

works pumping engines. As a result of numerous tests it might be roughly estimated that every ton of refuse burnt generated about one ton of high pressure steam, and that with the modern high temperature destructor cells the smell and dust nuisances were practically banished.

Liquid fuel was the subject of Mr. A. M. Bell's communication; much information was given as to the various sources of supply and also as to the best types of oil-burning apparatus, and the author quoted some striking figures obtained in recent tests. In a test at Messrs. John Brown and Co.'s works, 16.09 lb. of water were evaporated per pound of Texan oil burnt, the boiler having an efficiency of 84 per cent.; of course a certain proportion, the author says never more than 3 per cent., of the steam is needed for spraying the oil; with a Stirling boiler, which had an evaporation at standard conditions of 10.55 lb. of water per pound of Welsh coal burnt, the evaporation had been increased to 15.42 lb. per pound of Texan oil, when the furnace was suitably modified for oil consumption. It was pointed out in the discussion that still more economical results could be obtained when this oil was used in internal combustion engines.

Dr. H. R. Mill gave the section some interesting data as to the rate of fall of rain at Seahwaite, and pointed out that in these west coast regions of heavy annual fall the maximum rate of fall was nothing like so great as may occur during heavy summer thunderstorms in drier parts of the country, where it may equal at times 3 inches in the hour.

The last paper of the day was one by Mr. R. Pearson on natural gas in Sussex, and it will astonish most persons to learn what a large amount of gas is now obtained in this district. At Heathfield some eighty houses are using it for lighting and heating purposes, and gas engines utilising it develop a horse-power on a consumption of about fifteen cubic feet of the natural gas per hour. With the development of the Kentish coal-fields and the Sussex gas and oil-fields, both by no means improbable in the early future, there is no doubt that the south-eastern corner of England would undergo an industrial revolution; much as one might regret to see its lovely rural and pastoral character disappear, everyone would welcome the advent of manufacturing industry into this somewhat sleepy corner of the kingdom.

The section had, in consequence of its lengthy programme, to sit on the morning of Wednesday, September 16, when a number of very interesting communications were dealt with. Members of the staff of Messrs. Willans and Robinson contributed two papers—Mr. C. H. Wingfield described experiments on the permanent set in cast-iron as bearing on the design of piston-ring springs, and Mr. Izod a piece of apparatus for testing the brittleness of steel. Both papers are the outcome of the constant experimental research going on in the modern up-to-date engineering workshop, and are a sufficient answer to the reproaches of those who, knowing little or nothing of what they write about, are constantly declaring that trade is leaving the country owing to the apathy and stupid conservatism of our manufacturers. Both communications should be carefully studied by those engaged in the study of the strength of materials.

Mr. W. Odell described some experiments he had carried out to determine the power wasted by the windage of fly-wheel and dynamo armatures, and he stated that a 9-foot disc running at 500 revolutions a minute would absorb about 10 H.P. Mr. W. Cramp read a paper on single phase repulsion motors, a matter of great practical importance in electric tramway work; he claimed that the problem had been solved, and that a single phase alternating current motor had been designed quite equal to a direct current motor.

#### ANTHROPOLOGY AT THE BRITISH ASSOCIATION.

THE anthropological section met in the Town Hall, Southport, under the presidency of Prof. Johnson Symington, F.R.S., of Queen's College, Belfast, and, as usual, attracted large audiences. The programme was a full one, and the principal communications were in the department of Egyptian, Mediterranean, and British archæ-

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ology, a fact which is partly attributable to the widespread feeling—very clearly expressed by the President of the Association in the course of one of the discussions—that the human sciences, in the older and more academic sense, fall properly within the scope of the Association's work, and merit scientific recognition.

Most important, perhaps, among these new accessions to the section's programme was the group of papers on work in Roman Britain, an area where a subject, which elsewhere can be treated in the full light of written history, has to be explored almost wholly by the methods of prehistoric archæology; and the appointment, with a small grant, of a committee of the Association "to cooperate with local effort on Roman sites in Britain" cannot fail to strengthen both the subject and the section at large.

