this part of Florida, writing in the latter part of the eighteenth century, tells us that in his time the Choctaws bound bags of sand to the heads of male children; but skulls of females exhibit the same artificial deformation.

The region investigated by Mr. Moore shows in an interesting manner the influence of other districts. The pottery of north-west Florida is, on the whole, much superior to that of the peninsula, and the author is inclined to believe that the best ware found its way into the latter region through barter, and the comparative rarity of the imported ware may account for the infrequent occurrence of earthenware vessels in the burial mounds of the coast of the peninsula.

In the first part of the report (*Journal* Acad. Nat. Sci., Phila., xi., 1901, p. 439) Mr. Moore noted a mortuary custom prevailing in peninsular Florida, which consisted of knocking a hole in the base of a vessel, presumably to "kill" the pot, that its soul might accompany that of the dead man. The flimsy and "freak" pottery sometimes found in the peninsula, and numerously in the north-west, was made expressly for interment with the dead, and in the base of each vessel a hole had been made previous to the baking of the clay. A new feature in "freak" ware was encountered about St. Andrew's Bay; these vessels

FIG. 1.—Perforated mortuary vessel from St. Andrew's Bay, Florida.

were life-forms, usually, but differed from other life-forms of the same district in that they were inferior to them as to ware and workmanship, and that they had various perforations, made previous to baking, in the body of the vessel as well as the customary one in the base.

Mr. Moore also obtained evidence which suggests that the flesh was removed from the bones of the corpses and burnt; the mass of carbonaceous matter was always found on the eastern side of the mounds. Urn burial was largely in vogue in Alabama and Georgia; it extended into Florida, but practically is not met with further east than St. Andrew's. Inhumation was almost universally practised in Florida; true cremation has not been met with in the peninsula, but it was occasionally practised on the mainland, or north-western portion. These observations confirm the statement of Cabeça de Vaca, who spent some years among the aborigines of the north-west Florida coast; he says that persons there in general were buried, but that doctors were cremated. Mr. Moore is to be warmly congratulated on having brought his labours to so successful a termination, and the Philadelphia Academy of Natural Sciences is fortunate in possessing so liberal a benefactor. It is to be hoped that these instructive collections will be suitably and worthily displayed. A. C. H.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—In accordance with general expectation, Dr. J. N. Langley, F.R.S., has been elected professor of physiology in succession to Sir Michael Foster, K.C.B., F.R.S.

Dr. A. Hill has been reappointed university lecturer in advanced human anatomy. Dr. A. C. Ingle has been appointed university lecturer in midwifery. Mr. J. de Gruchy Gaudin has been appointed a governor of the University College of North Wales, Bangor.

An Allen studentship of the value of 250*l.* for one year, for research in any branch of study connected with medicine, mathematics, physics and chemistry, biology and geology, or moral science, will be vacant next term. Candidates must be graduates of the university and not more than twenty-eight years of age.

Mr. Newall will lecture next week on Hale's recent investigations of the sun's surface, with illustrations obtained from Prof. Hale, of the Yerkes Observatory.

The State Medicine Syndicate reports that during the present year eighty-eight candidates have presented themselves for examination in sanitary science. Forty-one were successful in obtaining the university diploma in public health.

Sir Walter Gilbey has been appointed an additional member of the board of agricultural studies.

A syndicate is to be appointed "to consider what changes, if any, are desirable in the studies, teaching, and examinations of the university, to confer with any persons or bodies, and to submit a report or reports to the Senate before the end of the Easter term, 1904." The members proposed are the Vice-Chancellor, Sir R. C. Jebb, Dr. A. W. Ward, Mr. Austen Leigh, Mr. W. Chawner, Dr. D. MacAlister, Prof. A. R. Forsyth, Dr. J. N. Keynes, Prof. J. J. Thomson, Mr. R. S. Parry, Mr. J. W. Cartmell, Mr. W. Durnford, and Mr. W. Bateson. It is understood that one of the first questions to be considered will be that of "compulsory Greek."

THE War Office has sanctioned the provision of a guard of honour on the occasion of the visit of Lord Kelvin to Cardiff to receive an honorary degree from the University of Wales.

