

the Administration Council on July 26 that it has been decided to ask all the experiment stations in the Union of South Africa and in Southern and Northern Rhodesia to co-operate in a common plan of campaign for an intensive attack on the problems of insect pest control. A first step is to be the recording of the activities throughout the whole season of the different insects that damage cotton crops. A reliable technique for this has been worked out at the Barberton Station. It was also announced that it is intended to hold a conference of workers on cotton-growing problems in London next summer, similar to that which was held at the Shirley Institute in 1930. Mr. H. Niblett, one of the members of the Oversea Mechanical Transport Directing Committee, gave a short description of the work of that Committee. In 1927 the Corporation suggested to the Colonial Office Conference that the problem of motor transport in the cotton fields is so important that the investigations should be extended and the work financed by the Empire governments concerned. The Oversea Mechanical Transport Council and Directing Committee were appointed as a result, and are now testing two motor transport units, each consisting of an 8-wheeled tractor and two 8-wheeled trailers capable of handling a useful load of 15 tons. The report of the Executive Council has recently been published (Empire Cotton Growing Corporation, Millbank House, 2 Wood Street, Millbank, London, S.W.1.)

#### Improvement of Farm Crops

At the annual general meeting of fellows of the National Institute of Agricultural Botany at Cambridge on July 27 the chairman of the Council, Mr. E. W. K. Slade, presented the John Snell Memorial medal to Dr. Kenneth M. Smith, entomologist of the Potato Virus Research Station, in recognition of his valuable research work on the virus diseases of the potato. Mr. Slade afterwards described some parts of the work of the Institute which particularly appeal to him as a practical grower. Crop improvement work is impossible until agriculturists know the material they are dealing with. Thanks to the Potato and Cereal Synonym Committees farmers are unlikely in future to be misled by a fine new name into buying an old variety which they have already given up. Mr. Slade welcomes the active co-operation which the Institute is receiving from the seed trade; by doing away with fictitious names, and putting on the market pure seed of improved varieties, each under a single name, merchants contribute greatly to the general welfare. The principal part of the Institute's task is to find out which of the new varieties that come to it are best in yield and quality and in which districts they should be grown. This is work which farmers cannot do for themselves. Many crops are being studied and a feature of this season is the inauguration of widespread trials of mangolds and swedes with the help of the seed trade. Mr. Slade finally referred to the assistance given by the Official Seed Testing Station in the scheme for the registration of wild white clover seed.

#### International Congress for Scientific Management

AN International Congress for Scientific Management is to be held in London in 1935 and the Prince of Wales has consented to be its patron. The subjects for discussion include the introduction of management principles and practice in undertakings of various sizes, methods of controlling production by the comparison of actual results with forecasts, examples of the application of scientific management in problems of distribution, standardisation in agricultural development, methods of selection and training for higher administrative positions, and scientific management in the home. A meeting of the organising council of the Congress, under the chairmanship of Sir George Beharrel, was held recently at the offices of the Federation of British Industries and it was announced that a representative executive committee is being formed. It will be recalled that early in the year a manifesto on "The Management Factor in Industry" was issued over the signatures of many well-known men of science and others (*NATURE*, January 14, p. 52), in which the field surveyed was similar to that of the forthcoming Congress.

#### Birds within Cities

SINCE Gilbert White's recording of the house-martins nesting in Fleet Street and the Strand, ornithologists have never failed to interest themselves in birds about cities. A day-to-day census of the birds of the Liverpool Cathedral Wild Birds' Sanctuary, established in 1927 in an old quarry, now a cemetery, in the heart of Liverpool slums and five miles from the nearest trace of open country, has recently been completed by Mr. Eric Hardy. Thirty species are recorded: house-sparrow, starling, robin, blue tit, hedge-sparrow, song thrush, blackbird, wren, greenfinch, domestic pigeon, great tit, missel-thrush, chaffinch, rook, linnnet, redwing, herring-gull, common gull, kestrel, jackdaw, cole-tit, yellow-hammer, goldcrest, chiffchaff, willow-wren and whitethroat, the first twelve of which nest. The goldcrest is now a regular spring passage migrant since the establishment of food tables, etc., though the first specimen was recorded in March, 1931 (*Proc. Liverpool Nat. Field Club*, 1931, p. 41), while the willow-warbler soon established itself as a regular passage migrant, spring and autumn (*Liverpool Review*, Annual Report, February, 1933).

FOR London, Mr. A. H. Macpherson recorded a list of 126 species, of which 21 breed regularly, 8 have been known to breed during the present century, the remainder being visitors, 20 of which are regular and 77 occasional, in an area extending 2½ miles due north and south of Charing Cross and 4 miles east and west. In *British Birds*, March, 1933, Mr. Macpherson added the puffin, from Finsbury Gardens 1932, the brambling from specimens seen in Kensington Gardens, April 1932, the pied fly-catcher in the grounds of the Natural History Museum, April 26, the green woodpecker in St. James's Park, August to November, and the scaup on the Serpentine in February, 1932. The eighteenth

annual report of the Lancashire and Cheshire Fauna Committee added the golden plover to an extensive list of birds recorded in inner Manchester, while in *British Birds* (November, vol. 26, No. 6, 1932), Mr. Eric Hardy added the hoopoe to the birds watched inside Liverpool after recording the same species (*British Birds*, August, vol. 26, No. 3, 1932) in Birkenhead.

