

Research Items

Natives of Mount Hagen, Papua

MR. F. E. WILLIAMS, Government anthropologist, Papua, in *Man* of June, records some results of a short visit by aeroplane to the natives of Mount Hagen, the previously unknown tribes first described by Mr. E. W. P. Chinnery in 1934. Information going beyond externals was obtained from Fr. Ross of the Mission of the Society of the Divine Word, who has now resided among them for two years. He estimates that there are now 25,000 natives speaking various dialects of the Mount Hagen language, divided into some twenty tribes, who are again divided into numerous local groups. One of the most remarkable features of the life of these peoples, as well as of the Papuans recently patrolled by Hides and O'Malley, is that they have no villages, but live in scattered homesteads, to some extent grouped together as settlements, something like primitive garden cities. Descent is patrilineal, and marriage patrilocal. Girls marry young, and there is a ceremonial payment. Many households are polygamous. The natives are of strong build and fleshy with somewhat heavy, decided features and a darkish skin. The men mostly wear fine black beards, and the women roll their eyes. Altogether they are a good-looking people, of a caste that is Papuan rather than Melanesian. The main item of dress of the men is an apron of fine netting, black, greasy and soft, which is suspended from the belt, and reaches below the knees. Behind they wear numerous twigs of *Dracæna* tucked into the belt. The belt is of stiff bark, up to eight inches and more in width. It is usually plain, but sometimes is decorated with incised geometrical patterns. Thongs of stiff cane may be bound round the belt near the upper and lower margins. To some extent, the belt may have served the purpose of armour. The hair is worn short by boys and youths, but nearly all adults cultivate a fairly long growth, which is tightly encased in bark cloth, bound round the forehead and occiput with a band of the same material. This gives the effect of a well-stuffed globular cushion.

Serbian Gypsy Feast-Days

DR. ALEXANDER PETROVIČ continues his studies of Serbian gypsies with an account of the feast days they observe (*J. Gypsy Lore Soc.*, Ser. 3, 16, Pt. 3). While the Serbs belong to three religions, Orthodox, Catholic and Mohammedan, the Gypsies are Orthodox and Mohammedan only. As, however, the only mosque is at Nish, the Gypsies of other localities perform for themselves the rites of baptism, marriage and burial. In Bosnia, the Mohammedan clergy hold that the Gypsies were never true Mohammedans. On the other hand, neither are the Orthodox priests pleased with their Gypsy parishioners; but scarcely more satisfactory in his home was the Serbian peasant of the illiterate class up to the beginning of the present century, for he preserved his ancient pre-Christian customs and beliefs. While the Serbs could not carry out a feast without the services of the Gypsies in some capacity or other, the Gypsies, though thus made familiar with them, on conversion

adopted only some of the beliefs and customs of their Orthodox fellow villagers. They considered the feast of Bibi as their greatest religious holy day. Bibi is a disease—cholera. In order to protect their children from being strangled by Bibi, they founded the cult, and propitiate her by celebrating her feast day. She then protects their children from her wrath. This basic idea of a strangler going from house to house is borrowed from the Serbs, who think that the cause of every illness is some living thing that enters a man. Plague and cholera are women dressed entirely in black, who always carry an infant in their arms. It is evident that the Gypsies are beginning to forget the origin of their belief in Bibi. She is for them a Gypsy woman who has babies and likes Gypsies, protecting their children, while she strangles those of the Serbs. Many Gypsies believe that Bibi has appeared to them in their dreams, and this is to them the strongest proof that Bibi really exists. Until some years ago, Bibi's day was celebrated only by a few colonies between Belgrade and Krusevac. Now it is becoming widespread, though confined to Orthodox Gypsies speaking Romani.

