

works. The general conclusion of the commissioners is as follows: "We are satisfied that it is practicable to purify the sewage of towns to any degree required, either by land treatment or by artificial filters, and that there is no essential difference between the two processes, for in each case the purification, so far as it is not mechanical, is chiefly effected by means of microorganisms. The two main questions, therefore, to be considered in the case of a town proposing to adopt a system of sewage purifications are: First, what degree of purification is required in the circumstances of that town and of the river or stream into which its liquid refuse is to be discharged? Second, how the degree of purification required can, in the particular case, be most economically obtained? . . . We may state that we know of no case where the admixture of trade refuse with the sewage makes it impracticable to purify the sewage either upon land or by means of artificial processes, although in certain extreme cases special processes of preliminary treatment may be necessary."

UNIVERSITY AND EDUCATIONAL NEWS

By the will of the late Mrs. Jane A. Townsend, Yale University received \$50,000 for the endowment of a professorship of history.

MARYVILLE COLLEGE at Knoxville, Tenn., has received \$5,000 from Mrs. William Thaw, of Pittsburgh.

A FIRE on the fourth floor of McCoy Hall of the Johns Hopkins University, on the night of September 17, destroyed valuable manuscripts and archeological collections and damaged a large collection of books and pamphlets.

THERE were 137 students in attendance at the graduate school of agriculture, held this year at Cornell University, in addition to regular students of the university. In the summer session of the university there were 841 students.

ACCORDING to a press cablegram, the chan-

cellor of St. Petersburg University, Professor Ivan Ivanovic Borgmann and the vice-chancellor, Professor Fedor Alexandrovic Braun, have resigned from the institution. The faculty of the university has sent a collective declaration to M. Schwartz, the minister of education, stating that his recent repressive measures against professors and students endanger peace at the university, and declines to accept the responsibility for disorders that may occur.

IN stating that in 1907 there were in Europe 125 universities, which were visited by 228,732 students, Vice-Consul James L. A. Burrell, of Magdeburg, sends details. Of these the university of Berlin had the largest number of students, viz., 13,884; next came Paris with 12,985, Budapest with 6,551, and Vienna with 6,205. The list by country follows:

Country	No. of Universities	Students
Germany	21	49,000
France	16	32,000
Austria-Hungary	11	30,000
England	15	25,000
Italy	21	24,000
Russia	9	23,000
Spain	9	12,000
Switzerland	7	6,500
Belgium	4	5,000
Sweden	3	5,000
Roumania	2	5,000
Holland	5	4,000

The smaller countries—Greece, Norway, Portugal, Denmark, Bulgaria, and Servia—have each one university.

DR. WILLIAM OSLER, regius professor of medicine at Oxford University, has been elected lord rector of Edinburgh University.

DR. HARRY A. GARFIELD will be installed as president of Williams College on October 7.

MR. ROBERT FORSYTH SCOTT, the author of works on mathematics, has been elected master of St. John's College in place of the late Rev. Dr. Charles Taylor.

THE trustees of the University of North Carolina have made the following appointments: Professor Charles H. Herty to be

dean of the School of Applied Science; Associate Professor J. E. Latta, professor of electrical engineering; Professor A. H. Patterson, formerly of the University of Georgia, professor of physics; Associate Professor W. C. Coker to be professor of botany; Associate Professor Archibald Henderson to be professor of pure mathematics; instructors in mathematics, G. K. G. Henry and J. C. Hines, Jr.; instructor in physics, T. J. McManis. The university has just completed at the cost of \$35,000, a new laboratory for the department of biology.

RECENT appointments at the University of Kansas are as follows: L. D. Havenhill, professor of pharmacy; assistant professors, G. W. Hartwell in mathematics, Burton McCullum in physics, H. C. Allen in chemistry, and A. H. Sluss in mechanical engineering; instructors Paul Wernicke, Mayer Gaba, C. A. Pierce in mathematics; F. U. G. Agrelius in botany; R. L. Moodie in zoology; Cecil Smith in physiology, and C. H. Wittington museum assistant in entomology.

THE following appointments have been made at Lehigh University: Instructors, R. G. Fogg, B.S., in civil engineering; H. E. Hendricks, B.S., in civil engineering; H. A. S. Howarth, Ph.B., in mechanical engineering; F. T. Leilich, E.E., in physics; Edgar T. Wherry B.S., and Chester G. Gilbert, Ph.B., in mineralogy; Assistants: Walter K. Van Haagen, B.S., in chemistry; Edwin E. Reinke, B.A., in biology.

DR. S. N. TAYLOR, of Pittsburg University, has been appointed professor of electrical engineering at the University of Cincinnati.

WASHBURN COLLEGE, Topeka, Kans., has established this year a department of botany and zoology with Dr. C. H. Edmondson, of the University of Iowa, in charge of zoology and Dr. Ira D. Cardiff, University of Utah, in charge of botany.

MR. A. B. FRIZELL has been appointed professor of mathematics at Midland College, Atchison, Kansas.

IN Manchester University, Mr. J. E. Petavel, D.Sc., F.R.S., lecturer in mechanics and

in meteorology and demonstrator in physics, has been appointed professor of engineering; Mr. C. H. Lander, lecturer in engineering; Mr. T. G. B. Osborn, lecturer in economic botany; Mr. F. H. J. A. Lamb, M.D., now demonstrator in physiology, Cardiff University College, senior demonstrator in physiology; Mr. A. E. Woodall, junior demonstrator in physiology; Mr. T. W. Todd, senior demonstrator, and Mr. E. E. Hughes, and Mr. S. H. J. Kilroe, junior demonstrators in anatomy.

DR. HEINRICH BURKHARDT, professor of mathematics at Zurich, has been called to the Technical Institute at Munich.

DISCUSSION AND CORRESPONDENCE

THE TEACHING OF MATHEMATICS TO STUDENTS OF ENGINEERING

TO THE EDITOR OF SCIENCE: The observations of Professor George F. Swain, of The Massachusetts Institute of Technology, in the issue of August 28, on "The Teaching of Mathematics to Students of Engineering," are as valuable and suggestive as they are frank and progressive. They stand out clearly as the practical judgment of one in close touch with the needs of engineering. While these observations touch primarily the field of mathematics, and applied mathematics, and while we are compelled to let each specialty speak for itself; yet the same ideas, of using school training as a tool for practical use, and the necessity of developing the practical imagination, these ideas are quite as essential in other fields of natural science. As a teacher of chemistry, and one specially interested in the newer industrial and trades-school movement, I wish to emphasize the value of Professor Swain's remarks for chemistry in particular, and, presumably, for most of the other sciences in general. The contrast of view between the remarks of Professor Schlichter and Professor Swain is obviously that between the traditional teacher and the progressive engineer. The one looks at science from the standpoint of the teacher of theory; the other, from that of the user of school training. And in this difference, as clearly shown by Pro-