Research Items

Gypsy Dancers in the Pyrenees

MISS VIOLET ALFORD, who has given twelve years to study of the folk-lore and customs of the Pyrenees, has recently described some of the material relating to gypsies which she has collected during that time (*J. Gypsy-Lore Soc.*, Ser. 3, **15**, 2). For the most part, it belongs to the two ends of the range. Although the central Pyrenees does not lack gypsies, the only encounter with them there was in the valley of the Lez, Ariège. In Catalonia, on the Spanish side of the border, two dances hold first place, the first belonging to the Vallés district, the second to the Penedés district, south of Barcelona. The Vallés *Bal de les Gitanes* appears only at carnival time, when teams visit outlying farms, dance on the threshing floor and afterwards collect sausages and wine for a festal supper. Traditionally they steal cabbages from the gardens where they dance. In the dance of the Penedés district one of the dancers carries a maypole fitted with ribbons which the dancers hold in one hand, while carrying a castanet in the other. The fool carries a thong to lash the dancers and the crowd. In the Basque country the gypsies are regarded with abhorrence, and this is brought out in the role assigned to the despised outsiders, including 'Bohemians', in the *Masquerades*. The gypsies are led by a Gypsy Chief and brandish wooden swords and play wild pranks. A gypsy woman once figured also among 'les beaux', the superior troop in the *Masquerades*, probably as a man-woman fertility figure. In Basse-Navarre and Labourd Basque carnival dancers perform under the name *Kaskarotak*, the regional term applied to gypsies. They perform stick dances in carnival time. At the top of the Nive valley the best dancers become *Volants*. At Ispoure, a traditional colony of gypsies who arrived in the train of the Moriscos and Jews exiled from Spain in 1570–1614 are dancers par excellence and have risen to the rank of 'volants'.

Ojibwa Puberty Customs and Beliefs

IN the course of a study of the religious and social life of the Ojibwa Indians of Parry Island, Ottawa, part of which is now a reserve, Mr. Diamond Jenness describes a number of practices and beliefs relating to pubescent girls (National Museum of Canada, Bull. 78, Anthrop. Series 17). The Parry Island Ojibwa, who number about two hundred and fifty, though about one hundred consider themselves Potawatomi, are descendants of bands who migrated to Canada more than a hundred years ago from Michigan. They now form a single band, electing their chief annually, though formerly he held that position for life, and other things being equal, the position was hereditary. The whole life of the people was strongly affected by their relation to Nature and the underlying spiritual world. A large number of taboos had to be observed; and dreams held an important place in the beliefs and behaviour of members of the tribe. The traditional behaviour of a girl at puberty must follow that of the first Indian maiden to attain adolescence, who was warned and taught by 'Grandmother Moon'. Unless a girl listens to 'Grandmother Moon' when she whistles to her in a dream, she may never reach old age. The first period of seclusion lasts ten (formerly twenty) days, though later periods last for four days only. In harvest time the girl must remain in her special wigwam (nowadays a separate room in the house), until the close of harvest. No man or child younger than herself must approach her. Fresh food of all kinds were forbidden and other taboos had to be observed. She was in grave danger. Yet this mysterious power was not always harmful. It might be diverted to cure a middle-aged man suffering from an apparently incurable weakness, if he lay on his face in her room, so that he could not see her, and she walked slowly up and down his spine. Her power penetrated his frame, healed his malady, and enabled him to rise to his feet with all the vigour of a young man. Girls who had visions during their periods of seclusion sometimes attained great influence in the bands, and taking part in warfare, led the tribe to victory.

Indians in Canada

THE Indian population of Canada numbered 112,510 in 1934, according to the Annual Report of the Department of Indian Affairs for the year ending March 31, 1935 (Ottawa, 1935). There was no large epidemic, and it is noted that tuberculosis is not increasing, as is often said, but actually, though slowly, decreasing, except among those Indians who live in the far north and the remoter parts of British Columbia. Education is increasing, with more schools and better attendance. In Quebec and Ontario the Indians are largely engaged in farming; farther west and north, farming and stock raising are less important than hunting, trapping and fishing, but in most provinces the Indians turn their hands to various forms of livelihood, including steel making among the dwellers in the Caughnawaga reserve near Montreal. Timber cutting on the reserves is important. Indian farming operations tend to decrease and the yields per acre are low.

