the work of the bureau. Every new line of work taken up means a new research, and often the designing and building of a new series of instruments. As the limits of errors are narrowed the labor is rapidly augmented. What one man might do well in a day may require two men a week or a month if the accuracy is to be considerably increased. This will explain why the bureau has not already announced a greater range of testing, and why even when both the new buildings are occupied many lines of work will remain to be inaugurated.

It is the constant purpose of the bureau to cooperate with instrument makers and manufacturers to the end that their output of instruments and apparatus may be improved. Not simply to certify errors or criticize results, but to assist in perfecting the product, is the aim. In this work the bureau has so far enjoyed the confidence and cooperation of manufacturers to a gratifying degree. It was largely to meet their needs that the bureau was organized, and if by serving them the standard of excellence of American-made instruments and machinery is raised, the bureau will have served the public also. In several specific instances a marked improvement of this kind is already seen, due directly to the influence of the bureau of standards.

The advantage to scientific men and engineers of having a place in this country where instruments and standards may be verified with the highest possible precision, and at nominal charges, and where researches may be undertaken when necessary to answer questions arising in such comparisons, is evident. It greatly facilitates precision work both in engineering and in research.

The bureau has also fulfilled another of the functions mentioned in the act authorizing its establishment, in furnishing information on a variety of subjects included more or less closely in its field of activities. A considerable correspondence of this kind has grown up.

The functions of the Bureau of Standards are very broad and its possibilities for usefulness correspondingly great. It should do in its field, indeed, what the Coast Survey and the Geological Survey and the Department of Agriculture are doing in theirs, and what the Physikalisch-Technische Reichsanstalt and the Normal-Aichungs Kommission are doing in Germany. Fully to realize these possibilities will of course require a much further increase in equipment and in personnel, and this we expect to see.

EDWARD B. ROSA.
NATIONAL BUREAU OF STANDARDS.

SCIENTIFIC BOOKS.

Christian Faith in an Age of Science. By WILLIAM NORTH RICE, Ph.D., LL.D., Professor of Geology in Wesleyan University. New York: A. C. Armstrong & Son. 1903. Pp. xi + 425.

As the author himself hints in his preface, it would not be difficult to cull some delightful antinomies from this work, and on a scale more extended than Dr. Rice suspects. At the same time, it was ever thus with books of the class. For example, I can picture the meaningful smile that would cross the faces of certain experts I could name, when they read those pronouncements: 'It is evident, in general, that we have in the book of Genesis nothing that approaches the character of reliable history till about the time of Abraham (p. 122); the Fourth Gospel is probably the only record by an eye-witness of the events connected with the resurrection' (p. 363). Similarly, in another field, when Dr. Rice suggests that the virgin birth and the resurrection—in the most usual acceptation of these terms—are essential to Christianity (p. 377), one is bound to refer him to the relative articles in 'The Encyclopædia Biblica.' In the same way, his naïve account of will would scarcely satisfy psychologists, while his fearfully and wonderfully made presentation of causality would amaze the thoroughly modern metaphysician.

But, even admitting these points, it would be a great mistake to dismiss the work thereupon. Its account of the progress of science, and of the resultant transformations wrought upon mediæval beliefs and whimsical suppositions, is very well done. Nay more, it marks a distinct advance over nearly all statements of the kind known to me. A few passages, culled at random, serve to prove this clearly: "The belief that the writers of the Bible were under the special influence and guidance of the Divine Spirit is a very different thing from the belief that their opinions were always just, their arguments always conclusive, or their knowledge of the facts always accurate" (p. 85). "We have come to regard as the main function of prophecy, not the construction of a map of all future history with symbols and names in cipher, but the presentation of warnings, consolations and moral exhortations, to reform or confirm the religious faith and life of the people addressed" (p. 106). "The conclusion which seems forced upon us is that no reconciliation between the geological record and that of Genesis is possible" (p. 111). "Apart from the dogma of the inerrancy of the Bible, the question of the date of the origin of man has obviously no theological significance whatsoever" (p. 117). "Wallace announced many years ago the remarkable proposition, that 'every species has come into existence coincident both in space and time with a preexisting closely allied species.' It would be impossible actually to prove that proposition in regard to every known species, since our knowledge of extinct life is so far from being complete. Nevertheless, the proposition can be shown to be true in so many instances that there is no reasonable doubt that it is to be accepted as a universal law. * * * The cumulative force of that evidence reveals itself only in prolonged study of some one or other of the departments of biology" (pp. 194–5, 198). "The theory of evolution is indeed the implacable foe of that sort of theistic philosophy which has been happily satirized in the phrase, 'the carpenter God'" (p. 254). "I can not escape the conviction that the tendency of evolutionary thought is decidedly towards monism" (p. 268). "It is difficult to see why that parallelism of ontogeny and phylogeny does not have the same significance in regard to psychical as in regard to physical characteristics" (p. 272). "The alternatives for the philosophical thinker seem to be dualism and monism, but with a third alternative of suspended judgment—agnosticism" (p. 275). "Neither volition nor any other mental state has a quantitative relation to physical energy. The recognition of the absolute disparateness of the two classes of phenomena is essential to sound thinking in regard to them" (p. 296). "The things which we can not predict we can pray for. The things which we can predict we can not pray for" (p. 346). "It is needless to say that no claim of certainty can be maintained in regard to Christianity as a system, or in regard to any particular doctrine of Christianity" (p. 406). All this is pretty well. These views, and others like them, are decidedly symptomatic.

Part I., which deals with science and its advance, will be of great service to many. Parts II. and III., which contain the philosophical, theological and religious considerations, can not be ranked in the same class. They are immensely weakened by absence of a transitive grasp upon first principles and, therefore, on the whole, they never really face the ultimate question, What are we *compelled* to infer to-day from man's knowledge of the physical universe, of the physiological body, and of the psychological organization? Yet, even at this, the book must be strongly commended to thousands who have hitherto been fed on mush, discreditable to its cooks and positively harmful to its consumers. For many babes Dr. Rice may prove strong meat, indeed. And from this point of view, his work deserves hearty recognition as a valuable installment, likely to carry advantageous weight in certain quarters.

R. M. W.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES.
SECTION OF ANTHROPOLOGY AND PSYCHOLOGY.

THE regular meeting of the section was held April 25 at the American Museum of Natural