#### Unusual Rainbow Phenomena

A NUMBER of correspondents have added further descriptions of unusual rainbow phenomena to the account by Mr. J. L. Horton of the display of June 26 (*NATURE*, July 8, p. 57). The month of June was unprecedented during at least the past sixty years for the number of thunderstorms, and was at the same time a generally sunny month, so that opportunities for seeing rainbows were unusually frequent. An account from J. O. Ewing, of bows seen from Brandon, Suffolk, on the evening of June 17, described three closely adjacent bows with the red farthest from the sun, of which only the outermost showed the complete range from violet to red, this being the brightest, while another bow much nearer to the sun is said to have shown colours in the reverse order. It appears possible, seeing that the effect was described from memory, that errors have been made over the colour sequences, as the bows corresponding presumably with the ordinary primary and secondary bows have the usual order of colour reversed, but even so the phenomenon was evidently very different from that described by Mr. Horton.

R. N. JONES describes something more similar that was seen from Liverpool on July 8, except that the bow lying just outside the secondary bow was not noted, and asks whether anyone has ever seen the two bows theoretically possible in which the sunlight suffers respectively three and four internal reflections inside the raindrop, which would occur between the observer and the sun. Mr. G. H. Harker writes of having seen the phenomenon noted by Mr. Horton on several occasions, the most recent being at Clifton, Bristol, on July 10. He points out that the supernumerary bow outside the secondary is the rarer; that both depend upon the existence of a sufficient number of uniformly small droplets; and that a mixture of droplets of various sizes tends to produce overlapping systems that may give a bow of varying curvature and with a varying colour sequence in different parts of the same bow. He refers the reader to Airy's theory of the rainbow given more than a century ago and to the extended treatment in Chaps. xvi and xvii of Bouasse and Carrière's "Diffraction".

#### Early Script in India

AN interesting inscription in a rock-shelter in the Sambalpur District, Bihar and Orissa, is the subject of a note, accompanied by a series of illustrations, by Mr. K. P. Jayaswal in the *Indian Antiquary* for March. It appears to be in a script representing a transition from that of Mohenjo-daro to the Brahmi, and is dated tentatively at about 1500 B.C. The inscription occupies a space of 35 ft. × 7 ft. The

letters, partly painted, partly incised, would appear all to have been painted before being cut. There is no sign of the use of an iron tool. The inscription is unquestionably writing, and Mr. Jayaswal is of the opinion that the hand responsible for the inscription was accustomed to the use of the pen. The writing appears to have reached the syllabary (alphabetical) stage. The script resembles Brahmi more closely than any other, but a number of resemblances to Mohenjo-daro are noted. Notwithstanding the Brahmi cast of the inscription, it does not follow that the language is Aryan, and in view of the locality in which it has been found, it may be a pre-Dravidian Raksasa record, Raksasa being used as a generic term for the peoples dispossessed by the Aryans, now possibly represented by the Gonds.

#### Archæological Field Work in America

NOTWITHSTANDING the summary character of the reports in the annual "Explorations and Field-Work of the Smithsonian Institution", its publication is always welcome as an early source of information on recent activities in the scientific exploration of America, especially in archæology and ethnology, pending the issue of full reports. The comprehensive character of this publication which, as a rule, covers all the operations of the staff in the field, also serves to indicate the general trend of research. In the issue for 1932 (Publication 3213), for example, the problem of early man in America is attacked from several aspects. Dr. Aleš Hrdlička's archæological exploration of Kodiak Island, Alaska, and Mr. Henry B. Collins's investigations at Point Barrow, Alaska, have advanced the chronological and distributional classification of Eskimo cultures; Mr. Frank Setzler, investigating prehistoric cave-dwellers' sites in Texas, links positively for the first time the culture of the Big Bend area with the south-west; while Dr. Gerrit S. Miller, Jr. and Herbert W. Krieger have investigated the prehistoric cultures of islands in the West Indies with special reference to their early interrelations. Dr. Frank H. H. Roberts, Jr., continuing his excavations of Pueblo settlements in the south-western States, has carried a stage further the elucidation of the development of domestic and ceremonial buildings. Other investigations cover the mound-builders, the Indian tribes of eastern Canada and New York State and of California; and Miss Densmore continues her song-collecting activities among the Seminoles of Florida.

#### Geo-electric Methods in Search for Oil

RECENTLY geo-electric methods as applied to oil-field exploration have been regarded with some disfavour, but Mr. O. H. Gish in a paper on this subject (*Bull. Amer. Assoc. Petroleum Geol.*, 16, No. 12, Dec. 1932, pp. 1337-1348) maintains that factors influencing this condemnation are subjective rather than objective. Many people still believe that electricity is endowed with a mystical power and thus the impostor has ample scope for his nefarious activities, while the *bona fide* geophysicist has perforce to qualify his statements. The impostor may forecast the number of barrels of oil obtainable from