The president's address, which dealt with the relations between brain and skull, and with the problems which result, has been already printed in full (October 1, p. 539), and gave a broad and philosophic tone to the opening discussion; but the subsequent papers on points of anthropography dealt almost wholly with detailed work of a somewhat specialist kind. Dr. Wm. Wright's account of the skulls from round barrows in east Yorkshire, now in the Mortimer Museum at Driffield, led to the conclusion that the old dictum enunciated by Thurnam—"round barrow, round skull"—is not even approximately accurate for this area, for the cephalic index ranges from 69 to 92, and almost all the European varieties of cranial shape are represented. A marked resemblance, however, was frequently noted between the skulls from any one barrow.

Mr. W. L. H. Duckworth's investigation of the physical anthropology of Crete and Greece, though still incomplete, has brought together a large mass of new material of many periods for the reconsideration of the ethnology of the Ægean area. The bones from the pre-Mycenæan ossuaries of Palæokastro, in eastern Crete, show a purely Mediterranean type, which is shared by those from Mycenæan interments on the Greek mainland; whereas even in Crete, and universally on the mainland, the modern population betrays by its brachycephaly a large admixture of Albanian, Venetic, or Slav intruders. Eastern Crete, however, is more brachycephalic now than the central districts, and this Mr. Duckworth is inclined to attribute to intrusions from Asia Minor. A further grant made by the Association will, it is hoped, enable Mr. Duckworth to continue this very promising inquiry.

Dr. E. J. Evatt's observations on the pads and papillary ridges on the palm of the hand showed that the foetal disposition of these pads resembles that in the mouse and some other lower animals, which is probably morphologically equivalent. In the adult the pads are to be regarded as vestigial. The papillary ridges are produced by the invasion of the corium by the underlying layer; the interlocking of the two probably serves to connect them more strongly; and the patterns are due to the stresses of prehension acting on ridges which originally lay transversely.

Mr. N. Annandale, in describing a collection of skulls from the Malay Peninsula, noted the great development of the cerebellar part of the occiput, and a widespread abnormality of growth of the third molar.

The committees on a pigmentation survey of the school children of Scotland, and on anthropometric investigations among the native troops of the Egyptian Army, presented interim reports of a formal character. In the latter case the 17,000 measurements already taken cannot apparently be worked up for publication without expert clerical assistance, and it is much to be hoped either that this may be provided without undue delay, or that the committee may see its way to hand over its data to one or other of the biometrical centres which have such assistance at their disposal.

The committee appointed to organise anthropometric research presented a short but very useful report. A single year's work has sufficed to collect and collate the experience of practically all the centres at which anthropometric work is being carried on, as to objects of research, methods, instruments, schedules, and the like, and it is next proposed to inquire under what conditions of maintenance and administration a collection of anthropometric statistics could be established as the nucleus of more systematic investigations. The preface to the report, by Prof. Cleland,

the chairman of the committee, is a valuable summary of the objects and methods of anthropometric work.

The president's brief account of Grattan's craniometric methods illustrates well the need for some such coordination of inquiry as the above-named committee proposes to supply. Grattan's work in radial craniometry, and his very ingenious craniometer, which is now in Prof. Symington's keeping, remained unpublished and unknown until long after similar methods had been rediscovered independently by other workers.

In general ethnography the papers were also few and of various quality. Dr. W. H. R. Rivers's researches on the psychology and sociology of the Todas formed the subject of a committee report, which was supplemented by two papers on special points by the investigator. By the same genealogical method as he employed in Torres Straits, Dr. Rivers has succeeded in unravelling the complicated scheme of kinship and marriage restrictions. This system is of the kind known as "classificatory," every male of an individual's clan being either his grandfather, father, brother, son, or grandson, and so forth. Marriage is regulated by kinship, being prohibited between the children of brothers and between the children of sisters, but being customary between children of brother and sister, and when a girl becomes the wife of a boy she is understood to become also the wife of his brothers. Infanticide certainly was practised formerly, but it is strenuously denied now.