Ascidians of Mutsu Bay

DR. ASAJIRO OKA in his report on these ascidians (Biological Survey of Mutsu Bay, 28. Ascidiæ Simplices. *Sci. Rep. Tôhoku Imp. Univ.*, fourth series (Biology), Sendai, Japan, **10**, No. 3, 1935) describes a large collection obtained by the Survey in 1926 and 1927, consisting of nineteen species belonging to nine genera, nine of the species and one genus being new. With this collection is incorporated another lot collected by Prof. Takatsuki in the same region, containing further species not previously represented. Finally, a specimen of *Cynthia michaelseni* was included which had not previously been recorded. The species are divided into three groups —those characteristic of northern Japan, those whose area of distribution covers entire Japan, and cosmopolitan species. The greater part of the Mutsu Bay forms are limited to northern Japan and to that part of the Japanese coast lying north to Sendai on the Pacific and Akita on the Japan side, the most conspicuous being *Cynthia roretzi* and *Chelyosoma siboja*. The much smaller *Styela plata*, disk-shaped

and attached to the shell of Pecten, is also very characteristic. *Corella japonica*, var. *asamusi*, n.var., grows to a large size and differs very much from the type originally described by Herdman, which is small and covered with mud, the variety having a luxuriant growth of dendritic processes, transparent test and bright red internal body showing through.

Economic Fishery

FOR stocks of fish, no less than for crops of hay, there is an optimum age at which they can be harvested with greatest profit. It has been suggested that the North Sea might be fished more economically with less effort: that the intensity of fishing might be reduced, and yet, when a new equilibrium has been attained, the yield of the fishery thereby considerably increased. The increase in size of the fish would more than compensate for the smaller number caught. Michael Graham, making special use of his investigations on the cod, contributes a new theoretical formulation of this question (*J. Cons. International pour l'Exploration de la Mer*, **10**, No. 3, 264–274). Conclusions are reached which establish the validity of the view stated above. After attention has been directed to certain evidence provided directly by fishery statistics, two independent lines of reasoning are followed up. The first involves direct calculation of the yield from a formula relating the rate of capture with rates of recruitment, growth and natural mortality. It emerges that if fishing could be reduced to raise the average age of the stock one year, the new yield will rise to a level higher than at present for any permissible valuation of the natural mortality rate. The conclusion holds good for cod, haddock and plaice, which together comprise more than 60 per cent of the North Sea trawl catch. Secondly, consideration is taken of the effect of the War-period on landings from the North Sea. Estimates are made from which it is possible to construct a curve representing the hypothetical natural growth-rate of the stock. Taking this curve as a basis, values are obtained of the yearly increase in total weight for different stages in growth of the stock. The effect can then be seen of regulating fishing effort so that the average age rises from the present $2\frac{1}{2}$ years to about $3\frac{1}{2}$. It is concluded that a saving of about 16 per cent in fishing effort will result in a few years in a gain of 13 per cent in the weight of the catch. This contribution to the theory of handling fish stocks and the application to present problems is certainly noteworthy. It is a sign that accumulation of the data of fishery research is beginning to provide us with material of sufficient variety and adequacy to allow of significant theoretical deductions.

Partial Sterilisation and Seedling Growth

THE practice of partial sterilisation by means of steam heat is at present used to a considerable extent for the control of many harmful fungi, and for the eradication of soil insects and weed seeds from potting compost. It has been, for some time, part of the routine of the John Innes Horticultural Institution at Merton, London, but as certain disadvantages were also attached to its use, Messrs. W. J. C. Lawrence and J. Newell have carried out an extensive investigation into the process (*Scientific Horticulture*, **4**, 165–177, 1936, from the Editor, S.E. Agric. Coll., Wye, Kent, 3*s*. 6*d*. net). They have established the facts that no lime in any form must be added to a soil before sterilising; that the ingredients of a compost should be sterilised separately; that fertilisers must be added *after* sterilisation; and that additional phosphate must be given in order to balance the natural deficiency of compost, and also to improve the soil conditions, changed by the sterilisation. The practices of horticulture become more scientific with the advance of time, and the paper under review opens a new field for more detailed research.

