no sign of subsequent submergence. Both topography and the distribution of the high-level gravels emphasise the long period which elapsed between middle palæolithic times and the arrival of the Fayum flint-workers.

It would appear that both the geological evidence and the evidence of culture—unless we are to revise entirely our conception of the culture attainable by a palæolithic people—preclude the attribution of a very high antiquity to this civilisation of the Fayum. In so far it has failed to support the early dating of the analogous culture found at Badari, where too it must be remembered that it has been stated that copper beads were found, not, it is true, in the settlement, but in a grave in the adjacent cemetery.

Animal Breeding and Genetics.[1]

THE report under notice contains the record of a series of most interesting researches, not by any means all of which deal with what may be termed genetical problems, for a considerable number consist in studies of abnormal development. Thus the Director, Dr. F. A. E. Crew, has studied the so-called 'bull-dog calf.' These calves are born dead, and their anatomy shows a close resemblance to the so-called achondroplasia in human dwarfs. Dr. Crew maintains that the tendency to produce such offspring is hereditary and 'mendelises' when crossed with the type. He attributes it to the retardation of the coming into action of the pituitary gland; this may be so, but the immediate mechanism is doubtless as it is in human dwarfs, amniotic pressure, *i.e.* a too closely clinging amnion.

Mr. Nichols investigated a cross between Leicester and Cheviot sheep, the result of which had been stated to produce a hybrid of stable character. When the F_2 generation was raised, however, it was found that whereas 64 out of 103 resembled their F_1 parents, 18 approached the Leicester type and 20 had mixed characteristics of both Cheviot and Leicester. This result does not, as Mr. Nichols imagines, prove Mendelian segregation in the proper sense of the word. It is a result always obtained when two natural races are crossed; every conceivable intermediate turns up, but the attempt to express the result in 'factors' leads to interminable confusion. The number examined (100) is far too small to warrant any statistical conclusions.

Mr. Blyth has been engaged in a microscopical survey of the various types of wool raised in the British Islands. Four types are distinguished, namely, mountain long wool, lustre (also long wool), mountain short wool, and short wool (Down breeds). There are two main types of hairs making up the fleeces, namely, (*a*) long coarse hairs with reticular scale markings, and (*b*) short, fine hairs with coronal markings. Type (*a*) is found only in the long wools, type (*b*) in varying proportions in all the breeds. Short coarse fibres called 'Kemp,' frequently shed, are found in all the breeds. This and type (*a*) are regarded as equivalent to the primitive hair of the wild progenitor, whilst type (*b*) represents the original wool.

Mr. Greenwood has been following the fate of grafts of gonads implanted in fowls. This is especially interesting in view of the claim of Zawadovsky to have changed a cock into a hen by two operations, (*a*) cutting out the testes, (*b*) implanting an ovary. Mr. Greenwood finds that the ingrafted ovary frequently assumes a testicular structure by the ingrowth of sex-tubules from its periphery, and that sometimes the removal of the ovary stimulates the development of the vestigial right gonad. This gonad in one case was testicular in structure, in another ovarian, but with ingrowth of sex-cords indicating that it was being transformed into a testis.

Mr. L. Tamura is engaged in investigating the sex dimorphism of the suprarenal gland, which, as a result of previous work, he asserts, is different in the two sexes, the gland of the female showing a wide zona reticularis, whilst this region is vestigial in the male gland. It was found that when the male was castrated the suprarenal underwent enlargement, which was entirely due to the appearance of a wide zona reticularis. A sterile Dingo bitch which was investigated showed an infantile vagina and uterus with degenerating ovaries whilst the teats were normally developed, but not only the suprarenal but also the thyroid and pituitary glands showed obvious and gross signs of degeneration.

In conclusion, we should like to congratulate Dr. Crew on the variety and interest of the researches which are being carried on under his supervision.

E. W. M.

[1] Animal Breeding Research Department, the University, Edinburgh. Report of the Director for the year April 12, 1924, to March 31, 1925 (being the Fifth Annual Report). Pp. 21. (Edinburgh.)

University and Educational Intelligence.

THE Brighton Technical College in its calendar for 1926–27 is able to offer substantial evidence of the efficiency of their instruction in engineering subjects, six of the students having gained directly from the College the B.Sc. (Engineering) degree of the University of London in 1926. The College has a flourishing school of pharmacy, and provides courses of building, architecture, commercial subjects, and domestic science, as well as in arts and pure science subjects.

THE Technical College, Bradford, gives particulars in its prospectus for 1926–27 of diploma courses in textile industries, arranged with special reference to the needs of the worsted industry, chemistry, dyeing, civil, mechanical and electrical engineering, physics, and, exceptionally, biology. In recognition of the importance to students in all branches of technology of a knowledge of the fundamental principles of economics, courses in the department of commerce and banking have been developed in relation to those in the various other departments of the College, and particularly to those in the department of textile industries. Conversely, a special course for merchants has been established to equip those students who are to be engaged in the distributive side of the industry with a sufficient knowledge of dyeing and textile subjects.

FROM the Czech Academy of Sciences and Arts, Prague, we have received an "Almanach" for 1924. It is beautifully printed on 240 pages and is embellished with a large number of remarkably fine portraits accompanying biographical notices. It is printed throughout in the Czech language without any summary or abstracts in more widely known languages, and it was with some difficulty that we ascertained the purport of even the title-page. One of the recommendations made by the Directors of National University offices at their recent reunion at Paris was that the official publications of universities should, if printed in a language the use of which is not widely diffused throughout the world, have appended to them abstracts in one of the languages in more general use. The adoption of this recommendation is no doubt impossible in many cases without a certain sacrifice of *amour propre*, but it is

one the practical utility of which is obvious, and the "Almanach" in question is a case in point.