In a separate paper Dr. Rivers described the elaborate ritual of the Toda dairy, in which the dairyman is the priest, and the whole industry endued with a religious character.

The account of the ancient monuments of northern Honduras, &c., presented by Dr. T. W. Gann, described a large number of temples, pyramids, fortifications, underground buildings, monoliths, and ancient enclosures for various purposes, and also the pottery, implements, and ornaments attributable to their builders; with notes on the burial customs and general civilisation of the ancient inhabitants, and observations on the modern ethnography and of the influence of European civilisation on the aborigines.

Dr. J. E. Duerden communicated a note on a type of wooden image which is widely distributed in cave deposits in the West Indian islands.

Miss Pullen Burry's account of the rapid evolution of the Jamaica black gave a favourable picture of the social condition of the negro population. Obeah-worship is practically extinct, peasant-proprietorship has inspired a taste for agriculture, and life and property are safe even in the remoter districts.

Mr. C. Hill Tout and Mr. David Boyle sent papers on the ethnology of the Siciuti Indians of British Columbia and on the Canadian Indians of to-day, but the committee on an ethnographical survey of Canada, of which they are members, presented no report this year.

An account of the legends of the Dieri and kindred tribes of Australia, by Messrs. A. W. Howitt and Otto Siebert, contained much new and valuable matter, but did not lend itself to presentation in full. It will be published shortly in the *Journal of the Anthropological Institute*.

Other papers, of a more or less ethnographical character, raised questions of general importance, and provoked useful discussion.

Mr. W. Crooke's examination of the progress of Islam in India and its causes laid stress on the successful Mohammedan propaganda, which, together with the higher social status of the caste-free Mohammedan, has resulted in considerable conversion of Hindus to Islam, and also on the circumstance that hereditary vigour, maturer marriage, and more varied and invigorating diet tend to make the Mohammedan individual more fertile and more long-lived than the Hindu.

Prof. R. S. Conway, in discussing the ethnology of early Italy and its linguistic relations with that of Britain, dealt almost wholly with the linguistic evidence of early Italian place- and tribe-names, recurring thus, after a considerable interval, to a department of anthropological inquiry which has been overmuch neglected in this section. He distinguished two main sets of ethnics, one ending in -CO the other in -NO. The occurrence of ethnics in -CINO (i.e. -NO superimposed upon -CO) shows that the -NO stratum is the later, and its geographical distribution leads Prof. Conway to connect it with the irruption of the

northern group of peoples into Peninsular Italy, who had knowledge of iron and buried their dead. To these, contrary to the view of Mommsen and his school, Prof. Conway holds that the *Romani*, or at all events their aristocracy, belonged, and he explains the peculiar geographical distribution of the Italic dialects of Umbria and the Volscian area by the probable effects of this northern invasion, coinciding, as he supposes, in point of time with the Tyrrhenian colonisation of Etruria. He compares the linguistic contrasts which separate the -CO and -NO folk in Italy with those which distinguish Goidels and Brythons in north-western Europe, and suggests that the westward and the southward movements which can be traced are to be referred to the same centre of disturbance.

Mr. D. MacRitchie argued, from the survival of the use of skin-covered canoes in N.W. Europe, to the existence of a racial type of Mongoloid Europeans. It should be noted, however, that one might sit in a skin-covered canoe without having Mongoloid physique.

In contrast with the somewhat meagre output in ethnography, the archæological communications were unusually numerous and attractive.

Mr. Llewellyn Treacher's paper on the occurrence of stone implements in the Thames Valley between Reading and Maidenhead (read also in Section C), and Mrs. Stopes's account of her late husband's collections from implementiferous gravels at Swanscombe, in Kent, summarised much useful work on limited areas. Mrs. Stopes's other paper, on saw-edged palæoliths, submitted a wide induction from copious data; so copious and varied, indeed, that the preliminary question intruded itself whether nature, as well as man, had not some hand in their preparation.

Mr. Annandale was on safer ground in his collection of survivals of primitive implements in the Faroes and Iceland, and exhibited a great variety of types. Their distribution is by no means uniform, those found in the Faroes being generally absent from Iceland, and *vice versa*. Mr. Annandale suggests that this may be due to differences in the history of the original settlers in the two areas.