New Fungus Diseases of Wheat

A SHORT paper by Miss Mary D. Glynne (*Trans. Brit. Mycol. Soc.*, **20**, Pt. 2, 120–122, January 1936) announces the record of three species of fungi parasitic upon the wheat crop in England. *Cercosporella herpotrichoides*, Fron. has been noted as a cause of foot rot disease in France, the United States, Germany, Holland and Denmark. It appeared at the Rothamsted Experimental Station last year. *Gibellina cerealis*, Pass. has been previously recorded in Italy and Oregon, U.S.A., where it causes 'white straw disease'. *Ophiobolus herpotrichus* (Fr.), Sacc. has been found upon wild grasses in America and England, but has not previously been recorded upon cereals.

Climate of the St. Lawrence

THE first of a new series of memoirs, *Canadian Meteorological Memoirs*, 1, No. 1, deals with the climate of the Gulf of St. Lawrence and the surrounding regions in Canada and Newfoundland, as it affects aviation. It is by W. E. Knowles Middleton. The region dealt with is of especial meteorological interest for the British Isles apart from aviation, as it is very commonly on the track of wind currents of polar origin that reach Great Britain from some westerly point, having been originally strong winds or gales from the north or north-west, frequent evidence for which is to be found in the part of this memoir that deals with wind statistics. It is also of more general interest as a region of astonishing contrasts, and contains a variety of different climates. Maritime influences are less apparent than might be expected. The cold Labrador current in passing down the east coast of Newfoundland causes frequent coastal fog in summer, and the Gulf Stream is regarded as an aid to fog formation along the Atlantic coast of Nova Scotia and in the Bay of Fundy, but the general west to east atmospheric drift and the presence of the large land mass of North America to the west cause the Continental effect to be in the ascendant. The maritime influence diminishes very rapidly with distance from the coast, a fact which makes it very difficult to form an idea of the climate of any particular place except by an examination of instrumental records covering a number of years. In the case of fog, for example, an item of especial importance for aviation, there is a quick change in the annual distribution of fog frequency on leaving the coast, where there is a very pronounced maximum in the summer, for the interior is subject to radiation fogs due to nocturnal cooling under a clear sky and having their maximum in the winter. Among the many points that are of outstanding interest, two deserve notice; first, the shallowness of most of the infrequent easterly winds, which are rapidly replaced by westerlies at higher levels, and the huge annual range of temperature, which is as great as 145° F. at Doucet, and is of respectable size even in the most easterly and maritime places, for example, 67° F. at Sable Island.

Upper Winds in India

A STATISTICAL compilation of value for aviation on the air route from England to Australia is No. 66 of Vol. 6 of "Scientific Notes of the India Meteorological Department". The author, whose name is not given, does not discuss in detail the ninety pages of tabular matter that constitute the bulk of this paper, which is entitled "Normal Monthly Percentage Frequencies of Upper Winds at 4, 6, 8 and 10 kilometres above sea-level obtained from Pilot-Balloon Ascents", but he includes in a short foreword a reference to earlier notes dealing with the same subject, which indicates that this is the most comprehensive statistical survey of upper winds between Aden and Rangoon that has yet been made. The figures are based on balloon ascents made in the morning at 34 well-distributed stations up to the end of 1931, and the velocities are grouped into six classes : less than 18, 18–36, 36–54, 54–90, 90–144 and over 144 km./hr., and according to the wind direction. In many instances no observations have yet been obtained at 10 km. in individual months, this being particularly noticeable in summer for those regions that have a long rainy season, but in many others this level is very well explored ; for example, in January there are no fewer than 83 observations for Bangalore, 47 for Agra and 45 for Poona, while in July Lahore has 69 and Agra 66 observations. A discussion of the figures will doubtless be given in a paper on the circulation of the atmosphere over India and neighbouring regions which, it is stated in the foreword, will appear shortly.