THE Commissioners for the Exhibition of 1851 have offered a nomination for an 1851 science exhibition to the South African College, Cape Town, for 1904, and hope to repeat the offer in 1906 and subsequent alternate years.

DR. C. S. MYERS has been elected to the lectureship on experimental psychology at King's College, London, rendered vacant by the resignation of Dr. W. G. Smith, who has been appointed to a similar post at the University of Liverpool.

THE Prince and Princess of Wales will visit the Battersea Polytechnic on Wednesday, February 24, for the annual distribution of prizes to evening students and the formal opening of a new block of buildings in the women's department.

AT the half-yearly meeting of the governors of the University College of North Wales, held on October 28, the chairman stated that in all probability 5000*l.* would be received from the trustees of the late Dr. Evan Thomas, and that it had been decided to allot that sum to the new building fund.

A NEW Royal college at Posen was opened on November 4 by Herr Studt, the German Minister of Education. Herr Studt, in declaring the building open, referred to the Emperor's deep interest in the education of eastern Germany, to which the new college largely owed its existence. The new foundation was to be a university in the true sense, he continued, for it would serve the needs of all the population, including even that section of the Poles which still held aloof.

THE civic inauguration of the University of Liverpool took place on November 7 in St. George's Hall, Liverpool. The Lord Mayor of Liverpool presented the charter of the university to the Chancellor, remarking that no one had

done more than Lord Derby to further the movement for the establishment of the university. Lord Derby, on accepting the charter, said they could now hope that the new university would become the centre of learning of a great, active, industrious, and well-employed population. Sir Oliver Lodge, who took part in the proceedings, remarked in the course of a speech that something substantial must be done for higher education. Hitherto the country had been content to leave this to private munificence, and private munificence had done well, but unaided it was unequal to the burden. He trusted it was not impolitic for him to say, without regard to party questions, that he regretted that a registration duty which was doing no harm, and was hardly a subject of controversy, should have been flippantly thrown away when no longer needed for the Exchequer, instead of being ear-marked for higher education. That amount would have been sufficient to put the education of the country on a sound, thorough, and, indeed, magnificent basis, and would have enabled them to hold up their heads once more amongst the educated nations of the world. Referring to local support, Sir Oliver Lodge expressed the hope that whatever aid was given by the municipality, they would not abolish fees. It was only just, right, and natural that those who specially utilised the institution should make special contributions to it, but by all means they ought to provide scholarships for unmoneyed ability. His advice was that the scholarships should be provided as little as possible on the basis of competitive examination and as much as possible on the basis of nomination from schools and institutions to which the scholarships were assigned.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, June 18.—"On the Magnetic Expansion of the Less Magnetic Metals." By P. E. **Shaw**, B.A., D.Sc. Communicated by Prof. J. H. Poynting, F.R.S.

Research has been made by various observers, notably Nagaoka and S. Bidwell, on the relation between field (H) and expansion per unit length ($\delta l/l$) resulting from that field of the metals iron, nickel and cobalt. Bismuth also has been tested, but the consensus of opinion is that it shows no expansion under any field so far applied to it. Outside the ferromagnetic group bismuth has the largest susceptibility (k) of any substance, and the tacit assumption seems to have been made that if bismuth shows no expansion, it is vain to look for it in less susceptible metals. But there is no direct relation between k and $\delta l/l$; iron has maximum k six times as much as nickel, and yet expands far less than it for any known field, and so on.

It seems possible, therefore, that there may be appreciable movement for large fields in the case of metals other than the ferromagnetics. This paper gives an account of tests applied to specimens of bismuth, silver, aluminium, copper, zinc, brass, bronze, lead and tin. It is very difficult in working with large fields to avoid movements due to induction and attraction of iron (if any) in the apparatus, or to solenoidal suction or to a straining of the magnetising coil to set itself in the earth's field. These movements are small, but the apparatus is very sensitive, as it measures any movement more than 4×10^{-9} of the length of the specimen (19 cm.). The measuring instrument was the electric micrometer. By great care and repeated change in the arrangement these sources of error were eliminated, and it was found that no movement (more than the amount stated), positive or negative, occurs for any field up to the large one of 1900 C.G.S. No previous tests have been applied to any of these metals except bismuth. Bidwell has tested this metal with a field of 1500 C.G.S., and with a measuring apparatus which would show a movement of $1{\cdot}4\times10^{-8}$ of the length of the specimen, yet no movement was found. No other test has been so searching as the above. This definite negative conclusion involves two corollaries. (*a*) It is generally supposed that the small impurity of iron occurring in commercial pure metals would produce expansion on its own account which would mask any small expansion of the metal, but these experiments show no such expansion, and do not confirm the simple superposition theory. (*b*) The Maxwell strain $B^2/8\pi M$ cannot exist in the material rods tried, or it would have been easily detected, so we have fresh evidence that there is no mechanical connection, unless an extremely weak one, between matter and ether.

