already pronounced in favor of the project may be mentioned the vestries of Shoreditch and St. Pancras. In the case of Shoreditch the health committee of the vestry point to the laboratory established by the city of New York some five years ago in connection with a scheme for general bacteriological examination of cases of diphtheria, and state that it has been received by the medical profession of that city with almost unanimous approval. The Shoreditch committee mention further that several towns in the provinces and some of the London sanitary authorities appear to have also made arrangements whereby medical practitioners can send pathological material to experts for bacteriological examination. Believing that it would be desirable in order to secure uniformity and economy that such provision should be made, the Shoreditch Vestry has just informed the County Council of its advocacy of such a laboratory. In St. Pancras the vestry has already made some progress in the direction indicated, since from a report just submitted to the health committee by Mr. John F. J. Sykes, medical officer of health, it appears the vestry early last year sanctioned the examination of pathological material in doubtful cases of diphtheria and typhoid fever, examinations being made when necessary. They are considered essential to the proper notification and prevention of the spread of the disease to which they apply. Two questions have to be considered: (1) whether it is more desirable to carry on the work locally or to centralize it; and (2) if centralized, which is the best method or public body for centralization. In this connection the health committee of the St. Pancras Vestry states that systems have been organized by the several sanitary authorities in conjunction either with the British Institute of Preventive Medicine, the Clinical Research Association or the bacteriologists of the large London hospitals. At the same time the small hospital laboratory at each of the large infectious diseases hospitals of the Metropolitan Asylum Board is utilized for the purpose of examinations of this nature. Taking all the points into consideration, the St. Pancras Vestry have come to the conclusion that a central bacteriological laboratory should be established, and express the opinion that such an institution could be provided by the Metropolitan Asylums Board, under the latter's Parliamentary powers, in the new premises now being built on the Victoria embankment. A letter to this effect has this week been addressed to the County Council. As the London County Council does not meet until next month, and as the Vestries and District Boards are only now beginning to resume their proceedings, some little time will elapse before all the replies are in the possession of the Council. As these will not require much consideration it is possible that the Public Health Committee may be in a position to submit to the Council a recommendation on the subject early in November next.

UNIVERSITY AND EDUCATIONAL NEWS.

A VACANCY has occurred in the office of 'Assistant in Physiology' in the Harvard Medical School. The duties are to superintend the practical laboratory work of medical students, and to engage in original research. The salary is $400. Applications with statement of qualifications should be made at once to Dr. H. P. Bowditch, 688 Boylston St., Boston, Mass.

THE University of Cincinnati has been presented with $60,000 by Mr. Briggs S. Cunningham, a resident of Cincinnati and a member of the Board of Directors of the University. This money will be devoted to the erection of a building to be occupied by the departments of biology and of physics. Plans are being matured and it is hoped that the construction of the building, to be known as Cunningham Hall, will be begun within a month.

ACCORDING to the 'Cambridge University Calendar' for the year 1898-99, the total number of members of the University was last year 13,260, of whom 3,019 were undergraduates. This is an increase of 90 undergraduates over the preceding year. The most important changes in the scientific departments of the University have been the election of Mr. A. A. Kanthack to succeed the late Professor Roy in the chair of pathology; the appointment of Mr. George Griffiths as reader in surgery; the conversion of the University's lectureship of geology into a readership, and the establishment of a lectureship in chemical physiology not yet

filled. Among the minor University appointments during the past year were the following: Mr. Shaw, Emmanuel, Assistant Director of the Cavendish Laboratory; Mr. H. W. Pearson, Christ's, Assistant Curator of the Herbarium. To University lectureships—Mathematics, Mr. Love, St. John's; Midwifery, Mr. Stabb, Downing. The following have been appointed demonstrators: Mechanism and Applied Mechanics, Mr. Peace, Emmanuel; Animal Morphology, Mr. J. G. Kerr, Christ's; Botany, Mr. R. H. Biffin, Gonville and Caius; Pathology, Mr. T. Strangeways Pigg; teacher in Anthropology, Mr. Duckworth, Jesus.

THE chair in the medical department of the University of Pennsylvania, vacant by the death of Dr. William Pepper, will not be filled at present, it being recommended by the faculty that, for the present, Dr. James Tyson, professor of clinical medicine, be given full and general direction of the department of medicine, and that four assistants, Dr. John H. Musser, assistant professor of clinical medicine, Dr. Alfred Stengel, Dr. M. Howard Fussell and Dr. Frederick A. Packard, instructors in clinical medicine, be appointed to deliver, under Dr. Tyson's supervision, didactic lectures on medicine.

MISS AGNES M. CLAYPOLE, PH.B., Buchtel College and M. S., Cornell University, has been appointed assistant in microscopy, histology and embryology at Cornell University.

SECRETARY LONG has directed that the course in naval architecture begun at the Naval Academy at Annapolis last year under the now famous Constructor Hobson be transferred to the Massachusetts Institute of Technology. The course will cover a period of three years, including practical instruction in the summer in ship yards and navy-yards. Eight cadets will be detailed to take the course.

MR. FRANK IRVING SHEPHERD, recently acting professor of chemistry and physics in the University of Denver, has been appointed instructor in chemistry in the University of Cincinnati; and Dr. Thomas Evans, formerly instructor in organic chemistry at the Massachusetts Institute of Technology, and more recently chief chemist of the Proctor & Gamble Soap Company and of the American Cotton Oil Company, has been appointed instructor in technical chemistry at the University of Cincinnati.

PROFESSOR HOFER, of the University at Munich, has been appointed professor of geography in the University at Würzburg. Dr. Loewenherz has been qualified as docent in physics in the University at Königsberg.

DISCUSSION AND CORRESPONDENCE.

THE WINDMILL ILLUSION.

IN the issue of SCIENCE for September 16th Dr. F. C. Kenyon calls attention to the optical illusion to be seen when viewing a rotating electric fan, and requests some explanation of the same. The illusion consists in the apparently capacious reversal of the direction of rotation, and in a corresponding change of the plane of rotation.

This phenomenon has long been known to those who have investigated illusions of motion. So far as the writer's knowledge goes, it was first mentioned in literature in 1860, by the German Sinsteden. * Since that time frequent mention has been made of it and several explanations have been propounded. The essentials of the illusion can be seen in the case of windmills, electric fans, rotating bars, or rotating disks bearing heavy radial strips of black. For all of these the name of 'The Windmill Illusion' is currently employed.

The explanation of the illusion is obviously to be sought in the interpretation of equivocal factors entering into the total experience known as the perception of rotation. Sinsteden, and Helmholtz after him, tried to explain the matter along this line. That *eye-movements* do not enter in has been shown by experiments reported by Dr. Nichols at the first meeting of the American Psychological Association. The essence of the explanation lies in the consideration that the perception of rotation often rests upon the perception of distinct positions of the rotating body, and that the succession of these various positions or phases of rotation admits of either of two interpretations as regards the direction of rotation. That we do perceive motion by means of its phases may be readily demonstrated by rotating a disk bearing variously colored sectors in a dark

* Poggendorff's Annalen, CXI., 336.