

aeroplanes when he ascended to 49,967 ft. According to *The Times* of September 30, Squadron Leader Swain was flying a low wing monoplane of wing span 66 ft. and length 44 ft. with a super-charged Pegasus engine designed to give 370 h.p. at the start, 457 h.p. at 40,000 ft. and 380 h.p. at 50,000 ft. The pilot was enclosed in an air-tight two-piece suit of fabric covered on both sides with rubber and surmounted by a helmet with a transparent window. His air supply was fed into the right side of the helmet and passed out on the left to a canister in which water vapour and carbon dioxide were removed before the air returned to the circulation. The cockpit of the aeroplane was also enclosed, and warmed from the engine exhaust. It appears that Squadron Leader Swain found no particular difficulty in the ascent, but when coming down, the window of his helmet and the cover of the cockpit were badly obscured by frost. He also experienced unpleasant sensations of suffocation accompanied by weakness, and was obliged to use his emergency knife to rip open his helmet. He landed safely after a flight lasting nearly three and a half hours. The height reached was nearly thirteen hundred feet above that attained last month by M. Georges Détré at Villacoublay, France.

Crop-growing without Soil

ATTENTION has recently been given to production of green fodder for cattle and other farm stock without the intermediary of the soil. In Great Britain the method advocated is apparently of German origin, and it is claimed that the fodder is grown from seed in ten days. According to published accounts, a layer of seed (maize or other grain) is spread on a perforated metal tray, and the tray is placed in a cabinet, constructed to hold a series of trays. The seed is damped daily by water, containing a small percentage of nutrient salts, from a tank placed on the top of the cabinet, and, when an adequate temperature is maintained, the seed germinates and in 10 days a growth of shoots some 12 inches high is obtained. This growth of shoots, with the mass of rootlets, is then given to the stock. Several trials have shown that this fodder is readily eaten by stock, but carefully controlled experiments are necessary to demonstrate the full nutritive value and the costs of production of this fodder. At the University of California experiments have been carried out by Prof. W. F. Gericke on the growing of vegetables and flowers in tanks of water to which the necessary chemical fertilizers have been added. The seeds are sown in a layer of sawdust or moss supported by wire netting above the water; the roots grow downwards and remarkably rapid growth and a high yield has been demonstrated. Although still in the experimental stage, this process has attracted the attention of commercial vegetable and flower growers in California.

Huskless Oats

DURING the past two years considerable public interest has been aroused in a variety of huskless

oats introduced by Mr. William Parker of Babingley Hall, near King's Lynn. In 1936, with the agreement of the introducer, the National Institute of Agricultural Botany carried out accurate yield trials of this variety in Cambridgeshire, Somerset, Shropshire, Hampshire, Norfolk and Yorkshire. The rate of seeding (45 lb. per acre) and the sowing times (end of March and beginning of April) were those recommended by the introducer. The variety with which the oat was compared was Victory, and at each centre both were sown on the same day. Victory, however, was sown at the normal seed rate for that variety—3–4 bushels per acre. On the basis of grain as threshed, Victory outyielded Parker's Huskless oat by 97 per cent, but to obtain a true comparison 28 per cent must be deducted from the grain weights of Victory, this being the normal husk percentage of that variety. On this basis, at only one centre—Cambridge—did Parker's Huskless oat outyield Victory, and then by the insignificant amount of 2 per cent. Averaging the results from all six centres, taking both on the above basis of naked grain, the grain yield of Victory was 41.2 per cent heavier than Parker's Huskless oat. No shattering at harvest took place in either variety.

Research and the Jute Industry

A PARAGRAPH under this heading appeared in *NATURE* of August 22 (p. 322), based on an article in *Science and Culture* discussing Dr. S. G. Barker's recommendations for research in the industry. Dr. Barker has written to point out that his report was on "Jute Research" as affecting jute *manufacture*, and should not be confused with the report of the Bengal Jute Enquiry Committee, which was concerned with *agricultural* aspects. His report was submitted to the Indian Jute Mills Association, which is at present considering it. Whether it will be submitted to the Government of India is a domestic matter for the jute manufacturers to decide. On the other hand, the suggestions of the Bengal Jute Enquiry Committee regarding jute agriculture have been accepted by the Government of India and a committee formed to implement them. So far as manufacturing research is concerned, this is still under sympathetic consideration by the Indian Jute Mills Association.

Social Life in a Rural Community

A STUDY of the activities, interests and problems of young married men and women, 15–29 years of age, in the rural sections of Tompkins County, has been published by the Cornell University Agriculture Experiment Station, as part of a study of youth problems. The data were acquired by direct personal interview with each of the 347 persons included in the study. One third of the persons interviewed were men and two thirds were women. Of the whole group, 30 per cent lived on farms, 40 per cent in villages and 30 per cent lived in the open country but not on farms. On an average, these young people had spent more than two years at a high school, and two in five of the men and one in four of the women had received some college training. Only 4 per cent

of the men were unemployed, 11 per cent being employed part time ; 86 per cent of the women were employed in housework and 5 per cent had part-time work.

