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MATHEMATICS BEFORE THE GREEKS¹

By Professor R. C. ARCHIBALD

BROWN UNIVERSITY

OUR conceptions of Egyptian and Babylonian mathematics have been notably changed during the past fifteen years so that the third edition of the first volume of Cantor's great history is already quite out of date. Even since last March much of great interest to the student has been published. Hence it seemed both appropriate and timely for me to endeavor to present to you an accurate even though fragmentary survey of present knowledge of the mathematics of the Egyptians and Babylonians, for it is to theirs alone that I shall refer in considering mathematics before the Greeks, that is, before 600 B. C. Indeed, practically all the mathematics which I shall consider was in use before 1600 B. C.

For at least a thousand years prior to 2500 B. C. the non-Semitic Sumerians, who lived just north of

¹ Retiring address, as vice-president and chairman of Section A—Mathematics, of the American Association for the Advancement of Science, delivered at Des Moines, Iowa, December 30, 1929.

the Persian Gulf and south of the Semitic Akkadians, were generally predominant in Babylonia, but were absorbed in a larger political group by about 2000 B. C. One of the greatest of the Sumerian inventions was the adoption of cuneiform script; notable engineering works of the Babylonians, by means of which marshes were drained and the overflow of the rivers regulated by canals, went back to Sumerian times, like also a considerable part of their religion and law, and their system of mathematics, except, possibly, for certain details.

Our knowledge of Babylonian mathematics is derived mainly from tablets in the British Museum, the Prussian State Museum of Berlin, the Ottoman Museum of Constantinople, the University of Strasbourg, the University of Pennsylvania and the Palais du Cinquantenaire of Brussels. Nearly thirty years ago about forty-seven mathematical problems were published in important part IX of "Cuneiform Texts

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Contents of Volume 13, No. 3, January 20, 1930:

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BOOR, ALDEN KINNEY. A crystallographic study of pure carbonmonoxide hemoglobin.

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MOELWYN-HUGHES, E. A., PACE, J., and LEWIS, W. C. M. The kinetics of enzyme reactions: Schütz's Law.

SCHREINEMAKERS, F. A. H. Osmosis of liquids. III.

PREISLER, PAUL W. Oxidation-reduction potentials and the possible respiratory significance of the pigment of the nudibranch *Chromodoris zebra*.

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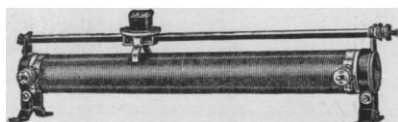
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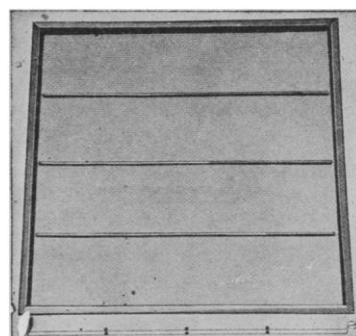
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