A paper by Mr. G. Clinch described the megalithic monument of Coldrum, in Kent, which comprise a central cromlech, without capstone, but with a double chamber, and an irregular line of large blocks of stone on the western side, with traces of a tumulus. No excavation has been attempted as yet, and the monument is partly destroyed by a cart-way, but the author compares it with a larger megalithic structure, of Neolithic date, at Sievern, in Hanover, and concludes in favour of a late Neolithic date for Coldrum. He lays stress on points of similarity which he detects between Coldrum and Stonehenge. Discussion and criticism were impaired in this, as in some other cases, by the absence of the author.

Mr. H. Balfour gave an account of a model of the Arbor Low stone circle, which had been prepared by Mr. H. St. G. Gray as the outcome of the recent excavation of this monument by a committee of the Association. It would be well if every such excavation were so conducted as to permit a similar reproduction for convenient reference hereafter.

Prof. W. Ridgeway offered a suggestive theory of the origin of jewellery, namely, that mankind was led to wear such objects by magic rather than by æsthetic considerations.

All peoples value for magical purposes small stones of peculiar form or colour long before they can wear them as ornaments; e.g. Australians and tribes of New Guinea use crystals for rain-making, although they cannot bore them. So, in Greece, the crystal was used to light sacrificial fire, and was so employed in the Church down to the fifteenth century. The Egyptians under the twelfth dynasty used it largely, piercing it along its axis. From this bead came the artificial cylindrical beads made later by the Egyptian, from which modern cylindrical glass beads are descended. The beryl, a natural hexagonal prism, lent itself still more readily to the same form, and the cylinders found without any engraving on the wrists of the dead in early Babylonian graves had a similar origin. The Orphic *Lithica* gives a clear account of the special virtue of each stone, and it is plain that they acted chiefly by sympathetic magic. The Greeks and Asiatics used stones primarily as amulets, and to enhance the natural power of the stone a device was cut on it. The use of the stone for sealing was simply secondary, and may have arisen first for sacred purposes.

Shells are worn as amulets by modern savages, e.g. cowries in Africa; red coral is a potent amulet worn by travellers by sea; pearls are a potent medicine in modern China; seeds of plants are medicine everywhere; and the claws of lions are worn as amulets all through Africa, and are "great medicine," and imitations of them are made.

When gold becomes first known it is regarded exactly like the stones mentioned. Thus the Debæ, an Arab tribe, who did not work gold, but had abundance in their land, used only the nuggets, stringing them for necklaces alternately with perforated stones.

Magnetic iron and hæmatite were especially prized, the power of attraction in magnetic iron, as in the case of amber, causing a belief that there was a living spirit within. Hence iron in general was regarded with peculiar veneration, and not because it was a newer metal, as is commonly stated.

In a paper on the origin of the brooch, and the probable use of certain rings at present called "armlets," Mr. E. Lovett suggested, as the prototype of the ring-and-pin contrivance for fastening a cloak, the use, by a hunting people, of the mammalian *Os innominatum* and *Os calcis*. He noted, further, that very many rings of early date, usually described as "armlets," are too small to allow the entrance of a hand. As such rings are frequently found associated with pins of similar materials, commonly regarded as "hair-pins," and as ring and pin are sometimes found *in situ* on the breast of a skeleton, he infers that they represent a simple ring-and-pin fastening of the kind described above. An apron-fastener of this type, composed of an iron ring and a horse-shoe nail, is still worn in some of the blacksmith's shops in Scotland. The next step of development follows when the pin is perforated at the thick end and attached to the ring by a fibre to prevent it from being lost. This stage is actually represented in China. A further step is taken when the pin itself is hinged upon the ring, for security, by bending its flattened head round the ring, a form which is abundant in Celtic times. The inconvenience which accompanies the ring-and-pin brooch, that the fabric must be drawn so far through the ring, was remedied by leaving a gap in the ring; the "penannular" brooch results.

