University and Educational Intelligence.

THE emphasis laid by American educationists to-day on the importance of relating institutions, whether university, college, or school, as closely as possible to the actual daily life of the people, may be seen in the rapid increase (to which attention is directed in *Education Bulletin*, 1929, No. 30) in the number of schools adopting the form of organisation known as the 'general shop' for providing in the school curriculum instruction in a number of different manual activities for pupils of twelve to fifteen years of age. The bulletin points out that modern life has become so complex and production so highly specialised that the consumer has, apart from some such school instruction, little opportunity to learn much about trade operations, materials, or manufacturing processes. The 'general shop' training is not for actual skill in the trades represented, but rather for an understanding and appreciation of values in the final product, and incidentally for the acquisition of a certain amount of unspecialised 'handyman's' dexterity.

NATAL University College celebrates this year the twenty-first anniversary of its foundation. In a handsome commemoration number of the College magazine appears an interesting retrospect by Prof. J. W. Bews, chairman of the College Senate and Dean of the Faculty of Science of the University of South Africa, whose connexion with the College has been continuous since 1910, except for a break of two years, 1925–27, when he held the chair of botany in the University of Durham. The progress of the College since the War has been rapid, the number of students (420 in 1930) having been multiplied nearly tenfold. It was established in Maritzburg, the old capital of Natal, but its work was in 1922 extended to Durban in co-operation with the staff of the Natal Technical College. Durban as a commercial city and seaport has developed at such a pace that it has far outgrown Maritzburg in importance, and seems destined to have a great future in which the College will take a prominent part.

THE Department of Agriculture for Scotland has approved the following appointments at the Hannah Dairy Research Institute, Ayr: *Director*, Dr. Norman C. Wright; *Secretary*, Mr. T. W. Gibson; *Research Assistant in Physiology*, Mr. S. Morris. Dr. N. C. Wright was educated at Christ Church, Oxford, and at Gonville and Caius College, Cambridge. He received the degree of Ph.D. at Cambridge for work on the calcium metabolism of dairy cows. In 1924 Dr. Wright joined the staff of the National Institute for Research in Dairying at Reading, and in 1926 he was awarded a Commonwealth Fund Fellowship, working for two years in the United States, first in the Department of Dairy Industry at Cornell University, and later in the Bureau of Dairying of the United States Department of Agriculture. He was the first member of the staff of the Hannah Institute and has been largely responsible for the general development of the work of the Institute. His research work has been largely in the field of applied physiology. With Mr. W. L. Little he demonstrated for the first time the reduction in the lime content of the blood in cases of milk fever, an observation which forms the basis of the new calcium treatment of this disease. He has also published papers on the physiology of milk secretion, the significance of 'bulk' in the rations of dairy cows, and the occurrence of tuberculosis in cattle. Dr. Wright succeeds Prof. E. P. Cathcart, who will retain his active connexion with the Institute in the position of vice-chairman of the Committee.

Historic Natural Events.

Aug. 24, 358. Great Storm in Black Sea.—A violent storm, accompanied by a great inundation of the sea, occurred in the Black Sea; at noon the sky was quite dark. Macedonia and Asia Minor suffered severely. The storm was followed by a great earthquake.

Aug. 24-26, 1905. Rainstorm in Eastern Ireland.—Rain began to fall shortly after 9 P.M. on Aug. 24 in Dublin, and continued steadily for 34 hours, during which period about 4 inches of rain fell generally, the amount increasing to 5·50 inches on high ground at Bray. Floods caused a great deal of damage to roads and bridges, while part of Bray was submerged to a depth of 4 feet, and the electric light generators were put out of action.

Aug. 25, 1839. Red Snow.—Although the occurrence of patches of red colour in old snow had been known for long, one of the earliest detailed determinations of the true nature of the colouring matter was that made by R. J. Shuttleworth in 1839 (*Edinburgh New Philosophical Journal*, 1840, p. 54). He examined microscopically melted red snow from the neighbourhood of the Hospice du Grimsel, and found that the red colour was due to a number of minute organisms, both Flagellata and Algæ. The snow was described as having a rosy hue, like very pale blood; being old, it was granular, and the colouring matter was contained in the intervals between the particles, giving the surface a veined appearance. The colour extended to a depth of several inches or a foot.