Embryonic Monkeys and Man

No complete account of the intra-uterine development of any species of monkey appears to have been published, and therefore the description of the prenatal development of the grey langur, *Semnopithecus priam thersites*, by Prof. W. C. Osman Hill, is of unusual interest (*Spolia Zeylanica*, 20, Pt. 2, 211; 1937). The embryos differ from human embryos very early in showing, as a rule, a double placenta instead of a single one, in possessing 43 instead of 38 body somites, a more slender body form, a longer tail, which persists and grows after the tenth week, and slightly different feet and hands, in which the thumb is rudimentary at the 24.5 mm. stage. On the other hand, resemblances between the development of the monkey and corresponding human stages are shown in the peculiar twist on the long axis of the 9 mm. embryo, the form of the neural tube and cerebral vesicles, the mode of formation of the face and branchial arches, the slight advance in development of fore limb over hind limb, the presence of an umbilical hernia, the disproportionately large head, and large cranium relative to face, the projection of the upper jaw beyond the lower in about one third term embryos, and the presence of a lobule on the pinna. The last character seems to be confined to the family of monkeys to which the genus belongs and to man, for it is not found in the apes, nor in macaques or their relatives. It has, in fact, usually been regarded as a peculiarly human characteristic.

Effect of Pasteurization on the Nutritive Qualities of Milk

THE annual report for 1936 of the National Institute for Research in Dairying, University of Reading, recently issued, contains summaries of two researches carried out at the Institute upon the effect of pasteurization upon the nutritive qualities of milk. In one experiment, shorthorn bull calves when 4-5 days old were grouped in pairs of similar age and

weight, and one of each pair, chosen by lot, received raw, and the other pasteurized, milk until the completion of the experiment twenty-six weeks later. The milk diet was supplemented from the ninth week onwards with a little hay, and from the seventeenth week with a small allowance of crushed oats and flaked maize. Records were kept of the food consumed, the live weight gains, general appearance of the animals and other relevant matters. Eleven pairs completed the experiment, and no material difference could be detected between the two groups. The average daily live-weight gain per head for the calves receiving raw milk were 1.967 lb., for those receiving pasteurized milk 1.969 lb. Another study was on the effect of commercial pasteurization upon the nutritive value of milk. The raw and pasteurized milks were from the same bulk, the experiments being carried out on rats. No marked loss in the value of milk as food which could be attributed to commercial pasteurization could be detected. One fifth of the vitamin C content of raw milk is lost in the course of commercial pasteurization, but this is partly due to exposure to light. Milk exposed in a bottle in the sun for half an hour loses half its original anti-scorbutic properties.

Fossil Insects from Kansas Rocks

CONTRIBUTION No. 16, on Kansas Permian insects, by the late Dr. R. J. Tillyard, appeared in the December issue of the *American Journal of Science* (32, 435-453; 1936). In addition to describing new fossil mayflies, the author discusses the affinities of his group Protohymenoptera. The eminent Russian worker on fossil insects, A. Martynov, and also F. M. Carpenter, of Harvard University, claim that this group is not a separate order apparently ancestral to the Hymenoptera but a subdivision of the fossil order Megasecoptera. Carpenter claimed that Tillyard had misinterpreted the venation, and concluded that any affinities with the Hymenoptera were extremely remote. Tillyard re-examined the subject in this paper and accepted Carpenter's revision of the venation, but reaffirmed his opinion that the Protohymenoptera are ancestral to the Hymenoptera. The fact that a large and complete ovipositor is present in *Asthenohymen*, it is claimed, strengthens this argument. This character, furthermore, argues against Carpenter's contention that the Protohymenoptera are specialized members of the Megasecoptera since none of the latter possessed an ovipositor. The presence of three-segmented tarsi seems to preclude Tillyard's Protohymenoptera being on the direct line of descent of the Hymenoptera, which have five-segmented tarsi. Tillyard argued that since *Asthenohymen* is the most advanced member of the Protohymenoptera, more archaic forms may have possessed tarsi of five segments.