Magnetic Screening of Apparatus

PROTECTION of apparatus from the effect of external magnetic influences has always been a difficult problem for instrument designers. The ever-increasing progress in the applications of electrical energy, the great sensitivity of controlling and measuring instruments, and the use of modern radio equipment, make magnetic screening highly desirable in many cases. In a paper in the *Nickel Bulletin* published by the Mond Nickel Company, of Thames House, London, W. F. Randall describes new nickel-iron alloys which are most useful for this purpose. These alloys have permeabilities thirty or forty times greater than the values previously obtained with soft iron. If a small compass needle be placed in a 'mumetal' box a few inches away from a powerful magnet, no effect is discernible. A good galvanometer constructed several years ago before the advent of 'mumetal' had two screening shields weighing 145 lb. and giving a shielding factor of 32 ; the weight of the mumetal screen is 7¾ lb. and the shielding factor is 960. An exceptionally good mumetal screen gave a shielding factor of 4,500. Nickel-iron alloys have been successfully employed to protect watches from magnetisation. These alloys take a high polish, and form a handsome casing. The older magnetic materials were unsuitable as polarised magnetisation was produced which was detrimental to the working of the watch. Mains transformers in all-electric wireless sets are a fruitful source of stray flux. This trouble can be remedied by an effective magnetic screen either in the form of an enclosing box or, a little less effectively, as a baffle plate of metal between the transformer and the actual receiver.

Organic Glasses

UNDER this title, G. T. Morgan, N. L. J. Megson and E. L. Holmes (*J. Soc. Glass Tech.*, **20**, 19 ; 1936) give a general review of the constitution and properties of hard, transparent resins. These may be divided into two groups, called condensation resins and polymerisation resins. The condensation resins comprise (*a*) derivatives of formaldehyde with phenol for example, bakelite), with urea (for example, pollopas), thiourea or toluenesulphonamide ; and (*b*) derivatives of polyhydric alcohols and polybasic acids (the 'glyptals'). The products of the phenol formaldehyde type, first developed industrially by Bakeland in 1908, are still produced on much the larger scale. Goods made from them, which must be cast (as the product cannot be moulded satisfactorily), are generally of the cheap type. The urea, thiourea or phenolic resins are increasingly used for domestic ware. The 'glyptal' type of colourless condensation resins are derived from polyhydric alcohols and polybasic acids such as glycerol and phthalic anhydride. Resins derived from polymerisation processes are among the earliest known, coumarone and indene derived from coal tar being well-known materials employed, yet the production of glass-clear products is only recent. Styrene, also obtained from coal tar, has recently been polymerised, Germany and the United States having been pioneers in the commercial development, particularly in electrical insulation. Other modern polymerisation resins are derived from vinyl halides, ethers and esters, and more recently from acryl derivatives. Many of these products are glass-clear and resilient, and can be turned on a lathe. The article contains tables giving the properties of various products, and includes suggestions for future progress based on what is known on the mechanism of formation of the products.

Microscopic Differentiation of Glues in Plywood

A METHOD of identifying casein and blood albumin glues in plywood by microscopic examination is described in a note by B. J. Rendle and G. L. Franklin (*J. Soc. Chem. Ind.*, **55**, 105–6 ; 1936). Casein and blood albumin are two of the adhesives most commonly used in the plywood industry. They are characterised by a high water resistance, and this feature makes it possible for sample blocks of plywood to be sectioned for microscopic examination without separation of the plies. Under the microscope, casein glue is seen to be nearly colourless with a fine granular structure. Under crossed nicols it is slightly anisotropic, producing a sparkling effect against a dark background. Blood albumin is distinctly green in thin sections, with an opaque glassy structure. Under crossed nicols it shows complete extinction. A mixture of eosin and methyl blue is an effective stain for distinguishing between the two types of adhesive and for demonstrating the penetration of the glue into the pores of the wood. A convenient method of application is to mix the two stains together in glycerine jelly, the latter serving as the medium for mounting the sections. A two per cent aqueous solution of methyl blue is mixed with a two per cent solution of eosin in fifty per cent alcohol, in the proportion of three to one. The mixed solution is then added to glycerine jelly, previously liquefied by immersion in a water bath, until it is about the colour of blue-black writing ink. Casein glue is stained a purplish-pink colour, intermediate between 'amaranth pink' and 'pale amaranth pink' in Ridgway's "Colour Nomenclature, 1912", and blood albumin a wine-red or 'vinaceous purple' (Ridgway). The wood itself stains pale mauve in contrast to the relatively deep colour of the glue layer.