A note is appended to the paper in which Mr. G. A. Schott calculates the correction factor which must be applied to the ordinary expression for field $H=4\pi n\gamma$, when the field is taken over the whole length of the coil used.

Royal Society.—"The Maximum Order of an Irreducible Covariant of a System of Binary Forms." By A. **Young.** Communicated by Major P. A. MacMahon, D.Sc., F.R.S. Received September 26.

CAMBRIDGE.

Philosophical Society, October 26.—Dr. Baker, president, in the chair.—On nutrition and sex determination in man, by Mr. R. C. **Punnett.** Making use mainly of the London census of 1901, the author showed that if the various boroughs were divided into three groups of increasing poverty, the proportion of male to female births was least in the poorest and greatest in the wealthiest of these groups—in other words, the better the nutrition the greater the proportion of male births. It was shown, however, that there are certain factors, *e.g.* infant mortality, birth rate, and marriage age, which influence the above three groups unequally. When allowance is made for these factors it is likely that the proportion of the sexes produced in each group would be nearly identical, from which was inferred the improbability of different conditions of nutrition affecting sex determination in man.—Note on the action of radium rays and light on mercurous sulphate, by Mr. S. **Skinner.**—Note on the pulverisation of *nickel grains* in fuming nitric acid, by Dr. W. A. **Hollis.**—On the specific heat of gaseous carbon dioxide at high pressures under constant volume, by Mr. W. A. D. **Rudge.**—On some minerals from the Binnenthal, Switzerland, by Mr. R. H. **Solly.**—(1) The theory of the multiple gamma function; (2) the asymptotic expansion of integral functions of multiple linear sequence, by the Rev. E. W. **Barnes.**—The expression of the double zeta function and double gamma function in terms of elliptic functions, by Mr. G. H. **Hardy.**—On the kinetic theory of matter, by Mr. H. C. **Pocklington.**

PARIS.

Academy of Sciences, November 2.—M. Albert Gaudry in the chair.—On the non-regeneration of the spheridia in the sea-urchin, by M. Yves **Delage.** The experimental results described are in opposition to the hypothesis that the spheridia are the organs of equilibrium, since the removal of them does not permanently affect the powers of locomotion. Immediately after the removal of the spheridia the sea-urchins turn with more difficulty, but after some time it is impossible to distinguish them from others in this respect. This is not due to the regeneration of the spheridia, as there is no sign of them reappearing, three months after the operation.—Remarks on a communication of M. Raphael Dubois of October 19 last, by M. Edm. **Perrier.** Filippi was the first to state in 1852 that pearls were due to the presence of a parasite in the oyster, but his views were strongly contested. The results of the experiments of M. R. Dubois support this theory, and further confirmation is supplied from the laboratory of Rikitea.—Note by M. **Appell** on the second volume of his "Traité de Mécanique rationnelle."—On new effects produced by the *n*-rays; generalisation of the phenomena originally observed, by M. R. **Blondlot.** The *n*-rays are rays given off by various sources of light, capable of passing through an aluminium screen, and recognisable by their action upon a small electric spark or upon a feebly phosphorescent screen. It has now been found that these rays cause a slight but distinct increase in the luminosity of a feebly illuminated paper screen, and this effect is retained by the rays after reflection at a polished metallic surface.—On the virtual sugar of the blood, by MM. R. **Lépine** and **Boulud.** The carbohydrate present in the blood, measured by its reducing power and expressed as glucose, is frequently more abundant in the blood from the right ventricle than in arterial blood, and this contains more than blood from the veins.—The influence of mineral food upon the production of the sexes in dicœceous plants, by M. Émile **Laurent.**—On left-handed