

## RESEARCH ITEMS

## Measurement of the Nasion in the Living

OWING to the importance of determining the nasion in the living and the difficulties of so doing, special directions are given by the various authorities; these have been discussed and compared with his own elaboration of method by K. P. Chattopadhyay (*Amer. J. Phys. Anthropol.*, 25, 2; 1939). Martin recommends light pressure with the lateral edge of the thumb up and down on the skin in the neighbourhood of the root of the nose, while Hrdlička, though also recommending the finger-nail or the point of a pencil, relies in the majority of cases on the experience of observation on skulls and dissecting room material. Lipiec and Oetteking worked on cadavera and skulls, and Ashley-Montague carried out experiments on "freshly-deceased human cadavera" with the purpose of their extension to the living, confirming his results by X-ray studies of ten living adult white males. But as the position of the superior palpebral sulcus, as used by Ashley-Montague as a point of departure of his horizontal tangential intersecting the mid-sagittal plane, has no constant relation to the nasion, a different approach has been tried. Ninety skulls of Bengal Hindus and twelve others in the University and Indian Museum were first studied, taking the distance between nasion and the intersection of the common tangent to the superior margin of the two orbits with the mid-sagittal plane. The mean value (all skulls) was found to be 5.311 mm. This method was adapted to conditions in the living whose nasal suture could be determined by palpation, by using caliper or tape and steel plate, with the tangent to the arched grooves when the eye is wide open as the line of reference. The result of the measurement of distance from nasion to the intersection of the tangent to the superior palpebral sulci with the median sagittal plane, with the eyes open, on one hundred Hindus is 5.39 mm.

## Recent Advances in Insect Embryology

MITHAN LAL ROONWAL has contributed an extremely useful summary of the present state of knowledge of the embryology of insects (*J. Roy. Asiatic Soc. Bengal (Science)*, 55, 17-105; 1938—issued 1939). The process of gastrulation, the origin of the mid-gut epithelium and, specially, the problem as to the extent to which the orthodox germ-layer theory is applicable to insects, are among those aspects of the subject that are still under dispute. Recent embryological evidence points to the conclusion that the head is seven-segmental owing to the presence of two somites—the labral and pre-antennary in front of that bearing the antennæ. Some prominence is given to the author's own idea of multiphased gastrulation and its implications. Whether this conception will ultimately find general acceptance or not is too early to predict. The carbolic acid and water technique evolved by Slifer and King is commented upon as a definite advance on the practical side of embryology, since it has made the difficult and laborious process of sectioning yolky eggs a much simpler matter. The bibliography for nearly seven hundred references accounts for

practically everything that has been written on insect embryology from the earliest papers up to and including many of those published in 1938 and later. There is also a classified list under which are grouped references to works on the embryology of separate orders, on experimental embryology, on bacterial symbiosis, etc. The author's name and the year of publication are given, thus enabling the reference to be traced in the alphabetical list.

## A New Anaspid Fish

ERIK A:SON STENSIÖ deals with an interesting Ostracoderm of the order Anaspidia ("A New Anaspid from the Upper Devonian of Scaumenac Bay in Canada, with remark on the other Anaspids", *Kungl. Svenska Vetenskapsakademiens Handlingar*, Tredje Serien, 18, No. 1; 1939). *Endeiolepis Aneri* n.g., n.sp. although only two specimens are available, both imperfect, throws much new light on the Anaspids in general. The head, adjacent anterior part of the trunk and certain posterior parts of the caudal fin are lacking, but enough is preserved to show very definite structure. A survey is made of the Anaspids in general and the genus *Euphanerops* A. S. Woodward, of which only one specimen exists, is redescribed and shown to be well distinguished from the other genera. An important and striking feature in *Endeiolepis* is the remains of a paired row of long, freely projecting ventro-lateral scales developed from the gill-region and reaching to the anal opening. The anterior part of this row represents the pectoral spine apparatus and the ventro-lateral scales overlap each other and form together a paired, strong ridge, covered by a fold of skin, agreeing fundamentally with the ventro-lateral scales in the Cephalaspids. The author is of the opinion that *Endeiolepis* "had a real paired fin-fold strengthened with ventro-lateral scales, a paired fin-fold which according to its extent must comprise homologues both of a pectoral fin, respectively pectoral spine apparatus, and a ventral fin".

## Algæ from the Iranian Gulf

DURING 1936-37 the Danish botanist, Mag. Køie, accompanied the Danish Fishery Investigation to the Iranian Gulf, and the algal collections have been named and collated by F. Børgesen (Danish Scientific Investigations in Iran. Part 1. 1939). A small collection in the Kew Herbarium from the Persian Gulf has also been examined. Previous to this, only about half a dozen algæ had been described from the Gulf, and the present gatherings also show that the flora is very poor and in strong contrast to the rich algal flora from Dwarka on the other side of the Arabian Sea. Børgesen ascribes this to the shallow depth of only 50 m., the high temperature of the water with a mean of 24° C. and the associated high salinity; the coastal waters are not removed by any ascending currents and also the general muddy or sandy type of bottom is unsuitable for algal growth. About 6 km. south of Bushire a coral reef showed a considerable algal growth with zones ranging from high on the littoral zone, *Cladophora nitellopsis* nov. spec. as the dominant type, through



an *Enteromorpha compressa* zone, a broad belt of Colpomenia and then one with *Enteromorpha clathrata* with *Ulua Lactuca*; in all these zones a number of smaller red algæ were also present. Rocks farther out supplied *Sargassum* spp. and an *Ectocarpus*. On coral reefs on the island of Kharg, corals from 1–2 m. depth had numerous small algæ attached, but many of these were sterile and so poorly developed as to be impossible to determine. A rather richer vegetation was collected from the Bahrein Islands. The algæ of this gulf are probably mainly of interest as indicating the types which are able to survive under such unfavourable conditions.

