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SCIENCE AND SOCIETY

By HAROLD G. MOULTON

PRESIDENT OF THE BROOKINGS INSTITUTION[1]

THIS series of discussions of "Science and Society" may well begin with some quotations selected with a view to placing the problem before us in broad perspective. The first two statements suggest the vast contributions of science in the evolution of society.

Science is the soul of the prosperity of nations and the living source of all progress. Undoubtedly the tiring discussions of politics seem to be our guide—empty appearances! What really leads us forward is a few scientific discoveries and their application.[2]

Science as fundamental knowledge has been the greatest factor in freeing our minds from the preconceptions and superstitions handed down to us through the ages. Our mental attitude has been profoundly modified by our knowledge of the processes of evolution. . . . Knowledge not only helps to set us free, but will lead us on to higher things. . . . The applications of scientific knowledge have made possible a standard of living undreamed of a generation ago. . . . Our greatest hope for future well-being and prosperity lies in further applications of science.[3]

While the authors of the two quotations which follow would not deny the vast rôle which science has played in the evolution of society they nevertheless question

[1] Address of the retiring vice-president and chairman of the section on social and economic sciences of the American Association for the Advancement of Science, given at Indianapolis on December 27, 1937. The address was introductory to a series of five conferences on "Science and Society" to be held under the auspices of the American Association for the Advancement of Science. The first conference was held at the Indianapolis meeting.

[2] Louis Pasteur, quoted in Millikan, "Science and the New Civilization," p. 41.

[3] Irving Langmuir, in address on "Chemical Research," at the dedication of the new building of Mellon Institute, 1937.

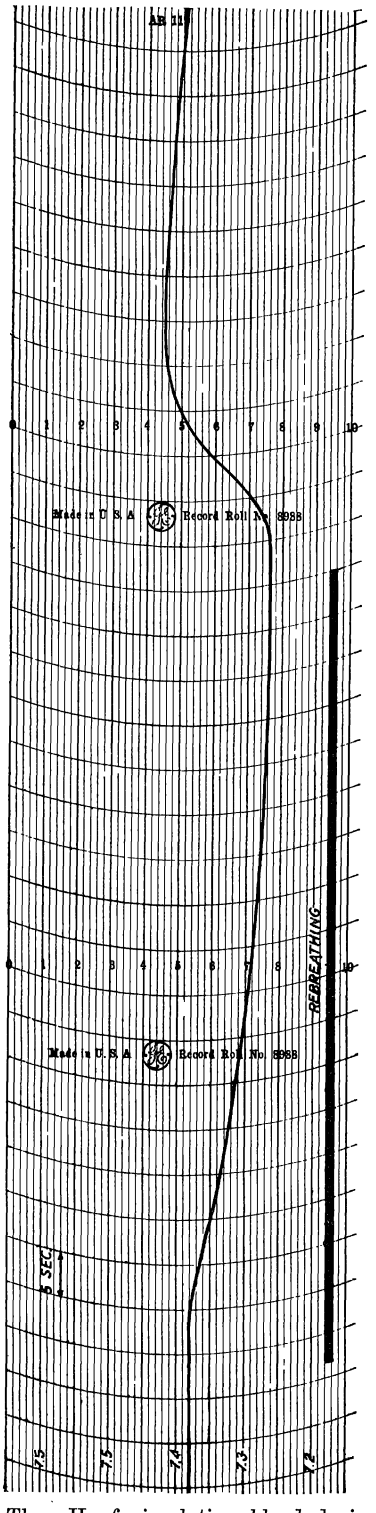

FIG. 1. The pH of circulating blood during a short period of rebreathing. Dog, male, 10 Kg. Na Amytal anesthesia, Heparin intravenously. Animal made to rebreathe by placing a surgical rubber glove over the snout. Time divisions, 5 sec.; pH units at left.

illustrating the type of information obtainable. In this experiment the electrode system was placed in the femoral artery of a heparinized dog, under sodium amytal anesthesia, and the animal was made to rebreathe its expired air for a period of 88 seconds, as indicated by the solid black line in the figure. Within 8 seconds after rebreathing was initiated, the blood began to shift to the more acid side; in 40 seconds this change amounted to 0.08 pH unit; in the remaining period, the change was 0.03 pH unit more. Five seconds after cessation of the rebreathing, the blood became with surprising rapidity less acid, passing through its original level in less than 15 seconds after the reversal began. Its new level was not attained directly, but by a process of "over-shooting" and subsequent return from a slightly higher pH. The return to a stable condition required a minute or more.

Complete details of this technique, as well as the results of other experiments on the relationship of blood pH and respiration, will be published later.

LESLIE F. NIMS
CLYDE MARSHALL
HAROLD S. BURR

BOOKS RECEIVED

BRAMWELL, JAMES. *Lost Atlantis.* Pp. 288. Harper. $2.75.

BRUNER, HENRY L. *Laboratory Directions in College Zoology.* Revised edition. Pp. xiv + 163. Macmillan. $1.75.

COURANT, R. and D. HILBERT. *Methoden der Mathematischen Physik II.* Pp. xvi + 549. Die Grundlehren der Mathematischen Wissenschaften in Einzeldarstellungen. Band XLVIII. Julius Springer, Berlin.

Cours de Chimie Industrielle, Tome V. G. Dupont. Pp. 279. 18 figures. Gauthier-Villars, Paris. 70 fr.

Figures de Savants, Tome III. L'Académie des Sciences et L'étude de la France D'Outre-Mer de la Fin Du XVII^e Siècle Au Début Du XIX^e. Pp. xiii + 220. 125 fr. Tome IV. Pp. 259. Illustrated. 150 fr. Gauthier-Villars, Paris.

GWYNNE-VAUGHAN, H. C. I. and B. BARNES. *The Structure and Development of the Fungi.* Second edition. Pp. xvi + 449. 309 figures. Cambridge University Press, Macmillan. $5.50.

HAMBLY, WILFRID D. *Source Book for African Anthropology. Volume XXVI. Part I, Publication 394. Section I, Outlines of Africa.* Pp. 404. 75 figures. *Part II, Section III, Basic Elements of Negro Culture.* Pp. 407–953. 76 figures. Field Museum of Natural History, Chicago.

NEWCOMBE, CURTIS L. *Laboratory Directions for an Elementary Course in General Zoology.* Pp. 104. 2 figures. The Weant Press, Baltimore.

OLMSTEAD, J. M. D. *Claude Bernard, Physiologist.* Pp. xvi + 255. Illustrated. Harper. $4.00.

Studies of the Institutum Divi Thomae. Vol. I, No. 2, November, 1937. Pp. v + 137 + 251. Illustrated. The Athenaeum of Ohio, Cincinnati. $0.50.

Symposium on Hormones. Sigma Xi Lectures for 1936–37, Ohio State University. Pp. 315–463. Illustrated. Reprinted from the Ohio Journal of Science.

Texas Agricultural Experiment Station. *Valuable Plants Native to Texas.* Bulletin No. 551, August, 1937. Pp. 173. Agricultural and Mechanical College of Texas.