SCIENCE

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MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

ACIDOSIS[1]

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FOR many years students of metabolism, of general physiology and of pathology have been investigating various aspects of the acid-base equilibrium of the body, always with an eye to the problem of acidosis, but at first with small success in unifying our knowledge of that complex subject. Successively it has been shown that in acidosis there may be a production of β-oxybutyric acid or some other specific defect of metabolism, an increase of the urinary ammonia, a diminution of the total carbonic acid of the blood, and of the blood's bicarbonate, an increase of its concentration in hydrogen ions, a diminution in the concentration of carbon dioxide in the alveolar air and of the free carbonic acid in the blood, an impairment of the affinity of the red corpuscles for oxygen, and a depletion of the alkali reserves of the body. Not all of these changes, however, are invariably present, and much confusion has resulted from the attempt to distinguish essential or primary phenomena.

At length it has become clear that acidosis is, from the standpoint of physical science, no simple and unitary state or process, but that, like metabolism or respiration, its unity is biological or functional, and that it consists in any disturbance, large enough and so long enduring as to be properly called pathological, of the regulation of alkalinity in the body. What are the disturbances to which this regulatory process is liable? They are such as are made possible by its normal and essential

[1] The Samuel D. Gross lecture, 1916.