Miss Bulley exhibited a number of examples of crosses, chiefly Celtic, and traversed familiar ground in inferring from them the existence of a distinct type of symbol in which a circumscribed circle is of equal importance with the cross itself. Coptic and Syrian crosses show the same type as the Celtic, though not so markedly. The subject, if treated at all, needs much more thorough examination.

Mr. John Garstang's account of Egyptian burial customs summarised the results of his discovery of a necropolis of the Middle Empire (about 2200 B.C.) at Beni-Hasan, in Upper Egypt, which contained burying places of minor officials and distinguished women, and illustrated the funeral ritual of the middle classes of the locality. These tombs are not large enough for mural decoration, but they are furnished with numerous wooden models—boats, granaries, and men and women engaged in field-work and household duties—which explain many points connected with the burial of the dead. The objects seem to have borne no relation to the profession of the deceased, but are simply of religious motive—the elaborate provision for a future journey.

Dr. C. S. Myers described the antiquities of Kharga in the Great Oasis, which include a well-preserved temple of Hibis, which is one of the most important monuments of the Persian dynasty in Egypt, and an early Nestorian necropolis, with streets of tombs and funeral chapels of unburnt brick, plastered and frescoed with symbolic ornament and Biblical scenes.

Prof. Flinders Petrie summarised the principal results of his recent excavations at Abydos in two demonstrations entitled "The Beginning of the Egyptian Kingdom" and "The Temples of Abydos." The discovery of the prehistoric age of Egypt, and its division into regular sequences of remains, fills up a period of more than 2000 years before the establishment of the dynastic régime, and reveals a wealthy and elaborate civilisation which was already decadent when it was overthrown by the dynastic conquerors. Five different types of man can be distinguished in pre-dynastic times, one of which Prof. Petrie is inclined to identify as Libyan, and akin to a characteristic

type in early Greece. The connection of the close of the prehistoric scale of sequences with the early kings has been closely settled by the pottery, and its history shown in the stratified ruins of the earliest town of Abydos; four of the ten kings' names have been found of the dynasty which preceded that of Menes, and also the names of all the eight kings of the dynasty of Menes himself. The growth of the use of writing can be traced on the seals, and the æsthetic revolution which accompanied the establishment of the dynastic kingdom is seen to lead directly to the fixed artistic types which dominate Egypt thenceforward. The Royal tombs likewise are traced in sequence of elaboration from the prehistoric pit grave, first to the brick *mustaba*, and then to the stone-built pyramid of the third dynasty.

At Abydos, on the site of the Osiris temple, ten successive shrines of earlier dates have been unearthed through a depth of 20 feet of soil; the latest is that of Amasis, of the twenty-sixth dynasty, and the earliest that of the first. The principal results were of the last-named period, and included a remarkable school of fine ivory carving, and striking examples of two-colour glazing.

The liberal support which the Association has given throughout to British exploration in Crete was more than justified by the reports of the last season's work. Mr. Duckworth's anthropographic inquiry has been noted already; Dr. Arthur Evans gave a full account of his latest discoveries in the Palace of Knossos, and Messrs. Bosanquet and Myres described the excavation of a pre-Mycenæan town and sanctuary at Palaikastro, in eastern Crete, conducted by the British School of Archæology in Athens, and supported, like the work at Knossos, by the Cretan Exploration Fund.

At Knossos the year's campaign, which was expected to conclude the excavation, took a wholly unlooked-for development, in the discovery, first, of a north-west wing of the palace, including a rudimentary theatre formed by converging staircases, not unlike that found already in the Palace of Phæstos; second, of a detached house to the north-east, with much fine pottery, and a remarkable columnar hall with a *tribuna* and apse at one end, which appears to anticipate the features of the later *basilica*; third, of many scattered deposits between and below the floor levels of the palace, which serve to elaborate and explain the detailed chronology of the whole mass of buildings. One of these deposits, found near the east pillar-room, contained a quite unparalleled accumulation of native-made figurines in a kind of Egyptian glaze-ware, the débris of a sanctuary dedicated to a snake-goddess. In the same deposit occurred also a remarkable marble cross, which seems to have been the central aniconic object of the shrine, and examples of a fresh form of linear script. In view of these important results, it becomes necessary to complete the investigation of the ground below the later floors throughout the palace, as well as to continue the search for the Royal tombs, which has hitherto only led to the discovery of a late and much plundered necropolis to the northward.

