

iel Riordan, pastor of St. Elizabeth's parish, Chicago, and Rev. Father Joseph F. Mooney, vicar-general of the diocese of New York, and from these the Pope will select the rector, who will probably be the first recommendation of the board. The board of directors decided that the term of rector should be limited to six years.

THE will of the late P. B. O'Brien, of New Orleans who died a few days ago, leaves \$150,000 to the Catholic University at Washington to endow three chairs.

DISCUSSION AND CORRESPONDENCE.

HALSTED ON THE STRAIGHT.

HAVING returned from Russia so recently as not yet to be abreast of our current scientific literature, it is to the courtesy of the editor of SCIENCE that I owe my knowledge of the appearance in that journal of an important note by Prof. Fiske, headed 'The Straight Line as a Minimum Length.'

This note is right in maintaining that for the comparison of non-congruent lines, *e. g.*, the straight and circle, an assumption in addition to those of Euclid is essential. The strange thing about it is that in stating what Prof. Halsted 'appears to believe,' Prof. Fiske credits me with ignorance of the very principle which I of all the geometers have set forth most strenuously. To attract particular attention to it, I, in my *Elementary Synthetic Geometry* put it in the following somewhat bizarre form:

"In accordance with our definition of equivalent magnitudes, as such as can be cut into pieces congruent in pairs, no arc can be equivalent to a sect [piece of a straight]."

For the sake of comparison we make the following assumptions:

1. No arc is less than its chord.
2. No minor arc is greater than the sum of two tangents from the same point to its extremities.

By these paradoxal assumptions we attribute length to the curve, and can, *e. g.*, evaluate the circle in terms of its diameter to any desired degree of approximation."

GEORGE BRUCE HALSTED.

THE CURVE-TRACING TOP.

EDITOR OF SCIENCE: In your issue of October 9th, Mr. Warring refers to the very interesting and instructive article by Prof. Barus on the curve-tracing top or 'gyrograph,' which article appeared in SCIENCE on September 25, 1896. Mr. Warring suggests as an improvement in the apparatus that, instead of a lead pencil and paper arrangement, a smoked glass be used, the plate to be afterwards flowed with thin varnish. I would suggest, as a further modification, a very simple process which I have found of great convenience and service in a number of self-registering and tracing devices. Long ago I discarded the use of smoked glass in favor of glass plates coated with a thin layer of printer's ink. The ink can be applied with an ordinary hand-press roller, and can be distributed with almost perfect uniformity. The plate so prepared should receive the tracing while the ink is wet; then by exposure to the air the ink dries and the record is comparatively permanent. Such a plate may be used as an ordinary photographic negative in making blue prints or silver paper copies.

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GEOLOGY IN THE COLLEGES OF THE UNITED STATES.

In the discussion and correspondence of October 2d, Mr. F. W. Simonds, of the University of Texas, discusses Prof. T. C. Hopkins' report on this subject. It seems to me that Prof. Simonds treats altogether too severely those smaller colleges which still give courses in his judgment inadequate. It is scant justice to class all those who do not furnish contributions to geological literature as amateurs. It does not follow that a teacher who is occupied with details of administration to the exclusion of authorship is not quite as good a teacher as another who may contribute many papers.

The contention that geology is a subject of as great disciplinary value as the other sciences no one will dispute.

The situation in the smaller colleges is something like this: Many of them are unable to develop all lines of scientific work in a disci-