and duration of life for which they had a right to hope. He showed the effect of hygienic measures upon certain well-known diseases, and with regard to vaccination he said the evidence seemed to show that there could be no doubt as to its value. As to the methods by which every individual was to be vaccinated or revaccinated, that was a subject for the State to determine. That the Acts in existence up to the present time were inadequate to this end was plainly shown by the fact that large and increasing numbers of the population were known to be unvaccinated, despite the compulsory character of the Acts. The most recent Vaccination Act, whatever might be its advantages, was certainly defective in this—that it made no provision for revaccination, the necessity for which was universally admitted by the medical profession, whilst it was very doubtful whether the modification of the compulsory clauses would have the effect, as it was hoped, of extending vaccination. The scope and aim of sanitary science in its preventive aspects should not be limited to the consideration of zymotic and other acute diseases, but should extend to the results of abnormal social conditions arising out of the strain and struggle for existence, involving over-competition in various occupations by which life was supported or wealth and distinction acquired, and under the pressure of which so many lost their health or even succumbed. He quoted from the Registrar-General's returns to show the influence exerted on vital statistics by sanitary science. He dwelt at some length upon the beneficial results of sanitary work in India, and concluded by saying that evidently a great future was before preventive medicine, and they might confidently look to the eminent men of science who were now pursuing with such indefatigable zeal their researches into the mysteries of bacteriology for its fulfillment. But those who admired and appreciated their work the most and looked forward hopefully to its results were anxious that progress should not be retarded by hasty deduction and premature generalization, which might only end in disappointment, however great might be the importance of the study of bacteriology and the various conclusions resulting from it.

UNIVERSITY AND EDUCATIONAL NEWS.

BY the will of the late Dr. Albert S. Hunt the sum of $30,000 was bequeathed to the Wesleyan Library as a permanent endowment fund. The University received also Dr. Hunt's own library of 5,000 volumes. Dr. Hunt was graduated from Wesleyan University in 1851.

MR. W. C. MACDONALD has given a further sum of over $25,000 to the electrical department of McGill University, Montreal.

TRINITY COLLEGE received a donation of $10,000 by the will of the late Nathan Warren, of New York.

AT the annual meeting of the Governors of University College, Liverpool, on October 15th, the Earl of Derby, President of the College, stated that the most pressing needs of the institution were a building for the department of physics and one for the department of human anatomy. The latter would cost about £20,000, and towards this sum the Earl of Derby subscribed at the time £5,000 on condition that the balance be collected. Mr. Ralph Brocklebank subscribed £2,000.

PRESIDENT SCHURMAN has presented his sixth annual report to the Board of Trustees of Cornell University. Reference is made to three important benefactions that we have already recorded; the gift of an infirmary, richly endowed; the establishment of a New York State College of Forestry, supported by the State and administered by the University; and the foundation of the Cornell Medical College, in New York City. The following figures are given concerning the financial affairs of the University:

Value of buildings and grounds	$1,796,372 86
Equipment of departments	1,135,308 12
Invested funds	6,446,818 21
Total property	9,378,499 19
Receipts from tuition	121,205 83
Total income	583,050 73
Total expenses	570,586 36
Salaries	286,185 72

The number of regularly enrolled students was 1,835.

THE registration in the various departments of the University of Michigan, on October 25th, is indicated in the following table. The cor-

responding figures for October 25, 1897, are also given:

	1887	1898
Literary department	1276	1254
Engineering department	269	245
Medical department	425	407
Law department	710	713
Dental department	218	230
Homœopathic department	59	60
Pharmaceutical department	76	73
	3033	2982

THE attendance in Oberlin College shows a falling off of nearly one hundred, the figures to date being 1,040 as compared to 1,135 last year. The increase in tuition may account for part of the loss. Tuition now is placed at $75.00 per year.

DR. JOHN GUITERAS, professor of pathology in the University of Pennsylvania, will resign at the close of the present year to accept the chair of the practice of medicine at the University of Havana. Dr. Guiteras has been greatly interested in the liberation of Cuba and wishes to build up the medical courses in the University of Havana.

C. E. MENDENHALL, PH.D. (Johns Hopkins), has been appointed instructor in physics in Williams College. Dr. J. C. Hardy has been appointed instructor in mathematics in the same institution.

THOS. CLARKE, B. S. (University of N. C., '96), Ph.D. (Bonn, '98), has been appointed assistant in chemistry at the University of North Carolina.

AMONG foreign appointments we note that Dr. Frentzel has been promoted to a professorship in the Agricultural College at Berlin and Professor Wälsch to a professorship of mathematics in the Technical Institute at Brünn. Dr. H. E. Ziegler, of Freiburg, i.B., has been appointed successor of Professor Kückenthals, 'Ritter' professor of phylogeny in the University at Jena; Dr. E. Reinbach, of Berlin, professor in the Chemical Institute at Bonn, and Dr. Fenner, of Aix, professor of geodesy in the Technical Institute at Darmstadt. At Vienna, Dr. Zukal has been made professor of phytopathology in the Agricultural College, and Dr. Ritter Lorenz V. Liburnau has qualified as docent in zoology; in the University Dr. Werner has qualified as docent in zoology, and Dr. Reithoffer in technical electricity.

DISCUSSION AND CORRESPONDENCE.

MEASUREMENTS OF PRECISION.

AN article in the *Physical Review*, September–October, 1898, by S. N. Taylor, should not be overlooked by those who are interested in knowing the degree of precision which may be reached in linear and other measurements.

The paper itself should be consulted, but a few of Mr. Taylor's most remarkable accomplishments may be mentioned here. It comes in his way to measure several diameters of a coil of wire, consisting of fifteen layers, with fifteen turns in each layer, the mean diameter of the coil being about 20 cm., and the wire being *No. 18, copper, double-silk insulated, passing through a bath of hot paraffine during the process of winding.*

It is wound upon a cup-shaped cylinder of plaster of Paris, which was soaked in a mixture of linseed oil and liquid dryer sometime before its use. Mr. Taylor tabulates his measurements of these diameters, each layer, as it is wound on, in figures carried to *thousandths and ten thousandths of a millimeter*, thus implying that his measures are made to one part in two millions.

They are made, he says, by means of a cathetometer, before which the coil is mounted on an axis, that it may be turned into six different positions. Unfortunately, he does not say how far the coil was from the cathetometer, or give the name of the maker of an instrument of a type so extraordinary as to justify these figures on the diameters of a wire coil. Still more unfortunately, he fails to give the results of several independent measurements in each position. which he says were taken.

A thousandth of a millimeter is always worth struggling for, and, as a variation of a single degree in the temperature of his cathetometer bar would probably change its length by 15 or 20 of them, it is to be inferred that highly perfected methods of determining that temperature were used, although the author is also silent on that point. The level on the cathetometer