At Palaikastro the settlement discovered in 1902 proves to be a considerable town of regular plan, dating from the later Minoan period, with extensive Mycenæan rebuildings. The detailed finds indicate widespread commerce from Egypt to Lipari, and considerable prosperity and comfort at home. The preponderance of submarine subjects in the decorative art suggests that the persistent Cretan sponge industry was already of importance, and a visit paid by Mr. Bosanquet to the island of Kouphonisi, off the south-east coast of Crete, proved the existence of an extensive and clearly pre-Phœnician purple fishery, going back into Minoan times. The pre-Mycenæan sanctuary explored by Mr. Myres on the hill overlooking Palaikastro yielded a remarkable series of votive terra-cottas, and much new evidence as to pre-Mycenæan costume.

The papers on Roman Britain, already mentioned, were as follows:—

Mr. T. Ashby, jun., gave a retrospect of excavations at Caerwent, in Monmouthshire (1899-1903), on the site of the Romano-British city of Venta Silurum, which a recently discovered inscription shows to have been the administrative centre of the Silures in Roman times. The external walls are clearly traceable, with three gates partially preserved, and an inner earthwork which seems to have been the original fortification. The buildings within are chiefly private houses, sometimes wholly enclosing a rectangular

courtyard, an arrangement which is unique in England. Some interesting mosaics have been found, and near the north gate the remains of an amphitheatre *within* the city walls.

Mr. John Garstang described the Roman fortress Bremettenuacum (Ribchester), to which an excursion was made in the course of the meeting. Excavations made in 1898-9 have shown that this station was one of a series of fortresses which, with the wall of Hadrian, formed the northern frontier defences of Roman Britain. It is entirely of the earlier character, severely rectangular, with internal buttresses, mural towers, and double-arched gates, and filled within with rows and streets of stone-built barracks and stables.

Mr. Garstang also gave a preliminary account of the Roman fort at Brough, where exploratory excavations have been made quite recently. Like Ribchester, it belongs to the earlier type of fort, and was situated in the favourite position at the junction of two streams. In clearing a deep enclosure within the walls, two inscribed altars were found, and portions of a large inscribed tablet set up by a Praefect of the First Cohort of Aquitani under Julius Verus, Governor of Britain in the time of Antoninus Pius.

The committee on excavations on the Roman site at Gellygaer, near Cardiff, reported that the work was now completed, the results published, and the movable finds installed in the Cardiff Museum.

The committee appointed to report on the excavations at Silchester summarised the last season's work, and strongly urged that, in the small part of the site which remains to be explored, special care should be taken to secure accurate registration of the stratification (if any exists) of the smaller finds, and to investigate the relation in which the rectangular street plan stands to the irregular trapezium of the town wall.

As a result of this and similar recommendations, the Silchester committee of the Association has been reconstituted as a committee "to cooperate with local effort on Roman sites in Britain," and starts work anew with a small grant, to be expended in facilitating special researches of the kind suggested at Silchester, on sites where local or other subscriptions are already providing the funds for a general exploration. The opportunities for work already offered at Silchester on the plant-remains, the frequent occurrence on Roman sites of animal or human bones which need special precautions and expert examination, and the necessity for more detailed and accurate registration of the smaller finds than has been customary hitherto, even in the best conducted excavations, are examples of classes of observation which are only too liable to be neglected by local explorers, and the committee will be doing good service if it can secure for them the attention which they deserve.

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—An examination in mathematics and physics will be held at St. John's College on March 16, 1904, for the purpose of electing a fellow in those subjects. Candidates will be given an opportunity of showing their knowledge of experimental physics. All persons are eligible who shall have passed all the examinations required for the degree of Bachelor of Arts on the day of election (April 20).