Aug. 25, 1890. Thunderstorm in Eastern Alps.—At about 4 P.M. a thunderstorm occurred at Pesaro in north-eastern Italy, travelling very rapidly north-eastwards across the Adriatic and eastern Austria so far as Vienna. The rainfall was not especially heavy, the largest total being only 3·5 in., partly in the form of hail, but the storm was notable for the sharp rise of pressure, at Pesaro more than 5 mb., which accompanied the onset of the storm, and the violent winds. At Pesaro the wind velocity reached 80 miles per hour, and at Pola 62 miles per hour. Much damage was done, trees uprooted and houses unroofed; many ships were wrecked. The violent winds blew from the south-west, parallel with the track of the storm and at about the same speed.

Aug. 25, 1925. Lightning at San Joaquim Valley, California.—On Aug. 25, 1925, a lightning storm broke over the valley. A flash of lightning struck a 750,000-barrel oil reservoir of the Shell Company at Coalinga and caused an immense fire. The heat developed by the fire was sufficient to raise 1000 cubic kilometres of air through 10° C. Owing to this intense heat, whirlwinds were formed over the fire, and D. Brunt found that the energy supplied by the fire was ample to account for the formation of violent tornadoes. This lightning stroke cost the fire insurance companies more than one million dollars.

Aug. 26, 1346. Crécy Storm.—It is related that just before the battle of Crécy a shower broke over the French and English armies, and largely disabled the Genoese crossbowmen with the former by wetting their strings. The English archers, keeping their bows in cases, were not affected, and it has been said that this incident influenced the course of the battle.

Aug. 26-28, 1883. Great Eruption of Krakatoa.—The great eruption of Krakatoa, in the Sunda Strait, attained its maximum phase during these days. In a series of great outbursts, two-thirds of the island disappeared. The sounds of the explosions were heard at Diego Garcia (2375 miles) and Rodriguez (3080 miles). Waves of longer period cracked walls at

Batavia (100 miles), and others, registered by barographs, travelled at least three times round the earth. Sea-waves, causing the loss of 36,500 lives in Java and Sumatra, were registered by tide-gauges in French and English ports. The dust drifting in the upper atmosphere gave rise for months afterwards to sunset glows of great brilliancy.

Aug. 26, 1912. The Norwich Floods.—Heavy rain began to fall in East Anglia in the early morning of Aug. 26 and continued until the morning of Aug. 27. The total period was not much longer than twenty-four hours, but in Norwich and neighbouring parts the fall exceeded 7 in. and reached 8·09 in. at Brundall and 8·25 in. at Sprowston. The fall of 7·31 in. entered to Aug. 26 is the heaviest known in a day in the east of England. The area with more than 5 in. was estimated as 1039 square miles, and in an area of 1939 square miles the volume of rain exceeded 150,000 million gallons. Serious floods occurred in several of the eastern counties, and particularly in Norwich, where the water level in the flooded part of the city reached a higher level than on any previous occasion. Many bridges were destroyed, and road and rail traffic was dislocated over a wide area.

Aug. 28, 1722. Hurricane in Jamaica.—This was the greatest hurricane on record in Jamaica, and devastated the whole island. It began at Port Royal at 8 A.M. and lasted fourteen hours, during which time the rain was incessant and the storm veered all around the compass. In Kingston most of the buildings were thrown down or much shattered, including the church. The fort suffered very much, and some of the guns were washed into the sea. Out of fifty vessels in port only four men-of-war and two traders were saved, and about 400 lives were lost. After the hurricane there was a calm and the air was so poisoned by the smell of decaying bodies that an epidemic broke out.

Aug. 29, 1776. Fog at Long Island.—After the defeat of Washington's army by the British in the battle of Long Island, the Americans were apparently caught in a trap, for their retreat was cut off by a British fleet in East River. That night, however, a dense fog blinded the British look-outs, and the American army was able to escape across the river to New York.

Aug. 29, 1885. Sirocco at Palermo.—An intense sirocco began at Palermo at 1 A.M. with a strong hot wind. At 9 A.M. the temperature had risen to 104° F., and at 1 P.M. the thermometer in the shade stood at 121° F., by far the highest ever recorded in the town. The distribution was, however, very irregular, differing by 20° in different parts. The air was very dry, the relative humidity being only 10 per cent.