Scottish Copepods

DR. S. G. GIBBONS, who has already studied certain copepods of Scottish seas in some detail, now reports on collections made by the R.R.S. *Explorer* in February-November 1933 on eight cruises covering a large area and including the southern North Sea, the Hebrides and Faroes and round to the Moray Firth ("*Calanus finmarchicus* and other Copepods in Scottish Waters in 1933"). Fishery Board for Scotland. Scientific Investigations 1936, No. II). Except for two large isolated patches at the surface in May and June, the bulk of the *Calanus* population (later

copepodid and adult stages only being considered) were taken in the mid-water and bottom nets and few were in the surface layer. From February until July they were mostly in mid-water; from August onwards they were in the deepest layer. This indicates a general sinking towards the end of the year. There is conspicuous vertical movement, and the figures show a maximum diurnal migration which takes place at those seasons when the hours of darkness are longest, whilst in July when the light is strong the difference is less marked. As in previous years, *Calanus* proved the dominant plankton organism throughout the year, their greatest abundance occurring in June in the Faroe Shetland Channel region, and the least in the North Sea in November. Among the other copepods mentioned is *Anomalocera pattersoni*, the 'blue feed', well known as important herring food, which occurs in numbers in certain areas in May and June. It is noteworthy that, in the chart showing its abundance together with *Calanus*, it should be usually more abundant than that species when it occurs. Although nothing is said to this effect, it is probably because *Anomalocera* is eating *Calanus*, for it is a voracious copepod feeder.

Feeding Habits in Pleuronectidæ

THE relationship between the structure of the brain and the feeding habits of the Pleuronectidæ has been studied by H. Muir Evans (*Proc. Roy. Soc., B*, May 1937). The same author has previously shown a relationship between the structure of the medulla oblongata and the feeding habits in cyprinoids, clupeids and gadoids. In the present work, the investigation is extended to include the fore-brain, mid-brain and infundibulum. Four groups can be recognized: (1) typified by the sole, a purely bottom, night feeder; (2) typified by the plaice, which is also a bottom feeder but utilizes sight, taste and smell; (3) typified by the turbot, which is predatory and feeds by sight; and (4) typified by the halibut, also predatory and feeding by sight. The fourth group is distinguished from the third by the deep dorso-ventral extension of the olfactory lobes and by a different arrangement of the tubules of the pituitary gland.

A Disease of Hawthorn

A SHORT paper by Messrs. W. J. Dowson and W. A. R. Dillon Weston (*Gard. Chron.*, 426, June 19, 1937) directs the attention of plant pathologists to a brown rot of the hawthorn. The malady, which is fairly widely distributed in East Anglia, is caused by the fungus *Sclerotinia crataegi*. The conidial stage only has yet been found in Great Britain, but the ascigerous condition has been known for many years in Germany and the United States. Similar diseases appear on the medlar and quince, but are caused by different species of *Sclerotinia* from that which attacks the hawthorn. Symptoms are a browning of the young shoots, the dead leaves of which often bear a sweetly-scented powdery grey mould of conidia. The disease may be more widespread than is reported by the present paper, and appears to be sufficiently destructive to mar the beauty of a quick-thorn hedge.

Gold Deposits of the Canadian Shield

A REVIEW of the geological relations of some of the chief gold deposits of the Canadian Shield is presented by E. L. Bruce in a paper read at the New York Meeting of the American Institute of Mining

and Metallurgical Engineers (*Technical Publication* No. 807; 1937). Summaries are given of the Beattie and Sisco mines of Quebec, of the mines of the Porcupine and Kirkland Lake area, and of the Howey and other mines of north-west Ontario. It is shown that there are few places in which a genetic relationship between ore-bearing solutions and neighbouring igneous rocks can be satisfactorily established. In some places where such relationships have been assumed, later investigation has shown that the igneous rocks are very much older. In deposits like those of Porcupine and Kirkland Lake, it seems likely that the solutions that formed the veins were derived from a magma far below the present surface and that the veins are localized by structural factors. The fact that contacts between igneous rocks and the rocks invaded are structurally favourable for the development of zones of fracturing, in some deposits at least, explains the occurrence of gold-bearing veins near intrusive bodies.

