

Centenary of the University of Brussels

THE Université Libre de Bruxelles was founded on November 20, 1834, by Theodore Verhaegen (1796-1892) and a group of friends, a few days after the opening on November 4 of the Catholic University at Louvain. It was housed at first in the buildings now occupied by the Musée Moderne, but was removed in 1842 to the site in the rue des Sols which it occupied until recently. After the War, mainly through the generosity of the "Commission for Relief in Belgium" and the Rockefeller Foundation, a new Cité Universitaire was created at Solbosch, adjoining the Bois de la Cambre. These buildings include a very fine hall and library with appropriate buildings for the faculties of arts and law, whilst the faculties of science are housed in a capacious but more utilitarian building behind the main frontage. A large hostel has also been provided for men and women students, with generous accommodation for non-residents.

The centenary celebrations extended over three days, November 18-20. On the evening of November 18, a reception was given by the Collège des bourgmestres et échevins at the Hotel de Ville, where the guests were received by Bourgmestre Max. The principal function took place in the hall of the University in the presence of H.M. the King of the Belgians. This session was presided over by Bourgmestre Max, and addressed by M. Paul Hymans (Foreign Minister), M. Maistriau (the retiring Minister of Public Instruction), and representatives of past and present students. The Rector, M. Bogaert, announced the names of some twenty-five new doctors *honoris causa*, of whom the first was the

King himself. In addition to those associated with the faculties of philosophy and of law, the faculty of medicine had nominated Sir Henry Dale, director of the National Institute for Medical Research in Great Britain, Prof. van den Bergh of the University of Utrecht, and Sir Frederick Gowland Hopkins, president of the Royal Society. The faculty of pure science had nominated Profs. Cayeux, Cotton and Hadamard, members of the Institut de France, Prof. Krismer, emeritus Professor of the École Militaire at Brussels, and Prof. T. M. Lowry of the University of Cambridge. The faculty of applied science had nominated M. Pelseuer, permanent secretary of the Académie Royale de Belgique, Prof. Swarts of the University of Ghent, Prof. Debye of the University of Leipzig (at present visiting professor at Liège on the Francqui Foundation) and Prof. Janet, honorary professor of the University of Paris. At the conclusion of the ceremony, the past and present honorary doctors were received by the King in person.

Public lectures on legal and philosophical subjects were given in the afternoon, and in the evening of November 19 the guests were entertained at dinner by M. Hymans at the Fondation Universitaire. The celebrations were continued on Tuesday, November 20, and concluded with a banquet in the University hall, which was attended by 826 guests.

The celebrations were marked by much enthusiasm and were of an extremely hospitable character. There can be no doubt that in its new quarters the University has every prospect of a brilliant and successful future.

Archæological Excavations in Shetland

MR. A. O. CURLE gave an interesting account to Section H (Anthropology) at the Aberdeen meeting of the British Association on the excavation conducted by him during the past four years in Shetland. A low promontory projecting into the Voe which lies sheltered behind the lofty promontory of Sumburgh Head, the most southerly point of Shetland, bears on its crest the ruin of a late sixteenth century dwelling house, to which Sir Walter Scott in "The Pirate" gave the name of "Jarlshof". Beneath and all around this ruin lie numerous remains of ancient dwellings, ranging from before the Bronze Age reached Shetland in the latest phase of that culture, through the period of the brochs and their secondary buildings, to the coming of the Norsemen in the ninth or tenth century and even later, for relics found in the vicinity of foundations exposed last summer indicated for them a fifteenth or sixteenth century date.

A storm some thirty years ago exposed a range of buildings on the sea front, which were at that date excavated by the proprietor. These consisted of the remains of a broch and a series of later buildings extending probably well into the Christian era. The Office of Works, having accepted guardianship of these remains, resolved to explore the ground in the immediate vicinity, and invited Mr. Curle to direct the operations on its behalf. The work has now been in progress for a short period each year since 1931. A group of prehistoric dwellings five in number,

all lying practically contiguous to one another, have been explored and apparently exhausted. A dwelling, excavated during the past summer, was found to consist of an open court some 20 ft. long and 10 ft. broad, rounded at the inner end, with lateral chambers on the sides. The paving suggested the presence of cattle inside the house, a practice followed in much later days. This was confirmed by the discovery of a whale's vertebra, fixed into a wall to furnish a loop for a tether. This dwelling had been partially broken down and then extended by further constructions in front of the original entrance. From this later building a drain had been carried towards lower ground to the south-east. Evidence of a still later period was the closing of that drain by a stairway leading to another dwelling. This second dwelling was obviously of much later construction than the first. In its turn it had had three periods of occupancy, the earliest of which was seemingly contemporary with the latest occupation of the first house. The third occupation of the second house was remarkable for evidence of the advent of artificers in bronze, who cast swords and axes in clay moulds. These dwellers closed the original entrance, which lay at the foot of the stair above referred to, and opened a new entrance at the opposite end of the house. The bronze workers used clay moulds, and, to release their castings, broke the moulds and threw the fragments over the closed entrance and into disused chambers beyond, where they lay, not on the floor level, but in the

soil which overlay them. While using bronze, the people were also employing artefacts of stone and of slate. They also cultivated grain, using a species of barley. In their mode of life they were pastoral, and seem to have drawn little from the sea except shell-fish. Adjacent to the second dwelling lies a third, which in its turn had been subjected to three different occupations. The first and the second of these occurred during the final phase of the Bronze Age in Shetland, and the last after bronze had given place to iron.

