men, towards the large cities and away from the small towns and farms. This change is in process at present, and must have been going on for some time. Thus there is every reason to suppose that by the year 1860 (if not very much earlier than this) there had already taken place a part at least of this same phenomenon. So that the distribution of talent was then somewhat as it is to-day, concentrated about the cities.[1] Now if mental traits are inherited, the cities must show a higher proportionate birth of talent than the country, and our observed facts are only what we might expect.

Of course it is impossible here to separate the question of environment, which may be more favorable in the city, as some contend, or less favorable, as others sometimes think, or be the slight and almost unmeasurable force which I, myself, shall be content to hold it, until some one has succeeded in measuring it.

Mental heredity, on the other hand, has been measured, and the results are in substantial agreement.[2]

It is not the purpose of the present communication to present these figures from "Who's Who" as a proof of heredity, but only to point out that there is nothing in the distribution of the birthplaces of leading Americans to conflict with the strongest belief in the force of inheritance, should one happen to have gained such a belief from other sources.

FREDERICK ADAMS WOODS

BROOKLINE, MASS.,
February 20, 1909

[1] Conf. J. McK. Cattell, "A Statistical Study of American Men of Science," III., SCIENCE, N. S., Vol. XXIV., No. 623, December 7, 1906. A. Odin, "Genèse des grands hommes," 2 vols., 1895.

[2] Conf. F. Galton, "Natural Inheritance," London, 1889. K. Pearson, "On the Inheritance of Mental and Moral Qualities in Man, and its Comparison with the Inheritance of Physical Characters," *Biometrica*, Vol. III., 1904. E. L. Thorndike, "Measurements of Twins," *Arch. of Philosophy, Psychology and Scientific Methods*, No. 1, September, 1905. F. A. Woods, "Mental and Moral Heredity in Royalty," *Popular Science Monthly*, August, 1902, to April, 1903. Same with additions and further measurements, New York, 1906.

SCIENTIFIC BOOKS

The Principles of Mechanics for Students of Physics and Engineering. By HENRY CREW, Professor of Physics in Northwestern University. 8vo, 295 pp. New York, Longmans, Green & Company. 1908.

This book represents a course which Professor Crew has given for several years at Northwestern University to students intending to specialize in physics and in engineering. The students have had a class and laboratory college course in general physics and more or less work in elementary calculus. Professor Crew states in the preface that his purpose is "to lead the student to clear dynamical views in the shortest possible time without sacrificing him upon the altar of logic, yet pursuing a route which he can afterwards follow with safety." The plan is to confine the treatment "to that part of mechanics which is common ground for the physicist and the engineer" (again quoting the preface). The general dynamical principles involving advanced calculus and analysis are accordingly not included. There are six chapters, one on kinematics, two on kinetics, one on friction, one on elasticity and a short chapter on fluid motion. As the title of the book indicates, the principles are emphasized rather than the applications. In making such a book, every one will, of course, have his own ideas as to topics to be included and those to be omitted. Professor Crew's book represents a course of the essentials, which has been selected after actual classroom experience. An excellent feature is the attention given to rotational dynamics, a part of mechanics on which many text-books are weak. The "illustrative problems" and "examples for practise" scattered through the book are very simple, avoiding involved analyses and calculations.

While the book is intended both for students of physics and of engineering, we believe it will appeal more strongly to the student of physics and this is not so much in its subject-matter as in its temper. For the general student, the purpose of the book is admirable—namely, to take the student in the

second year of his work in physics, immediately after the completion of a course in general physics, and to give him a thorough course in the principles of mechanics stated in the language of the calculus and vector analysis, but emphasizing the physics of the subject. The statement of physical facts and concepts in mathematical language is one of the difficult steps in a student's course; and Professor Crew has done well in giving us his introductory course in the mathematical side of physics.

The book is written in a style which is always clear and interesting. The forms of statement are fresh, and the author has drawn on a wide range of reading and experience for new and apt illustrations.

A. P. Carman

The Evolution of Forces. By Gustave LeBon. Pp. 388. New York, D. Appleton & Co. 1908.

In the controversy between Mr. Norman Campbell, of Trinity College, Cambridge, and Mr. F. Legge, of the Royal Institution, concerning Dr. LeBon's writings, Mr. Campbell said:

> I was a student of that author's works two years before his book appeared, and I believe that I have read every word that he has ever published on physical questions.[1]

On the basis of this thorough knowledge, Dr. Campbell places an extremely low estimate upon LeBon's work.

I have not read all of LeBon's writings by any means, but very certainly the present book on "The Evolution of Forces" is of little or no account, except in one respect only. If one wished to diagnose the ills of contemporary French science, one would find in LeBon exaggerated symptoms of a malady (not of course affecting all French scientists) which has resulted from the tremendous scientific preeminence of the French during the early part of the nineteenth century. Let one consider the state of mind of a man who can express himself after the manner of the following quotations which are taken almost at random from LeBon's book:

[1] The *Athenæum*, March 3, 1906.

> This happy confidence in the great dogmas of modern science remained unaltered until the quite recent date when unforeseen discoveries condemn scientific thought to suffer doubts from which it imagined itself forever free.
>
> There should, therefore, be no hesitation to examine closely the fundamental dogmas of science, for the sole reason that they are venerated and at first sight appear indestructible.
>
> After I had proved that the dissociation of atoms was a universal phenomenon and that matter is an immense reservoir of energy hitherto unsuspected in spite of its colossal grandeur, etc.

Speaking of a certain matter, LeBon says:

> As I expected, it was one of those classic errors repeated without verification to which repetition at length gives indisputable authority.

Speaking of another matter, he says:

> All *authors* have regarded it as having a preponderating influence.

There is one idea which, according to my experience, seems to be dominant in the minds of young students, namely, that the physical science which they study in the technical school or college is *in* the text-book and was created by a *literary effort* of an *author*. Dr. LeBon, apparently, has never got beyond this childish idea. The word author, as applied to a scientist, is misleading. Our scientific men in the United States do not combine sufficiently the ability to write with the ability to search and search again, so that, although it is mildly ridiculous to call many of them authors, it would be a distinct affront to speak of them narrowly as such.

W. S. Franklin

Contribution toward a Monograph of the Laboulbeniaceae. By Roland Thaxter. Part II. With 54 plates. Memoirs of the American Academy of Arts and Sciences, Vol. XII., No. VI. 4to, pp. 219–461. Cambridge, printed by Edward W. Wheeler. June, 1908.

Nineteen years ago Dr. Thaxter published his first paper on the Laboulbeniaceae,[1] and since that time has brought out many papers in which he has steadily added much to our knowledge of the species and genera and still

[1] "On Some Species of North American Laboulbeniaceae," *Proc. Am. Acad. Arts and Sci.*, Vol. XXIV., February, 1890.