Formation of Submarine Canyons

IN recent years, there has been much discussion of the various hypotheses suggested to explain the formation of submarine canyons and gorges. The only hypothesis to which there are no serious objections is that proposed by Daly. During the low sea-levels of the Pleistocene glaciations, mud was stirred up by wave action on the shallowing continental shelves. In this way, a suspension was formed with a higher specific gravity than that of clear seawater. The 'heavy' liquid flowed down the continental slope, as submarine currents which developed ruts in the soft bottom deposits and gradually deepened them into gorges. This theory, though superficially seeming to be improbable, has been greatly strengthened by experiments carried out at Leyden by Ph. H. Kuenen (*Leidsche Geol. Med.*, (2), 8, 327-351; 1937). The results prove that a suspension will flow down a slope without being much diluted by mixing with the adjacent clear water, and that such a flow will concentrate in slight depressions in the surface. Quantitative data and comparison with natural slopes show that the velocity of the actual submarine currents should be somewhat lower than that of large rivers, but increasing as it proceeds and picks up more sediment. At the lower end the suspension gains six times the effective density with which it began and two or three times the velocity, and at this stage the load of sediment being carried is that of the most muddy major rivers. Though the data are rough, they show that no preposterous assumptions are involved in accounting for such submarine canyons as those of the Georges Bank. It is of special interest to note that an 8 mm. film of about 20 metres length, illustrating the experiments, can be obtained at the price of 8 guilders from the Rijksmuseum van Geologie at Leyden.

A New Type of Threaded Connexion for Oil Well Casing

At a meeting of the Institution of Petroleum Technologists on May 4, Mr. W. M. Frame described a new type of threaded connexion for use on oil well casing. Casing having such connexions is known as 'extreme line casing' and is being used successfully in a number of the United States oil fields. The joint consists simply of an upset, threaded pin end and an upset, threaded box end without any coupling. A shoulder is provided on the pin end to avoid any abrupt change of contour, and the outer surface is

turned and the inner bored to give more accurate joint dimensions than are normally obtainable. The advantages claimed for this type of joint over the normal V-threaded type are that it is stronger and has a higher resistance to leakage and accidental drainage, that the external joint diameter is smaller and has a stream-lined contour both inside and out. Experience has shown that a great saving of time in running and pulling can be effected with this 'extreme line casing' as compared with collared casing.

A West Indian Hurricane

AN account was given by Mr. C. S. Durst, at the meeting of the Royal Meteorological Society on May 26, of a case that occurred in September 1936 of a West Indian hurricane which recurved into middle latitudes towards the far side of the Atlantic and crossed over almost to the Irish coast without losing its tropical character of a mass of revolving tropical air. The recurve took place at about lat. 30° N., long. 61° W., and the track of the storm was then an almost straight one to the south-west of Ireland. As the storm approached the polar front, which lay at about lat. 45° N., a new depression developed on that front and became intense, and to this development is attributed a great increase in the speed of travel of the tropical storm. When centred at about lat. 43° N. and long. 39° W., its continued tropical character was well shown by the existence of a northerly wind of nearly gale force of which the temperature was 74° a short distance behind the centre. The author was unable to find any previous case of this kind of a persistent revolving tropical vortex within the warm sector of another depression farther to the north. He attributed the abnormal features in this case to the fact that the encounter between the tropical storm and the polar front took place in mid-ocean, and to the fact that a very shallow disturbance already existed on the polar front at that point. It is more usual for tropical storms to reach the coast of America and to have greatly diminished in intensity by the time that they encounter the polar front, and for their tropical characteristics to be lost in the temperate depression which results.

Passivity of Iron

EXPERIMENTS by W. H. Cone and H. V. Tartar (*J. Amer. Chem. Soc.*, 59, 937; 1937) show that iron is passive in solutions of chromic acid at all concentrations. If the solution also contains sulphuric acid or other activating electrolytes such as phosphoric acid and sodium sulphate, the iron under reduced pressure becomes active, but in pure chromic acid solutions iron does not become activated by reduction of pressure. An atmosphere of hydrogen causes iron to be active in a chromic acid-electrolyte solution. Oxides of iron were found to be soluble in chromic acid solutions, and oxide-covered wires could be made active by a reduction of pressure. This makes it doubtful whether an oxide layer is an essential factor for passivation, as has been asserted, and an adsorbed film of oxygen or a "two dimensional compound" of iron and oxygen as the primary cause of passivity is suggested. Definite oxides may be formed afterwards, particularly in the case of anodic passivation, but such oxides are readily soluble in the acidic solutions used by the authors.