This past season, while it saw, seemingly, the termination of the excavation of the prehistoric site, witnessed the opening of a fresh epoch in the exploration of a settlement of the early Norse invaders. A house has been uncovered measuring nearly

100 ft. in length, 12 ft. in breadth at either end, and 17 ft. 6 in. in the centre, the walls of which in part still stand to a height of 3 ft.—probably not much below the original elevation, as the superstructure would be of wood and turf with a roof of timber, partially supported on posts.

Numerous relics have been found, including combs and pins of bone, pins of bronze and a remarkable collection of pieces of slate bearing lines and devices in graffiti. One of these, a tablet 7 in. × 2 in., shows a Viking galley with high prow and stern, with mast and steering oar, and the crew indicated by strokes rising from the deck.

Evidence of other buildings of the Norse period has been discovered, and further exploration should produce interesting results.

Technical Aspects of Emulsions

A SYMPOSIUM on the technical aspects of emulsions, organised by the British Section of the International Society of Leather Trades' Chemists, was held on December 7 at University College, Gower Street, Prof. F. G. Donnan being in the chair, and the attendance numbering more than two hundred.

Dr. W. Clayton dealt with the subject of emulsions from the point of view of the patent literature, particular mention being made of the modern idea of 'balanced' emulsifying agents with lipophile-hydrophile groups, and several patent specifications claiming the use of a preformed emulsion as an emulsifying agent of unusual virtue. Dr. R. M. Woodman discussed the problem associated with the preparation of emulsions for horticultural spraying. The formation of opposite type emulsions with one pair of liquids and the same emulsifier, the stability to ageing and to subsequent mechanical treatment of the two types in dual systems near the common phase volume ratio, and the danger to plants arising from the use of these dual emulsion systems were some of the main points discussed.

Emulsions and emulsification in the wool textile industry were the subjects of the contribution by Dr. J. B. Speakman and Dr. N. H. Chamberlain, and it was shown that the ease of removal of thin films of oil from textile fabrics is determined by adhesion phenomena as well as by the magnitude of the oil-water interface. Dr. J. W. Corran raised some interesting points in connexion with the manufacture of mayonnaise, a typical food emulsion. Egg yolk, due to the lecithin present, is the most effective edible substance in the preparation of the emulsion, but another substance, cholesterol, antagonises this action. The superiority of fresh egg as compared with preserved yolk is due not only to hydrolytic changes in the lecithin on keeping, but also to the increased relatively unfavourable influence of the cholesterol. The mustard used in manufacture confers an added margin of stability on the product. The influence of the method of mixing, etc. was discussed at some length.

Mr. R. I. Johnson described various types of agitators, colloid mills and homogenisers used in the production of industrial emulsions. The chief factors influencing the design of homogeniser pump systems and the homogenising valve were considered and reference was made to two-stage homogenisation. Mr. R. Dorey detailed some work on the effect of

the mode of preparation on the dispersion of soap-stabilised emulsions, taking as examples emulsions of (a) olive oil with sodium oleate and (b) arachis oil and potassium oleate. The results given in the form of size frequency analyses indicate that the dispersion of this type of soap-stabilised emulsion is improved if the soap is allowed to be formed *in situ* during the emulsification process.

The mechanism of emulsification was dealt with by Prof. H. Freundlich. The stabilising influence of gases on emulsions produced by ultrasonic waves is most likely a secondary effect, thin layers of gas on the surface preventing or retarding the coalescence of the droplets. Ultrasonic waves acting upon an emulsion (or a coarse suspension) in a thick-walled capillary tube cause striations owing to stationary longitudinal waves in the liquid. In the nodes of these striations large drops are formed, presumably owing to an orthokinetic coagulation of the droplets when travelling from the antinodes to the nodes. It is probable that the facts which are instrumental in the formation and destruction of emulsions by ultrasonic waves are of general importance when producing emulsions by any mechanical means.

Dr. L. A. Jordan discussed the stability of emulsions in thin films with special reference to emulsion paints of the oil-in-water type. The emulsifying agent is absorbed upon the oil-water interface, and the conditions of formation of the interfacial layer determine the ageing effects produced on emulsions. One necessary condition is adsorption in one phase and solution in the other of the emulsifying agent forming the interface, while stability is dependent upon the formation of a tightly packed orientated stable monomolecular layer.

L. G. Gabriel detailed the methods of preparing asphaltic bitumen emulsions. He mentioned that it has been established that high viscosity emulsions prepared from some bitumens are due to the presence in the bitumen of finely divided water-soluble substances which serve to produce an osmotic equilibrium between the solutions, which they form inside the dispersed bitumen particles, and the bulk aqueous phase without. This work has led to a means of varying the viscosity of such emulsions without changing the bitumen content. Emulsions in the leather industry was the subject of the contribution by W. R. Atkin and F. C. Thompson. The process of fat-liquoring consists of two stages, first the absorption of oil from the dilute emulsion, and the electrical