#### Incompatibility in Antirrhinum

It has been known since Lotsy's work in 1911 that the peloria flower of *Antirrhinum* sometimes segregated in a 1:1 ratio in place of 3 zygomorphic: 1 radial flowers in the selfed  $F_2$  of a cross between these forms. If, however, the  $F_1$  plants were intercrossed, a segregation of 3 zygomorphic: 1 radial could be obtained. Brieger has shown that peloria and the incompatibility factors  $S_1-S_F$  were closely linked and therefore the 1:1 segregation was accounted for. He claimed that a fertility factor in *A. majus* was not allelomorphous with the  $S$  factors. Marta Sharman (*Z. Ind. Abst. Vererb.*, 77, 3–17; 1939), however, shows that the usual allelomorphous series of  $S_1, S_2-S_F$ , where  $S_F$  is a fertility factor, will account for all the data on the inheritance of fertility and radial flowers in species crosses in *Antirrhinum*, and therefore *Antirrhinum* may be brought into line with the general rule of inheritance of self-incompatibility on East's hypothesis.

#### A Beneficial Pathogen

AN interesting positive value of a parasitic fungus is revealed by S. H. Ou (*Sinensia*, 9, Nos. 5–6; September 1938). The plant *Zizania latifolia* is cultivated as an aquatic crop throughout China, the hypertrophied stem-tips serving as food. The fungus *Ustilago esculenta* is invariably present in the field crop. Characteristic swollen shoot tips are not produced, however, when the fungus is killed in the rhizomes by hot water treatment at 54° C. for 15 min. *Zizania* therefore owes its food value to the presence of a smut fungus.

#### Density of Seismograph Stations

A MOST interesting table concerning the above topic has been prepared by H. Landsberg for *Earthquake Notes* (11, No. 3; Jan. 1940). It appears that for the whole earth there are 478 seismograph stations with an approximate average of one per million square kilometres of surface. Europe has 159 stations with 14 per million square kilometres; Asia 196 with 3.7 per million square kilometres; America 110 with 2.7 per million square kilometres; Australia and New Zealand 22 with 2.6 per million square kilometres; and Africa 9 with 0.3 per million square kilometres. For individual countries, Japan has the most with 127, followed by the United States, 59, and Italy, 39. Several small countries only have one. Countries with the greatest number per million square kilometres are Japan, 322.0, Switzerland, 145.3, and Italy, 125.7. England and the Channel Islands (presumably Great Britain, Ireland and the Channel Islands) are reported as having 15 stations with a density of 99.3 per million square kilometres.

#### Raman Spectra of Co-ordination Compounds

AN examination of the Raman spectra of 4- and 6-co-ordinated compounds of platinum (2- and 4-valent) and rhodium (3-valent) salts has been made by J. P. Mathieu (*J. Chim. Phys.*, 36, 308; 1939), supplementing previous studies with tin, zinc, iron, cobalt, nickel, palladium and iridium salts. The Raman spectra of complex compounds of metals with the same co-ordination number and analogous electronic structures show similarities; the force constant  $f$  increases with the atomic number. A comparison of the cyanides or nitrides of elements of neighbouring atomic numbers but different co-ordination numbers (for example, Rh and Pd, and Ir and Pt) shows that  $f$  has very similar values for the two metals of each pair. This establishes a parallelism between  $f$  and the strength of co-ordinate linking as defined by Pauling, which remains constant in all octahedral complexes on one hand and in all square complexes on the other, whatever may be the outer electronic layer of the central atom (3d, 4d or 5d), but increases on passing from the square complex to the octahedral complex. The paper contains a detailed examination of the modes of vibration in molecular models  $[M(XY)_4]$ ,  $[M(XY)_6]$  and  $[M(XY_2)_4]$  in square or octahedral structures.

#### Absorption within the Stellar System

AMONGST the astronomical papers presented before the Columbus meeting of the American Association in December, was one by J. Stebbins, C. Hugger and A. Whitford on the colours of early-type stars near the poles of the galaxy. Evidence already exists for a thin absorbing layer of interstellar material near the galactic plane. The absorption is most conspicuous towards the line of the Milky Way, where it produces the great rift and various dark lanes in which the stars are partially blotted out. This general absorption is accompanied by the reddening of distant stars known to be intrinsically white from the character of their spectrum lines. Conversely, from the colours of these distant white stars, an estimate can be made of the amount of absorbing dust in space along the line of sight. The colours of about two hundred white stars near the galactic poles have been determined at the Washburn and the Mount Wilson Observatories. The results have been used to measure the absorption towards the galactic poles where we look through as little of the layer as possible; in other words, a measure is obtained of the optical thickness of the layer in the vicinity of the sun. From fifty of the stars with well-determined spectra, the measured space reddening corresponds to a total photographic absorption of 10 per cent at 300 light years from the galactic plane. The detection of absorption at greater distances will depend upon the accurate determination of the spectra of fainter stars. The present result agrees with previous measures of stars at greater distances along the galactic plane, where it is found that the absorption at three thousand light years is about one stellar magnitude; that is, the stars are reduced to about two fifths of their real brightness. Beyond three thousand and up to six thousand light years towards the anti-centre of the system, there is little further effect, indicating that the dark material thins out. Toward the centre of the galaxy, however, the absorption and space reddening are greater, and there is no evidence that we can penetrate to the end of the dark material in that direction.