CAMBRIDGE.—The general board of studies has issued a report proposing a more comprehensive organisation of geographical studies and examinations in the university. The proposals include the establishment of a board of geographical studies, a geographical education fund, to which the university and the Royal Geographical Society each contribute 200*l.* a year, a special examination in geography for the ordinary B.A. degree, and a diploma in geography for advanced work in the subject. The stipend of the reader in geography is fixed at 200*l.*, and his lectures and those of the other teachers to be employed will be under the direction of the board, on which the council of the Royal Geographical Society will be represented.

A memorial urging the desirability of some similar organisation of anthropological study has been presented by thirty members of the senate, and is at present under the consideration of the council.

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Twenty-two candidates have passed the half-yearly examination in sanitary science, and have thus become entitled to the university diploma in public health.

On October 21, 886 freshmen, including 13 "advanced students," were matriculated. The corresponding number for last year was 868.

Mr. F. F. Blackman, St. John's, has been appointed deputy for the reader in botany, Mr. F. Darwin, F.R.S.

The Ven. E. H. Gifford, D.D., senior classic and fifteenth wrangler in 1843, has been elected an honorary fellow of St. John's College.

The grace for the establishment of the Stokes lectureship and the Cayley lectureship in mathematics, for which a temporary endowment was recently offered to the university by certain anonymous donors, will be offered to the senate to-day (October 29).

MR. R. J. T. BRYANT, Leyton Technical Institute, has been appointed organiser of higher education to the Borough of Lowestoft.

It is stated in the *Petit Journal* that Harvard University has come into possession of a legacy of about 5,000,000*l.*, the whole of the estate of the late Mr. Gordon Mackay.

On the invitation of Yale University, Prof. Sherrington, F.R.S., of Liverpool University, has undertaken to deliver the second series of Silliman memorial lectures next year.

PROF. H. S. HELE-SHAW, F.R.S., has been appointed, through the Colonial Office, to organise technical education in the Transvaal and the Orange River Colony, and to consider the future university scheme of these colonies. The appointment is not a permanent one, and Prof. Hele-Shaw has been granted leave of absence by the council of the University of Liverpool until September next.

THE County of Essex Education Committee announces that an elementary course of instruction in dairy bacteriology will be given in its biological laboratories at Chelmsford. The course will commence on Thursday, November 5, and will be continued on the ten succeeding Thursdays. The course seems to be a comprehensive one, and should be of considerable value. Normal classes for the training of teachers in natural and experimental science have also been instituted by the committee at Chelmsford. These classes are intended for the practical instruction and training of persons resident in Essex who desire to qualify themselves to teach under the County Council. The classes meet on Saturdays from 10 to 5 o'clock during the winter months.

THE inaugural address to the students of the medical department of University College, Sheffield, was delivered by Sir Michael Foster, K.C.B., on October 15. He directed attention to the variety and complexity of the studies considered necessary for medical students; and he remarked that the question whether the burden was becoming too great for the student, and what things in the curriculum could with advantage be thrown on one side, must be considered, for the least important subjects would have to give way in the future.

THE Home Counties Nature-Study Exhibition will be opened in the offices of the Civil Service Commission, Burlington Gardens, W., to-morrow, October 30, at 3 p.m. Lord Avebury will preside. Admission tickets at special rates can be obtained by teachers and pupils by application to the honorary secretary, Mr. W. M. Webb, 20 Hanover Square, W. The programme includes conferences for teachers on practical methods of nature-study in elementary and secondary schools. The latest scientific developments of the Urban-Duncan microscope will be shown on the evenings of Friday and Saturday, and well-known lecturers on natural history subjects, such as Mr. Douglas English, Mr. Richard Kearn, Mr. R. B. Lodge, and Mr. Oliver Pike will give addresses from time to time, and exhibit their slides during the exhibition. Special meetings of the Middlesex Field Club and Nature-Study Society and of the Selborne Society will be held at the exhibition on Monday and Tuesday.

WE have received an admirably illustrated booklet describing the Montefiore Electrotechnical Institute of the University of Liège, and containing a programme of the courses of instruction. In glancing through the illustra-