THE commonest leisure activities of this group were reading, card playing, chess and other games and listening to radio. Outdoor activities ranked next, and were preferred by the men, followed by household activities and then hobbies and outdoor sports. 56 per cent of the men and 48 per cent of the women had two hours or less per day of leisure, but about one half had three hours or more. Only 5 per cent of them did no reading each day, but books were read much less regularly than magazines and newspapers. 65 per cent of the men engaged in farming were members of some organization, but three quarters of the others were members of no formal organization. Emphasis was placed upon the provision for social and recreational needs. 28 per cent of the men and 45 per cent of the women wished to travel, but the only other desire expressed by a significant number was to buy or build a home or to own a good farm. The men would welcome opportunity for further training in agriculture and farming, engineering and mechanics. The women emphasized the desirability of training in business subjects, nursing and home economics. Uppermost in the problems of these young persons is the lack of sociability through group relations, and the major need is that of integrating them into a satisfying social life through the development of a consciousness of common social needs and practical local organization to satisfy them.

River Survey

In a small pamphlet of a dozen pages ("A Note of the Work of River Flow Records." River Flow Records. 6d.), Capt. W. N. McClean sets out a statement of the work performed by River Flow Records, the private organization of which he is the founder and director, during the period of its existence. The aim of River Flow Records, it is stated, is to obtain, in the area of a river system, records of water-levels of so comprehensive and accurate a character as to enable full information to be deduced therefrom respecting the flow and storage of water. Surveys on these lines have been carried out on the Rivers Garry, Moriston, Foyers, Oich and Ness in the Ness Basin ; on the River Arkaig and Muccomer Cut in the Lochy Basin ; on the River Spey and on the Aberdeenshire Dee, with results which have been detailed in a series of papers and publications. The pamphlet goes on to discuss several aspects of survey work, including water level stations, flow gauging, rainfall, temperature and wind, the compilation and presentation of records and the analysis and use of records. The author points out the influence of the work and experience gained by River Flow Records in the promotion and institution of an Inland Water Survey for Great Britain, which has been the outcome of a discussion in 1932 at the York meeting of the British Association. There are two appendixes dealing with mechanical details of river survey work.

Herpetologia

THE Chicago Academy of Sciences has sponsored the appearance of a new magazine with the above title, to be devoted to the study of reptiles and amphibians. Parts will appear quarterly, and it is hoped that the issue of such a specialized journal will help to bring together notes and short papers upon reptiles and amphibians which otherwise would be scattered and often unavailable in a multitude of other publications. The defect of such schemes is that they tend to make their particular study more remote from the naturalist who is interested in various groups of animals and endeavours to correlate the biological discoveries in them. From such a general point of view, the most interesting of the papers in the first part of the new magazine is that by L. M. Klauber describing and illustrating two varieties of a king snake, one with ringed markings, the other with longitudinal stripes. These have hitherto been regarded as distinct species, *Lampropeltis californica* and *L. getulus boylii*, but the hatching of broods which contained both forms shows that they are colour varieties of one form, which must be known as *L. getulus californica*.

Seismology in the United States

A REPORT of the Advisory Committee on Seismology appears in the Yearbook for 1935 (pp. 361-370) of the Carnegie Institution of Washington. One of the most interesting sections deals with the operations of the Coast and Geodetic Survey during the year ending June 30, 1935. Levelling of the first and second order was carried out over routes with a total length of more than one hundred thousand miles, and triangulation of the first and second order over a length of about 17,500 miles. In California, three arcs of triangulation, altogether 300 miles in length, have been carried out, and eight lines of closely-spaced bench-marks at right angles to well-known and active faults in the State. Five of these lines cross the San Andreas fault, the movements along which are responsible for many great Californian earthquakes. Each line extends about five miles on both sides of the faults, the bench marks within the first mile being only 100 ft. apart. A short time ago, a network of levels was established in order to study the subsidence of the land round San Jose (Cal.). The levelling was repeated in the autumn of 1934 and the spring of 1935. Though the work is not yet finished, it is advanced far enough to show that the subsidence noticed in the previous interval of levelling is still continuing.

Mining in South Australia

WE have received from the Department of Mines in South Australia the mining review for the half-year ended December 31, 1935 (No. 63). It is quite in the usual form ; the main matter of interest is contained in the preface, signed by the Director of Mines on April 1, 1936, in which he states that during the year 1935, the mineral production from South Australian mines and quarries exceeded in value that recorded for any previous year ; the total value