

### Fur-trade in Northern Manchuria

THE predominance in the news of political activities in Manchoukuo tends to obscure the fact that it supports an active Institute of Scientific Research, the latest publication of which describes one of the staple industries of Manchuria, the fur trade (*Rep. Inst. Sci. Res., Manchoukuo*, 3, 227; July 1939). In a lengthy paper W. N. Schernakow describes very fully, from his own journeys in Manchuria and from the contributions of other writers, various aspects of the extensive fur-trade. The majority of the fur-bearing animals are captured by means of snares, traps, pits, as well as by firearms and poison, but sometimes hunting dogs and birds of prey are employed, and one of the illustrations actually shows a hunter in the Barga using bow and arrow. The furs are collected locally, and ultimately most find their way to the fur-market at Harbin. Here in the season 1937-38, 1,217,169 furs were sold, an increase of more than a quarter million over the sales of the previous year. The greater number represents five relatively common species: Tolai hare (*Lepus tolai*) 500,000; rat (*Rattus norvegicus caraco*) 200,000; Sansing squirrel (*Sciurus vulgaris manchuricus*) and yellow ermine (*Mustela alpina raddei*) 100,000 each; and kolinsky (*Mustela sibirica* of various subspecies) 130,000. The rare skins represented by ten or fewer individuals at the fur-market were wolverine (*Gulo gulo*) and bear (*Ursus manchuricus*) 10 each; leopard 5 and Manchurian tiger (*Tigris tigris corensis*) 4. The author regards the preservation of woodland as the surest way of preserving the fur-bearing animals, and he points out that the Chinese destroy not only woodland but even brush-wood wherever they settle.

### Recent Archæological Finds in Staffordshire

A NUMBER of discoveries of interest are recorded in the report of the archæological section of the North Staffordshire Field Club for the period 1938-39 (*Trans. and Ann. Rep. N. Staffs. Field Club*, 73, 1939). Among these may be mentioned a disk barrow, hitherto unrecorded, which was discovered by G. J. V. Bemrose, chairman of the section, on a hill slope overlooking the stream at Oakley. Further examination, in the course of which several well-patinated flints were found on the surface, confirmed the view that it was of the central monolith type, the site of the monolith being clearly discernible. The proximity of the Devil's Ring and Finger is considered significant, while it is pointed out that it is probable that Oakley Park drive is the site of a Romano-British road linking Chesterton (Mediolanum) with Rutunium and Uriconium. Further evidence of a Romano-British road comes from Madeley Old Manor Park, where a half-mile stretch of a 'way' has been identified. It forms part of a way, on which on a length known as Longford, between Wellington and Newport, an air photograph has shown a Roman 'castra' near Wall, superimposed on a British hill-fort and other earthworks, hitherto unknown. A Romano-British residence site at Park Springs, of which the excavation was begun by W. L. Hind in 1927, now shows that the corridor and rooms were

paved with hard fired tiles, measuring 5 inches square by 1 inch thick. They had been surfaced by red slip before firing. The walls were plastered and decorated in fast colour-wash, which is still bright after sixteen centuries in damp, loamy soil. One room was decorated in various shades of green and yellow. Evidence points to more than one period of occupation.

### Hot Spraying of Shellac

THE high viscosity of whole shellac when liquefied, and the difficulty of maintaining it fluid for any considerable length of time, were responsible for the failure of the original experiments to melt and spray it under steam pressure. We have received from the London Shellac Research Bureau, India House, Aldwych, London, W.C.2, a pamphlet describing the work done by K. E. Lalkaka in the laboratory of chemical engineering of University College, London, on behalf of the Indian Lac Cess Committee and under the supervision of Prof. H. E. Watson. The later experiments described were directed towards using pulverized shellac and causing the powder to fuse by passage through a flame, the fused particles being projected upon a surface to form a well-bonded coat. The various means tried for securing a steady supply of the pulverized material to the flame are described and also the development of a simple apparatus for carrying out the process effectively. A study has been made of the operating conditions.

MATERIALS used in protective and decorative coatings are generally used in solution or emulsion forms applied by brush, spray or pad. It is found that a small amount of the solvent is invariably retained by the film even after prolonged drying. This residual solvent is responsible for the poor water resistance and the comparatively short life of the protective coat. In particular, shellac varnish gives films which 'blush' when immersed in water, but a flake of shellac remains clear and unaffected even after several months of immersion. The technique of a new method is described and the following surfaces have been satisfactorily treated by the process: wood, paper; tin, aluminium and copper sheet; concrete, glass, asbestos board, plaster castings and porous stoneware. The results are published for the information of all interested in this novel field of application of shellac.