Societies and Academies.

EDINBURGH.

Royal Society, July 7.—**A. J. Clark, C. P. Stewart, and R. Gaddie**: The metabolism of the heart. The frog's isolated heart, perfused with Ringer, maintained a regular contraction for 48 hours, and more than 90 per cent of the energy was derived from a non-carbohydrate source. The sugar consumption of the heart could not be increased materially by addition of glucose, serum, and insulin to the perfusion fluid. There was a small but steady excretion of nitrogen from the heart, and the oxidation of the protein equivalent of this nitrogen would have corresponded to about half the oxygen consumption of the heart. The respiratory quotient of hearts perfused with Ringer's fluid lay between 0·80 and 0·85, and did not rise above 0·90 when insulin and sugar were added. The results suggested that the isolated frog's heart used proteins as its chief source of energy.—**E. T. Copson**: The definite integrals of interpolation theory. The cardinal function of interpolation theory, introduced by Prof. Whittaker, has been represented by definite integrals in two distinct ways, the first due to W. L. Ferrar, the second to Ogria and J. M. Whittaker. In this note the relation between these representations is discussed.—**J. Geronimus**: On some persymmetric determinants.

PARIS.

Academy of Sciences, June 30.—**Bigourdan**: The observatory of Méchain, in the rue Vieille-du-Temple. —**A. d'Arsonval**: An X-ray tube of the Coolidge type working at 400,000 volts.—**G. Cerf**: A class of Bäcklund transformations leading to partial differential equations of the second order with double characteristics.—**Mme. N. Samoïlowa-Jachontowa**: The calculations of planetary perturbations by means of a new independent variable.—**Raoul Gautier**: Concerning Tempel's first periodic comet, 1867 II.—**H. Muraour and G. Aunis**: The comparison of calculated explosion pressures with experimental explosion pressures. In a previous paper the authors have shown that there is good agreement between the experimental explosion pressures, corrected for cooling by the walls, and the pressures, starting with the Nernst-Wohl specific heats. This work has now been supplemented, working with a powder giving a very high explosion temperature (3600° C.). Bearing in mind that a large extrapolation was necessary for the specific heats, and that the calculation of the amount of dissociation was somewhat uncertain, the differences between the calculated and observed pressures, $-0·6$ per cent to $+3·4$ per cent, are satisfactory.—**Horia Hulubei**: A photo-electric cell for the ultra-violet. Method of sensitising. Palladium was chosen for the metal, sensitised by active hydrogen. With an accelerating potential of 120-480 volts, the threshold was about 2850 A.—**Henri Marcelet and Henri Debono**: Spectrographic analysis of the various types of fluorescence of olive oil, observed in ultra-violet light.—**Marcel Guillot**: The relation of several reactions carrying down polonium with the existence, in the form of colloidal precipitates removable by the centrifuge, of insoluble derivatives of this radio-element. In all cases, where more than 97 per cent of the polonium can be carried down by a foreign precipitate, it is possible by centrifugation, without the addition of a foreign element, to prove the precipitation of an insoluble compound of the radio-element.—**A. Sanfourche and L. Rondier**: The irreversible reduction of the oxides of nitrogen by sulphurous acid.—**A. Astruc and M. Mousseron**: The microanalysis of the calcium ion. The method is based on the precipitation of the calcium as the double nitrite $CaK_2 . Ni(NO_2)_6$, washing with aqueous acetone (20 per cent) and alcohol-ether, and reduction of the nitrate to ammonia. The method gives good results for amounts of 0·3-1·0 mgm. of calcium.—**P. Brenans and K. Yeu**: Bromo-diiodophenols, symmetrical trihalogen compounds.—**G. Darzens**: Styrallyl-allylacetic acid and its conversion into a tetrahydronaphthalene derivative.—**Wyart**: The study of heulandite by means of the X-rays.—**Pierre Bonnet**: The thrust in the south trans-Caucasian geosyncline.—**Marcel Roubault**: The glacial formations of the Neoubielhe massif (Hautes-Pyrénees). —**P. Russo**: The dipping of the Middle Atlas under the plain of Moulouya (North Morocco).—**H. Derville**: Lunel marble: its varieties.—**C. Dauzère**