufactures upon the results obtained in laboratories of science was considered a fascinating story, and something worthy of celebration. The change from the covered wagon to the Pullman car, the substitution of the air-plane for the pony express, the increased leisure and the higher plane of living, all of which came in the wake of these advances in science, combine to make the story a fitting theme for a world's fair.

The achievements of pure science having been adopted as the central motive of the exposition, the president, Mr. Rufus C. Dawes, promptly invited the National Research Council to suggest what line of scientific results might best be shown in order to demonstrate this principal thesis of the fair. The response to this invitation was generous. It took form in the appointment of an advisory committee and various subcommittees whose reports are now guiding the spirit and the arrangement of the exhibits in the field of pure science.

The division of basic sciences falls in the department of exhibits and, for convenience of operation, is subdivided into five sections as follows:

Division of Basic Sciences
- 1—Astronomy
- 2—Physics and mathematics
- 3—Chemistry
- 4—Biology, including psychology
- 5—Earth Sciences, including geology, geography and geodesy

Anthropology and psychology, each of them a biological science, will be grouped together as they are in the organization of the National Research Council; but they will probably be shown in a building other than the hall of the basic sciences. This separation is a mere matter of convenience in securing the proper space for these two large fields of investigation.

In presenting the basic sciences to the visitors of 1933, the plan of the administration is to forget questions of nationality and to make the entire exhibit thoroughly cosmopolitan and international. The important discoveries in each science are to be set forth in their proper sequence regardless of the places where and the men by whom they were made. Easily read legends will set forth not only the fundamental idea of each exhibit but also, in many cases, our indebtedness to the individual investigator.

Another distinct feature will be the presentation of phenomena and processes of the basic sciences, rather than mere apparatus or even results which have been obtained by use of apparatus. That this is no simple undertaking will be evident to every one. To demonstrate, on the lecture table, a chemical reaction in the presence of a class is one thing; to maintain this process in continuous operation for one hundred and fifty days is quite another thing. To demonstrate the phenomena involved in some vital process in the laboratory, perhaps on the stage of a microscope, for a few minutes, is one thing; to keep the phenomena visible to a large number of visitors for a period of five months is something quite different. To what extent these dynamic exhibitions can be substituted for the static ones so largely employed hitherto must be left for the future to decide. Whatever is possible in this direction will be achieved largely by the aid of clever, generous and wise advice from various leaders of science who have in the past so freely given valuable suggestions and help.

The inherent difficulty of making clear an intellectual advance by purely material means, plus a few printed legends, is something which needs only to be stated in order to be appreciated. Curiously enough, exposition becomes especially arduous in those very fields, such as algebra and quantitative physics, which lend themselves so readily to description in mathematical symbols. Since the main goal of the Chicago Centennial is a demonstration of the indebtedness of society to science, nothing in the way of a stated course in science will be offered; on the other hand, it is hoped that the exhibits, even in the pure sciences, will furnish entertainment and inspiration as well as instruction.

The Department of Exhibits, which is under the direction of Mr. John S. Sewell, includes besides the basic sciences six other divisions, namely those of applied science, of which Mr. J. F. Bell is the chief; agriculture, in charge of Mr. Harvey J. Sconce; social science, at the head of which is Professor H. W. Odum; state and federal participation, in charge of Mr. C. Van Deventer; foreign participation, at the head of which is Mr. Felix J. Streyckmans; and fine arts, which has not yet been organized. The entire executive responsibility of the fair has been placed upon Mr. Lenox R. Lohr, who is manager of the exposition; but responsibility for the preparation and installation of exhibits in the basic sciences is in the hands of the following: chief of division, Professor Henry Crew; associate in astronomy, Professor Philip Fox; associate in physics and mathematics, Dr. Gordon S. Fulcher; associate in chemistry, Dr. Irving Muskat; associate in biology, Mr. J. F. W. Pearson; associate in geology, Professor J. V. Lewis.

The plans of the division of the basic sciences include also the publication of a series of small volumes devoted to the latest phases of some twenty branches of science, pure and applied. The authors are well-known scholars. The series will be handled by the Waverly Press, Williams and Wilkins.

Readers of SCIENCE have already learned that the American Association for the Advancement of Science will hold its summer meeting for 1933 in Chicago. A considerable number of foreign scholars in each section of the association are being invited for this occasion.

JOHN STEPHEN SEWELL,
Director of Exhibits

THE WORK OF CHINESE BOTANISTS ON THE FLORA OF CHINA

IT is interesting to note the efforts that the younger generation of Chinese botanists are devoting to the further elucidation of the very rich and complex flora of China. This work by Chinese botanists under the auspices of Chinese institutions has been developed within the last two decades. There has recently been issued under the joint auspices of the Metropolitan Museum of Natural History, Nanking, and the Fan Memorial Institute of Biology, Peiping, an important contribution to our knowledge of the fern flora of China.[1] The volume is large quarto in size, and contains full descriptions in English and in Chinese, and illustrations, of fifty-one species of Chinese ferns, including a number recently described as new by Mr. Ching. The format, typography and press work is good. The very excellent illustrations showing both macroscopic and microscopic characters renders this publication particularly useful to those interested in the study of Chinese ferns. This important work deserves a place in every botanical library.

E. D. MERRILL

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EXPONENTS AND FOOTNOTES

THE writer has long wondered whether an alternative could not be devised for the now very general practice of applying Arabic numerals to footnotes, and indicating their place of reference in the text by numbers typographically identical with those employed as exponents. In a vast majority of cases, of course, no confusion results from this procedure. Either no mathematical formulae are present in a paper, or the context makes it evident, in a given case, whether or not we have to do with an exponent. But in some instances this is not true. Exponent

[1] H. H. Hu and R. C. Ching, "Icones filicum sinicarum," Fasc. 1, p. 1–102, pl. 1–50, 1930.