been used by me and has proved very satisfactory.

In a foot-cylinder with a ground top is placed a smaller graduated cylinder containing the solution. The larger cylinder contains sufficient solvent to reach nearly to the top of the smaller one. The system is enclosed by a ground-glass vaselined plate covering the outer cylinder. Gradually the volume of the solution increases and the change in volume can be accurately followed and recorded.

In an experiment which lasted two months the total change in a nearly saturated salt solution was from 5.8 c.c. to 6.6 c.c., or nearly 14 per cent. This is to be repeated for verification, and other solutions of various solvents and solutes studied.

JAMES H. RANSOM

PURDUE UNIVERSITY,
March 25, 1916

SCIENTIFIC BOOKS

Engineering as a Career. A series of papers by eminent engineers, edited by F. H. NEWELL and C. E. DRAYER.

This book of 214 pages is made up of selections from the writings of different engineers so chosen as to embrace a broad field of practise. It is a mosaic presenting attractive fragments from the work of active leaders in steel-making, in manufacturing, in marine engineering, in railroad operation and maintenance, in municipal administration, in industrial management, in architecture, in mining and metallurgical work, and in other equally interesting and important lines of activity. The book opens with a general discussion of the engineer and his profession by Mr. Albert J. Himes. Mr. Worcester R. Warner speaks especially from the standpoint of the mechanical engineer, Mr. A. W. Johnston from that of the railway engineer, and Mr. Chester W. Larner from that of the hydraulic engineer. Altogether twenty-two selections are presented. They make an impressive picture drawn by men of experience, concerning the opportunities offered to and the attributes of character required by one who seeks a career as an engineer.

The book will interest parents, ambitious for the success of their growing sons, who are approaching the question as to whether their sons shall go to college, and if so, whether they shall seek to become engineers; it will interest multitudes of high-school boys, who are wavering between the call of business and that of the technical or professional school; and it will interest engineers who enjoy any well-considered formulated statement which seeks to set forth broad views of the engineer's problem and of the place which he must assume in society. But it is especially for the boy and for the parents of boys.

The editing has been a labor of love, the work having been done by Mr. C. E. Drayer, secretary and later president of the Cleveland Engineering Society, and by Professor F. H. Newell, head of the department of civil engineering of the University of Illinois, who for twenty-five years served the government in an engineering capacity, principally as chief engineer and later as director of the United States Reclamation Service which has been responsible for the building of great reservoirs and irrigation canals throughout the arid west.

W. F. M. GOSS

UNIVERSITY OF ILLINOIS

The Rare Earths. By S. I. LEVY, B.A. (Cantab.), B.Sc. (Lond.), A.I.C., Late Hutchinson Research Student of St. John's College, Cambridge. Longmans, Green and Company. With illustrations. Pp. 359. Net, $3.00.

This is the first book published in English that attempts to give a fairly comprehensive account of the rare-earth group, and the magnitude of the task has resulted in a volume of considerable size.

An introduction written by Sir William Crookes, himself a master in this field of research, does much at the outset to give the book standing.

The work is divided into three parts: I. Occurrence of the Rare Earths; II. Chemistry of the Elements; III. Technology of the Elements. The author has included zirconium and titanium among the elements treated, because of their occurrence in rare-earth min-