

SCIENCE

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FRIDAY, OCTOBER 20, 1899.

REPORT ON PROGRESS IN NON-EUCLIDEAN GEOMETRY.

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It marks an epoch in the history of mathematics that at a meeting of a great Association for the advancement of science there should be presented by invitation a Report on non-Euclidean geometry.

Its two creators, Lobachévski, who misnamed it Imaginary Geometry, and Bolyai János, under the nobler name Science Absolute of Space, failed utterly while they lived, to win any appreciative attention for what is to-day justly honored as one of the profoundest advances of all time. The only recognition, the only praise of the achievement of Lobachévski ever printed in his lifetime was by Bolyai Farkas, the father of his brilliant young rival, and appeared in a little book with no author's name on the title page, and which we have no evidence that Lobachévski ever saw, a little book so rare that my copy is probably the only one on the Western Continent.

When after more than forty years they were rescued from oblivion by Baltzer and Hoüel in 1866, still envious time gave them back only with an aspersion against the genuineness of their originality. A cruel legend tarnished still their fame so long delayed, so splendidly deserved.

Even when their creation had reached the high dignity of being made the subject of courses of lectures for consecutive semesters at the University of Göttingen, yet

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

read by a beginner, and Cremona, as translated by Leudesdorf, seems rather unattractive, and certainly lacks the charm of Reye's lucid style.

It seems to us, therefore, that the translator has rendered a great service to English-speaking students in translating this first part of Reye, and we earnestly hope that sufficient interest in the study of pure geometry will be awakened by having this very attractive book available for beginners, to make him feel that his unselfish labor has not been in vain.

Whether it is worth while to translate the other parts also (Parts II. and III. carry the subject far beyond its elements) is, however, very questionable—because those of our students who are sufficiently advanced to understand the subjects treated are able to read the German about as readily as the English.

The translation itself is also, as a whole, to be heartily commended; the charm of the original has been preserved, many valuable exercises have been added, and the breaking up of the lectures into numbered paragraphs, as well as the rearrangement of the exercises so as to have those that are appropriate thereto follow each lecture, are distinct improvements.

It is, however, to be greatly regretted that the translator has seen fit to change a well-established and everywhere understood terminology. For example, he replaces the terms *pencil* and *sheaf* (which are already, and for many years have been, well-nigh universally employed to represent particular geometric concepts), respectively by the terms *sheaf* and *bundle*. While it may be granted that these new terms are in themselves just as good as, and possibly even a trifle better than, those for which they are substituted, yet nothing of importance is gained by the change, while the danger of confusion and misunderstanding is greatly increased.

J. H. TANNER.

CORNELL UNIVERSITY, October 4, 1899.

BOOKS RECEIVED.

Bacteria. GEORGE NEWMAN. New York, G. P. Putnam's Sons. London, John Murray. 1899. Pp. xiv + 348.

Cambridge Natural History. Vol. V. *Insects.* Part II. DAVID SHARP. London and New York, The Macmillan Company. 1899. Pp. xii + 626.

A Dictionary of Birds. ALFRED NEWTON, assisted by HANS GADOW. New York, The Macmillan Company. London, Adams & Charles Black. 1893-1896. Cheap issue, unabridged. Pp. iii + 1088. \$5.00.

The Insect World. A Reading Book of Entomology. CLARENCE MOORES WEED. New York, D. Appleton and Company. 1899. Pp. xvi + 210.

Indicators and Test-Papers. ALFRED I. COHN. New York, John Wiley & Sons. London, Chapman & Hall, Ltd. 1899. Pp. ix + 249.

A System of Medicine by Many Writers. Vol. VIII. *Diseases of the Nervous System.* Continued. Edited by THOMAS CLIFFORD ALLBUTT. New York and London, The Macmillan Company. 1899. Pp. xii + 937. \$5.00.

SCIENTIFIC JOURNALS AND ARTICLES.

The Journal of Physical Chemistry, October, 'On the Paraanisaldoximes,' by H. R. Carveth: a study of the two modifications; 'On the Relation between Pressure and Evaporation,' by Edwin H. Hall; 'The Electrical Conductivity of Non-Aqueous Solutions,' by Azariah T. Lincoln: an account of the experimental work of the author, chiefly with chlorides (also silver and lead nitrates, silver and mercuric cyanids, mercuric iodid and copper sulfate), in a well-selected variety (27) of solvents, all organic except PCl_3 and SnCl_4 . Some substances were insoluble, some insoluble but not conductors of electricity, while others conducted electricity well. Two conclusions of the author may be quoted: "The data collected are as yet insufficient to show what the relation between solvent and dissolved substance must be in order to yield solutions that conduct electricity." "The dissociation theory as promulgated for the explanation of the electrical conductivity of aqueous solutions, apparently cannot be applied in its present form to explain the conductivity in non-aqueous solutions." The article is an important contribution to the study of solutions.

J. L. H.

SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES. SECTION OF BIOLOGY.

THE regular meeting of the Section of Biology was held on Monday evening, October 9th, Professor Frederic S. Lee presiding. The