### Electricity on Board Ship

THE Institution of Electrical Engineers has just published the third edition (September 1932) of the "Regulations for the Electrical Equipment of Ships" (3s. 3d., cloth; and 2s. 2d., paper. E. F. and N. Spon, or the Institution of Electrical Engineers). These regulations enumerate the main requirements and precautions for ensuring safety from fire and shock, in connexion with the generation, storage and distribution of electrical energy for all purposes in sea-going ships of all descriptions with the exception of warships. The book will be essential to manufacturers, navigators, and marine architects, and will

be useful to all who travel by sea. It begins by giving definitions indicating the sense in which the various technical expressions given are used throughout. An 'earth', for example, is a connexion to the general mass of the hull of a steel ship, and detailed definitions are given of words like watertight, weatherproof, etc., so that the exact meaning of these words when they appear in marine contracts can be found.

For direct current, the standard voltages are 110 and 220, but for small vessels, like tugs, trawlers, small yachts, fishing and similar small vessels, the standard voltages are 12, 24 and 110. The regulations are fairly stringent; for example, every sea-going ship in which electric power is used for essential services shall, except where other means are available for maintaining these services, be provided with two or more generating sets of such combined output that in the event of one set being disabled the remaining generating plant shall be capable of supplying the essential services. Where electric discharge lamps or luminous discharge tubes are used, lighting by one or more incandescent filament lamps shall be provided as necessary to ensure safety in the event of the extinction of the discharge lamps. It must also be arranged that electric discharge lamps should operate satisfactorily with the ship inclined to the normal at any angle up to  $15^\circ$  transversely and  $10^\circ$  longitudinally, and with rolling up to  $22\frac{1}{2}^\circ$  with the vertical. We also learn that lightning conductors need not be fitted to steel ships having steel masts. Appendix 3 is very important, as the suppression of electrical interference with radio apparatus is clearly discussed. A list of devices and apparatus is given in regulation 413, which it is recommended should never be less than ten feet distant from any magnetic compass.

#### Mining Electrical Engineers

At the first meeting this season of the South Wales Branch of the Association of Mining Electrical Engineers, held at Cardiff last month, the new branch president, Mr. D. J. Thomas, gave his inaugural address. He referred to the position of the colliery electrician, who is surrounded with regulations and restrictions, with equipment under his care on which many lives may depend, unless frequently inspected, and yet he has little authority and practically no status. The equipment also with which he is provided has often passed its useful life, while much of the new equipment supplied is unsuitable for the class of work to which it is put. The apparatus has to withstand rough usage, and Mr. Thomas believes that there is insufficient appreciation on the manufacturers' part that there are conditions other than purely electrical ones that have to be considered. The increasing amount of machine mining performed electrically and the wholesale electrification of surface and underground equipment make the modern colliery absolutely dependent upon electricity, and the mining electrical engineer holds a position of very great responsibility. It is of vital importance that this should be recognized.

#### British Museum (Natural History): Acquisitions

A GIFT has been made to the Department of Mineralogy of a large polished slab of thodonite and pyrolusite, both manganese minerals, from Pencrebar, Callington, Cornwall, collected by the donor, Mr. Arthur Russell, president of the Mineralogical Society. A well-crystallized stilbite from Kalumpang, Ulu Selangar, has been presented by the Director of the Geological Survey of the Federated Malay States. This is the first zeolite specimen from that locality to be added to the British Museum collections. Three interesting specimens of Terra Sigillata have been presented by Mr. E. P. Bottley. Similar tablets of clay, formerly included in every pharmacopœia as an antidote for snake bites and poisons, were shaped and stamped from medicinal earth found in various localities, notably the Island of Lemnos, Greece, and Prussian Silesia. These three tablets are probably eighteenth century specimens and bear easily legible insignia and characters. They form a welcome addition to a very fine set belonging to the Sloane collection. Terra Sigillata clays and related materials, such as China clay, have very high absorptive properties which render them of value in the treatment of dysentery and cholera.

#### Negro Education in the United States

AMERICAN Negroes have seldom played any notable part in education. A well-documented paper book, "Special Problems of Negro Education" (Washington, D.C.: G.P.O. 25 cents), shows that coloured children suffer from an inequality of chances compared with whites. The author, Prof. Wilkerson, has made several studies of the subject, and the results are gathered in this monograph. Negroes are required by law to attend separate schools in eighteen States, from Alabama to West Virginia. Four fifths of them are in the South and supply nearly one fourth of the population. Is their education in separate schools adequate, and, if not, what can be done to improve it? These are the questions the author answers. The figures tabulated are a little puzzling, but suggest on careful examination that during 1933-34 school attendance was considerably less among Negroes than whites. The Negro schools were kept open on the whole for a shorter time, though States offer varying data. A racial difference of one school month becomes over a period of years a real handicap and leads to lower levels of scholastic achievement; pupils retarded in early grades are likely to drop out of school. Eminent authorities all agree that they are quite as good in learning ability as whites. Transportation for education is important for rural districts, and here, too, they are handicapped, while they have fewer and worse-paid teachers. These disparities have been defended, but no sensible authority doubts that they should be eliminated. In Mississippi many of the coloured schools are housed in churches, old stores and shanties and lack decent comfort and educational materials. The story of higher education is similar, but it has to be noted that the Southern States in view are unable to finance public education at a satisfactory level. A much enlarged programme