THE London County Council Education Officer has issued a remarkably attractive programme for 1926–27 of lectures and classes for teachers. Ninety-three different courses are offered, each course comprising, in most cases, six or more lectures. They are designed with the admirable objects of bringing London teachers into touch with the latest developments in educational methods and giving them opportunities of hearing leading authorities on questions of national and civic importance. Under the general heading of science are ten courses and four special single lectures. These four are: on eugenics, by Prof. Karl Pearson; production of voice sounds, by Sir Richard Paget; talking by light, by Prof. Rankine, of the Imperial College of Science; and surveying by aerial photography, by Dr. H. H. Thomas, of Cambridge. Among the most valuable of the courses is one on the relationship between science (physics, chemistry, biology, bacteriology, economics) and domestic work, by members of the staff of the Household and Social Science Department, King's College for Women.

THE Royal Technical College, Glasgow, directs attention in its calendar for 1926–27 to the fact that its new building (completed 1910), comprising over seven acres of floor space, forms the largest structure in Great Britain devoted to education. It might also boast that of all institutions included in the University Grants Committee's returns it had in 1924–25 the largest number, 2645, of part-time students, the next largest being the 1926 of the London School of Economics. Among the specialist courses provided by the college which are recognised by the University of Glasgow for attendance by students preparing for the degree of B.Sc. in applied chemistry may be mentioned: fuels, dyes and their applications, oils and fats, sugar manufacture, technical bacteriology, metallurgical chemistry, coal tar and intermediate products. The college maintains one of the five principal schools of pharmacy in Great Britain. The Glasgow School of Architecture is under the superintendence of a committee representative of the College and the School of Art. Among the numerous courses in technology not forming parts of degree courses are important series, both day and evening, in textile manufacture.

THE functions of municipal universities are discussed in a paper by George F. Zook, President of the Municipal University of Akron, published in the May number of *School Life*. The paper is concerned chiefly with the question whether municipal universities should continue to regard the traditional four-year curricula as their main business or should develop, alongside of these, one-year, two-year and three-year completion courses of a technical or semi-professional character. It is admitted that the experience of the land-grant colleges in establishing and maintaining one- and two-year curricula in agriculture and mechanic arts has not been very encouraging, but conditions in the municipal universities are very different and they would be failing in their duty to the communities which support them if they did not cater for the requirements of the large number of young people who, after completing their high school course, want to spend less than four years in university studies in preparation for such careers as those of pharmacist, librarian, school teaching, nursing, and the hundred and one occupations lumped under the headings of 'business' and 'industry.' In this connexion it is pointed out that the whole field of evening instruction; both general and technical, is awaiting vigorous development.

Contemporary Birthdays.

September 24, 1874. Prof. Alexander Findlay.
September 26, 1854. Major Percy Alexander MacMahon, F.R.S.
September 28, 1873. Prof. Julian Lowell Coolidge.
October 2, 1875. Prof. Arthur William Conway, F.R.S.
October 2, 1876. Mr. Thomas Sheppard.
October 3, 1858. Prof. Percy Faraday Frankland, C.B.E., F.R.S.

Prof. FINDLAY, occupant of the chair of chemistry in the University of Aberdeen since 1919, was educated at that city's grammar school, proceeding afterwards to the University there, and to the University of Leipzig. Early he was a research student in University College, London, whilst from 1902 until 1911 he held a lectureship in chemistry in the University of Birmingham, leaving to take up a professorship in science at University College, Aberystwyth. He has published several books, among them being a stimulating volume entitled "Chemistry in the Service of Man."

Major MACMAHON (Royal Artillery, retired), late Deputy Warden of the Standards, Board of Trade, was born at Malta. He was educated at Cheltenham College, passing thence into the Royal Military Academy, Woolwich, where later (1882–88) he was instructor in mathematics. The Royal Society awarded him a Royal medal in 1900 on the ground of the number and range of his contributions to science in the department of pure mathematics. Further recognition by the Society came with the allotment of the Sylvester medal to Major MacMahon for studies in the partition of numbers. General secretary of the British Association from 1902 until 1914, he is a past president of the London Mathematical Society.

Prof. J. L. COOLIDGE, mathematician, was born at Brookline, Mass., U.S.A. A graduate of Harvard, he also studied at the Universities of Oxford and Bonn. He has been successively instructor in mathematics, assistant professor, and, from 1918, professor in that subject at Harvard. Prof. Coolidge is an Officer of the Legion of Honour. He is the author of "Elements of Non-Euclidean Geometry" (1909), and "Geometry of the Complex Domain" (1924).

Prof. CONWAY, registrar and professor of mathematical physics in University College, Dublin, was born at Wexford. He was educated at Dublin and Corpus Christi College, Oxford.

Mr. THOMAS SHEPPARD, the zealous director of the Hull Museum, was born at South Ferriby, Lincolnshire. He has long rendered sterling service as editor of various Yorkshire society publications relating to natural history, numismatics, geology and archæology. Mr. Sheppard is the author of "Yorkshire's Contribution to Science" (1915).

Prof. PERCY FRANKLAND is a Londoner. He was educated at University College School, the Royal School of Mines, and the University of Würzburg. From 1888 until 1894 he was occupant of the chair of chemistry in University College, Dundee, leaving there to take up a similar post in Mason College, Birmingham, continued also in its University. He was president of the Institute of Chemistry in 1906, and of the Chemical Society in 1911. Prof. Frankland was awarded the Davy medal of the Royal Society in 1919 for distinguished work in chemistry, especially on optical activity, and on fermentation.