

off the end of the bent arm, and the water rushes into the tube to an amount depending upon the completeness of the vacuum and the pressure of the water where the sample is taken. Usually the tube is found to be almost, but not entirely full.

After being drawn to the surface the vacuum tube containing the collected sample is removed from the frame and its end plugged with cotton or sealed with a bit of wax. Even if the end is left open there will probably be little danger of contamination on account of the shape of the tube and the small diameter of the bent arm.

The vacuum tubes may be conveniently transported in an ordinary 'cabin topped' leather bag, which has a tin box inside divided into two compartments, the lower one for ice and the upper one for the tubes which are placed in a suitable rack.

When a tube is to be opened a scratch is made near the bend of the tube with a file or glass cutter and the end knocked off, allowing the admission of a pipette. Both the glass cutter and the outside of the tube should first be sterilized by flaming. It is perhaps needless to say that the sample should be planted immediately after opening the tube.

This apparatus for collecting samples possesses several advantages. It is lowered and operated by a single cord. The whole apparatus may be easily sterilized by dry heat, or the vacuum tubes may be sterilized separately and inserted one after another in the collecting frame. The vacuum tubes are cheap and easily made; they may be transported without fear of breakage. There is practically no danger of contamination of the sample either in collecting, transporting or opening. The apparatus, if properly adjusted, is absolutely sure to operate at the right time and in the manner desired.

In conclusion, it may be said that the method has been used for some time at the

biological laboratory of the Boston Water Works and its results have been uniformly satisfactory. A somewhat similar apparatus, in which a spring and flexible cord were used to open a small valve in the stopper of a bottle, was recently used by the writer at Lake Champlain to obtain samples at a depth of 370 feet. Even at that depth no trouble whatever was experienced.

GEORGE CHANDLER WHIPPLE.

NEWTON CENTRE, MASS.

THE LOBACHÉVSKI PRIZE.

ON May 1, 1895, the Lobachévski Fund had reached, beyond all expenses, 8,840 roubles, 95 kopeks.

This sum permits the accomplishment of the double aim of the committee: to found an international prize for research in geometry, especially non-Euclidean geometry, and to erect a bust of the celebrated scientist. The prize, 500 roubles, will be adjudged every three years to the best works or memoirs on geometry, especially non-Euclidean geometry.

The prize will be given for works printed in Russian, French, German, English, Italian or Latin, sent to the Physico-mathematical Society of Kazán by the authors, published during the six years which precede the adjudication of the prize. Works to compete must be sent to the Society at the latest one year before the day of award, October 22, old style (November 3).

The first prize will be adjudged October 22 (November 3), 1897.

To award the prize, the Society will form a commission to choose judges among Russian or foreign scientists.

The work of the judges (reporters) will be recompensed by medals of gold, bearing the name of Lobachévski.

As a fixed capital to found this prize, 6,000 roubles were invested.

Of the sum collected, an additional 2,000 roubles goes to share the expense of erect-

ing a bust of Lobachévski in the park bearing his name in front of the University edifice in Kazán, the remainder of the cost to be borne by the Municipal Council.

A special committee, consisting of representatives of the Municipal Council and of the Physico-Mathematical Society, has made a contract with Mlle. Dillon, who engages for 3,000 roubles to furnish a bronze bust of Lobachévski, to be placed on a granite pedestal, the height of the monument to exceed 3 mètres.

It is hoped to unveil the bust between the 15th and the 25th of September, 1896.

This 'fête mathématique' will follow the 'congrès des savants russes naturalistes et mathématiciens' at Kiev from 1st to 12th of September, 1896, and be during the grand Russian Exposition artistic and industrial at Nijny-Novgorod in the summer and autumn of 1896. Foreigners in any way identified with the name of Lobachévski are invited to the fête, and such as accept will be the guests of the city and University of Kazán.

For a second bust of Lobachévski to be placed in the Assembly Hall of the University, 200 roubles have been given from the Lobachévski fund, the remainder of the cost to be borne by the professors of the University.

The remainder of the sum already collected (640 r., 95 k.) will be added to the fixed capital. The augmentation of the capital will permit of a new edition of Lobachévski's works in a few years, the first volume of the Kazán edition having already become rare (out of print).

The Physico-mathematical Society of Kazán has already received a large number of works and memoirs relating to Lobachévski and non-Euclidean geometry, and now having added its own collection of the printed and manuscript works of Lobachévski, the Society has inaugurated a separate library under the name *Bibliotheca Lobachévskiana*.

It is hoped that in time this library will collect all the literature of non-Euclidean geometry and be an indispensable aid to those engaged in its development.

All writers on this fecund subject are begged to send to this library copies of their works.

Alas! That the Mathematico-physical Society of Hungary, a country having an equal claim to all the honors of the non-Euclidean geometry through the genius of Bolyai János, should have been content with placing in 1894 a monumental stone on his long neglected grave in Maros-Vásárhely! GEORGE BRUCE HALSTED.

AUSTIN, TEXAS.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

THE sixteenth annual convention of the American Society of Mechanical Engineers was held December 3d to 6th, inclusive, in New York, at the house of the Society, No. 12 W. 31st St., the old home of the Academy of Music. The program included the presentation of 13 papers, mainly by members of the faculties of various schools of mechanical engineering, although the most notable papers were, perhaps, usually those of well-known practitioners. Many interesting and instructive 'topical discussions' took place also; and these usually brought out the most extended debates.

The papers of Messrs. McElroy and Webber were devoted to the discussion of the extent, availability and probable costs of power derivable from the Caratunk Falls on the Kennebec and the subject 'Water Power; its Generation and Transmission,' and were rich in valuable data and statistics of immediate use to the engineer and hydraulician. Mr. Emery gave a brief account of his work of rearranging the machinery and apparatus of a great oil refinery at Bayonne, by improving which he had saved already 32,000 tons of fuel *per annum*,