atmospheres. The resulting liquid is very light and has a high coefficient of expansion. Although this is a convenient method of storing a large quantity of gas in small bulk, it is unsafe, because of the ease and violence with which it explodes. The gas is extremely soluble in acetone ; it has been suggested that this property might be used for its storage, but it has been shown that acetylene does not, even when thus dissolved, lose all its explosive properties.

Numberless devices for generating acetylene have been invented ; its application, however, is more dependent upon the cost than upon the apparatus used in the manufacture. With calcium carbide at 16*l*. per ton, it can compete with coal gas at 2*s*. 6*d*. per thousand cubic feet, when flat flames are used for the latter, and a light of not less than 30 candles is required. This renders the gas peculiarly suited for buildings in which coal gas is not obtainable. It has been used for lighting a station on the Great Southern and Western Railway of Ireland, and at the Salford Docks of the Manchester Ship Canal. In the latter case, special portable generators are used which can be carried to any part of the docks, and which may be placed on the quay side and the gas led away to lamps placed in the holds of vessels. Amongst many other uses suggested are the lighting of lighthouses, lightships, buoys, military signals, &c., as a standard of light, &c. The price prevents its use for gas-engine driving. This reason also prohibits its use as an enricher of coal gas, as with low percentages the increase is not above 1 candle-power for 1 per cent. of acetylene. With " blue " water-gas it is even less applicable, as more than 10 per cent is required before any illumination is obtained. Methane and nitrogen are claimed to carry the gas without affecting its illuminating power.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

MR. R. T. GLAZEBROOK, F.R.S., has accepted the post of Principal of University College, Liverpool.

DR. H. W. M. TIMS has been appointed professor of zoology in Bedford College, in succession to Dr. Benham.

MR. AMOS R. ENO, the New York multi-millionaire, who died a few weeks ago, left 50,000 dollars to Amherst College.

MISS CATHERINE W. BRUCE, of New York, will give to the Yerkes Observatory, Chicago University, a photographic telescope of 10 inches aperture and 60 inches focal length.

THE bequest by Catherine M. Garcelon, of California, to Bowdoin College, Maine, amounting to several hundred thousand dollars, has been confirmed by the Supreme Court of the United States.

THE proposal to establish a chair of Anthropology and Anatomy, and also a chair of Physiology, in the University of St. Andrews, has been sanctioned by the University Court, and a scheme will be prepared.

THE proposal to create a special degree of Doctor of the University of Paris (as distinct from doctor of a particular faculty) has been approved by the Superior Council of Public Instruction, and will shortly be carried into effect.

AMONG the degrees conferred at the annual graduation ceremony of the University of St. Andrews on March 25, was the honorary degree of LL.D., upon Prof. G. B. Howes, F.R.S., and the degree of D.Sc. upon Mr. A. T. Masterman.

THE recent decision of the Government, abolishing building grants from Imperial funds to schools and institutions under the Department of Science and Art, has created dissatisfaction. A joint deputation of the County Councils Association, the Association of Municipal Corporations, and the Association of Technical Institutions waited upon Sir John Gorst at the Privy Council last week to point out the inconvenience caused by the withdrawal of the grants without previous notice ; and Sir John Gorst promised to bring the views of the deputation before the President of the Council.

SCIENTIFIC SERIALS.

THE *Journal of Electricity*, published in San Francisco, contains accounts of several large schemes for the electrical transmission of power in California. In one of these the water furnishing the power required for lighting Blue Lakes City, and several neighbouring townships, is conducted from the Blue Lakes, situated near the summit of the Sierra Nevada Mountains ; while another installation at Bakersfield derives its power from the Kern River canyon. The " Wild West " is certainly making great strides in the practical applications of electricity.

IN the current number of the *Physical Review*, Miss Isabelle Stone writes on the electric resistance of thin films ; Mr. Edward B. Rosa describes a new form of electric curve-tracer ; and Mr. C. H. Wind propounds a new theory of magneto-optic phenomena, the paper being a translation of one published by the Amsterdam Academy of Science.—Prof. C. Barus describes a method of obtaining pores or capillary canals of specified diameter; and Mr. C. P. Matthews discusses the methods of measuring mean horizontal candle-power of glow lamps, considering more especially the plan of rapidly whirling the lamp.

THE latest number of the *Mathematical Gazette*, published under the auspices of the Mathematical Association, contains papers by Mr. E. Budden, on the conic through any five points ; by Prof. Lloyd Tanner, on a class of algebraic functions ; and a notice, by Dr. F. S. Macaulay, of an article by Miss C. A. Scott on Cayley's theory of the absolute. The functions to which Prof. Tanner's paper refers are those which involve only the differences of their arguments, and to which the same *diaphoric* was given by Cayley ; and the object of the note is to suggest that an elementary discussion of these functions would be a valuable addition to the usual school course in algebra.

Symons's Monthly Meteorological Magazine, March.—West of England snowstorm, February 21. The fall commenced, roughly speaking, about 5h. p.m., and lasted until noon on the 22nd. The heaviest storms occurred in Hants, Dorset, Devon and Somerset. The fall reached, or exceeded, 12 inches over the area contained between two lines, the northern one running about E.S.E. from Watchet, through Yeovil to Lymington, and the southern one from Portlock, through Tiverton to Bridport ; say about sixty by twenty miles. The greatest depth, about 24 inches, occurred nearly centrally in this belt, between Milverton and Crewkerne.—Results of meteorological observations at Camden Square for forty years (for February). It is interesting to note the exceptional temperature and rainfall of last February in connection with the mean of 1858-97, at Camden Square (N.W. London) : maximum temperature in 1898, $56^\circ\cdot2$; minimum, $24^\circ\cdot3$. Mean of all highest maxima of previous forty years, $55^\circ\cdot2$; mean of all lowest minima, $24^\circ\cdot1$. Rainfall in 1898, $1\cdot08$ inches ; mean of forty years, 1 61 inches.

THE *Journal de Physique* for March contains papers on the following subjects :—On the magnetic torsion of iron and steel, by M. G. Moreau, in which the following laws are established : (1) at a point of a twisted wire outside the magnetic field the magnetic torsion is proportional to the torsion of the wire, to the square of the intensity of the field if the latter is weak, and independent of the diameter of the wire ; (2) for points situated on different sides of the field the magnetic torsion has equal and opposite values if the ends of the wire are symmetrically placed with regard to the field ; (3) along the length of the wire the torsion increases in proportion to the distance from the nearest end ; it attains a maximum at the edge of the field, and vanishes at points inside the latter. The field in question is supposed to be a uniform field bounded by two parallel planes, beyond which the magnetic force vanishes.—M. Marage contributes a paper on ear-trumpets studied by the use of Koenig's flames.—M. G. Weiss describes an ingenious method, due to Hermann, of expanding any periodic curve in Fourier's series up to the first forty terms. The curve being drawn, forty equidistant ordinates are taken and measured, and corresponding to each ordinate a series of products is obtained from a table prepared by Hermann ; and these are entered in columns on *quadrillé* paper. Finally a series of perforated cards are placed on the table thus formed ; and to read off any coefficient in the expansion it is only necessary to algebraically sum the numbers seen through the openings in the corresponding card.—M. G. Charpy discusses entectic alloys, his paper being illustrated by figures showing their microscopic structure.—M. Gerrit Bakker, writing on perfect gases, gives a simple mathematical proof of the theorem that of the three characteristic laws of such gases, Boyle's, Charles's, and Joule's ; any one is deducible from the other two.