shall have supervision of the work of conservation. The house amended the bill by authorizing the Illinois Academy of Science to suggest candidates for membership on the board.

THE Bellevue Hospital unit, numbering three hundred physicians, nurses and enlisted men, attached to Base Hospital No. 1, at Vichy, near Paris, has received orders to prepare to sail and probably will return at once. Major John H. Wyckoff, secretary of the medical faculty of the New York University and Bellevue Hospital Medical College, who was formerly one of the heads of the American hospital, has received a letter from Lieutenant Colonel Arthur M. Wright, commander of the hospital, in which he said his organization had been relieved and that the hospital had been taken over by an evacuation hospital personnel. The unit is composed of many well-known New York physicians and nurses from Bellevue Hospital and 200 enlisted men who were recruited at the Medical College for overseas duty. It set sail for France on February 18, 1918, and has since handled a large number of the American Army wounded cases. Base Hospital No. 1 was one of the largest near Paris and received mostly American cases. The organization was prepared for 500 patients but at one time cared for as many as 3,200 cases. The unit includes twenty-six physicians, sixty-five nurses and 200 enlisted men.

UNIVERSITY AND EDUCATIONAL NEWS

AT the commemoration day exercises of the Johns Hopkins University on February 22, Dr. William H. Welch, who presided, announced that a sum of approximately $400,000 had been given anonymously for the erection of a building at the Johns Hopkins Hospital to serve as a woman's clinic.

THE present applied science building of the University of Toronto, which has been condemned, will be removed and in its place will be erected a large engineering building. The chemistry and mining buildings will be enlarged and will accommodate the department of electrical engineering and applied mechanics.

THE farmers of New Jersey, through their representatives at the annual state agricultural convention at the State Capitol at Trenton, have requested the Legislature to provide an appropriation for a horticultural building at the State College of Agriculture at New Brunswick.

THE gift to the University of California Museum of valuable textiles left by the E. E. Caswell Estate and presented to the university through Regent Phoebe A. Hearst, was acknowledged by the board of regents at the recent monthly meeting in San Francisco. The textiles have been loaned to the Palace of Fine Arts for exhibition.

IN the reorganization on the basis of departments at Yale University, Professor B. B. Boltwood has been elected chairman of the university department of chemistry.

PROFESSOR GUY WEST WILSON has been appointed associate botanist and plant pathologist in Clemson College, South Carolina.

FROM *Nature* we learn that Dr. R. M. Cavan, of the chemistry department of University College, Nottingham, has been appointed principal of the Technical College, Darlington, and Mr. W. H. Watson, of the chemistry department of the Northern Polytechnic Institute, has been appointed vice-principal and head of the chemistry and natural science department of the Municipal College, Portsmouth.

DISCUSSION AND CORRESPONDENCE

ELECTRO-THERMO-REGULATOR FOR WATER BATHS

I HAVE read with interest an article entitled "Electro-Thermo-Regulator for Water Baths," by Mr. Charles H. Otis, of the Western Reserve University, which appeared in SCIENCE, of October 25, 1918.

Thermostatic control of temperatures for various scientific and technical purposes has become increasingly important in recent years, and we have, therefore, developed an extremely sensitive bi-metallic metal of homogeneous form adapted to such applications.

This metal has already been applied in a number of cases to commercial devices for this purpose, one of which is being manufactured at the present time by the Central Scientific Company.

Any increase of sensitiveness, or any reasonable amount of force on a given temperature change may be obtained by manipulation of the length, width and thickness of the metal. By using very thin sections extreme sensitivity may be obtained, deflections as great as one fourth inch per degree Centigrade being possible. On the other hand, by materially increasing the thickness great force can be created, in one instance approximately one fourth pound per degree Centigrade.

On account of the process of manufacture employed, the danger of permanent set has been practically eliminated, so long as the metal is not overstrained.

G. E. Thermostatic Metal, as it is known to the trade, is produced regularly in thicknesses from .015 to .25 inch; widths up to 6 inches and lengths up to 36 inches. In special cases it may be obtained in thickness as small as .005.

I feel sure that a knowledge of the characteristics and adaptability of this material will enable many experimenters to solve problems of temperature control or indication with much greater ease and accuracy than heretofore.

CHESTER I. HALL

GENERAL ELECTRIC COMPANY,
FORT WAYNE, IND.

COMMON NUMERALS

THE origin of our common number symbols has never been clearly established, but until recently all writers on this subject agreed that these symbols were transmitted to Europe by the Arabs who had obtained them from India. This is the view expressed in the general encyclopedias and in our mathematical histories which consider this question. For example, in the eleventh edition of the *Britannica* under the word "numeral" there appears the following statement:

> What is quite certain is that our present decimal system, in its complete form, with the zero which enables us to do without the ruled columns of the abacus, is of Indian origin. From the Indians it passed to the Arabians, probably along with the astronomical tables brought to Bagdad by an Indian ambassador in 773 A.D.

In view of these facts it is very interesting to note that during recent years available data relating to the origin of our common number symbols have been carefuly reexamined by Carra de Vaux, who published in volume 21 of *Scientia* a brief summary of his results. Among the most surprising of these results are the following: Our common number symbols originated in Europe and from there were transmitted to the Persians. Both India and Arabia received them from Persia, so that the common term *Hindu-Arabic numerals* is decidedly misleading. The common numerals did not come from letters of the alphabet, but were formed directly for the purpose of representing numbers.

It does not appear likely that all of these conclusions reached by Carra de Vaux, who has made an extensive study of the intellectual life among the Mohammedans, will be at once accepted, but they tend to exhibit the weak foundation upon which the history of our common numerals has thus far rested. In fact, the nature of this question is such that it seems likely that general agreement as regards the origin of our numerals can result only from that attitude of mind (known as philosophy) which would rather accept as facts what can not be proved than acknowledge ignorance. Conclusions similar to those of Carra de Vaux were also expressed in a Russian work by N. Bubnow (1908), which was translated into German and published in Berlin in 1914.

G. A. MILLER

PSYCHOLOGICAL RESEARCH FOR AVIATORS

TO THE EDITOR OF SCIENCE: In his article on "Psychological Research for Aviators" in SCIENCE of January 24 Dr. Dunlap inadvertently neglects some of the most important