

First Conference of the International Federation of University Women.

THE International Federation of University Women held its first conference at Bedford College, London, on July 12-14, and it has been interesting to note how thoroughly the Federation deserves its name. If Great Britain and the United States were the most numerous represented, as they are the founder nations, there were plenty of other nationalities to meet them. France, Spain, Italy, Holland, Belgium, the Scandinavian countries, Czechoslovakia, India, and the Overseas Dominions of the British Empire had all sent their delegates to participate in the conference. The proceedings opened on the evening of July 12, when a large audience listened to speeches by Lord Grey of Fallodon, Prof. Caroline Spurgeon (Bedford College), Dean Virginia Gildersleeve (Barnard College, New York), and Prof. Winifred Cullis (the London School of Medicine for Women). Lord Grey emphasised the necessity for intercourse between the peoples of the world, and the women speakers outlined the means by which the International Federation intends to promote this necessary contact between the women of the universities of the world. Briefly, their aims are the establishment of travelling fellowships and international scholarships; the exchange of professors, lecturers, and students; the establishment of club-houses and other centres of international hospitality; and useful co-operation with the national bureaux of education in the various countries.

On the following days the foundations of the Federation were established. A constitution and by-laws were freely discussed and considerably amended before final adoption. The effect of these will be to establish a central office in London for general information, which will operate in connection with Committees on International Relations set up in each country which is a member of the Federation. Officers have been elected for the ensuing two years, the president being Prof. Spurgeon; the vice-president, Mrs. R. F. McWilliams, of Winnipeg; the treasurer, Mrs. Edgerton Parsons, of New York; and the secretary, Miss T. Bosanquet, assistant secretary to the Universities Bureau of the British Empire, 50 Russell Square, W.C.1.

Informal reports on the position of the higher education of women in the various countries represented were read, and steps will be taken to correlate the academic standards in the different universities.

The next meeting will be held in the summer of 1922. It is hoped that in the meantime each branch association of the Federation will work actively to further the aims of the Federation in its own country. The British Federation of University Women is losing no time in getting to work, and will initiate a campaign for the programme of the International Federation in the autumn.

Insect Pests.

IN connection with tropical agriculture, attention has been directed to the question of the influence of the condition of the host-plant on infestation with sucking insects. It is believed that such pests as thrips on cacao and froghopper blight on sugar-cane can be held in check by increasing the resistance of the plant by improving agricultural conditions. In the *Agricultural News* (vol. xix., No. 464) it is claimed that the "mosquito blight" of tea (caused by a capsid bug of the genus *Helopeltis*) is affected in a similar

way, and that the condition of individual tea-bushes determines the susceptibility to attack. The distribution of mosquito blight appears to be connected with soil conditions, and analytical data indicate that soils on which the pest is prevalent show similarities in the potash-phosphoric acid ratio, the addition of potash having an appreciable, though irregular, action in reducing the blight. Water-logging tends to encourage infestation, probably because the vitality of bushes grown on such areas is lowered; draining is the remedy advised in such cases. Acidity and poverty of soil are other factors which vitiate the health of the tea-bushes, so rendering them more liable to attack.

The spread of prickly pear in Australia is so rapid that large areas of land will continue to be thrown out of cultivation year by year unless some effective measure of control can be devised. It is estimated that the pest claims for its own 1,000,000 acres of fresh land per annum. Various methods of eradication have been tried, but destruction by mechanical or chemical means has proved too expensive for use on a large scale. The pear cannot be fed off to stock, and the manufacture of potash and paper from it has not proved to be commercially successful. A fourth line of attack—destruction by natural enemies—is now being followed up (*Science and Industry*, vol. ii., No. 1). It is necessary to find some enemies of the prickly pear that will not attack other vegetation, as the introduction of "omnivorous vegetarians" would probably result in serious injury to other forms of plant-life. For this reason certain rodents, snails, and insects which are known to feed on prickly pear in America and Africa cannot be recommended for introduction into Australia. One insect, however, *Coccus indicus*, appears to feed exclusively on one form of pear, *Opuntia monacantha*, but unfortunately it will not feed upon the chief pest, *O. inermis*. It is recommended that experiments should be carried on to induce the insects to transfer their attention from one species to the other, if necessary by means of hybridising the pears. Other insects—bugs, flies, moths, and beetles—are known to feed upon one or other species of prickly pear, and it is possible that useful enemies might be introduced from Mexico and South America.

The loss caused by the jointworm flies of the genus *Harmolita* (*Isosoma*) in the United States runs into millions of dollars per annum, the wheat jointworm (*H. tritici*) being the greatest devastator. W. J. Phillips (Bull. 808, Professional Paper, U.S.A. Dept. Agric.) has gathered together the available information and classified the species into groups that attack grain crops, cultivated grasses, and wild grasses. The two first groups cause considerable loss by the injury they entail to the crops. The members of the last group, however, may possibly be beneficial in an economic sense, as they provide intermediate hosts for the parasitic insects which prey upon the genus, the more important parasites being common to the majority of species of *Harmolita*. The life-histories of several species are described, together with the way in which injury is caused to the plants attacked. *H. tritici* causes the most serious losses, reducing the yield of wheat by as much as 50 per cent., the grains being somewhat small and shrivelled. *H. grandis* is also confined to wheat, and produces two generations in the year, but as it is easily controlled its powers of destruction can be kept in check. Breeding experiments indicate that each species is probably confined to a single host, as it has proved impossible to induce the more important forms to attack other crops than that with which they are normally associated. The jointworms are much subject to parasitic attacks, and for this reason do not often get quite

out of hand and destroy an entire crop; but, even so, they exact a toll of from 1 to 5 bushels per acre unless control measures are adopted. Experiments seem to show that ploughing under the stubble is the most effective remedy, as wholesale destruction of the insects is thus brought about. It would be necessary to arrange the crop rotation so as to allow the wheat-stubble to be ploughed up, but if this could be done it is estimated that millions of dollars could be saved yearly.

Parasites such as lice and mites cause considerable loss in the poultry industry by reducing egg-production and injuring the quantity and quality of the flesh of the birds. A cheap but effective remedy is therefore much to be desired, and it is now claimed by F. C. Bishop and H. P. Wood (Farmers' Bulletin 801, U.S.A. Dept. Agric.) that sodium fluoride fulfils these conditions, and that, if properly used, one application will completely destroy all the lice present on any bird. The treatment can be carried out by dusting or by dipping. In the former case pinches of the fluoride are placed among the feathers close to the skin on the parts most frequently attacked; dusting with a shaker is less effective, and also causes more irritation to the nose and throat of the operator. In the latter case $\frac{3}{4}$ -1 oz. of commercial sodium fluoride is dissolved in a gallon of tepid water, and the birds are then dipped for a few seconds. The lice die more rapidly in this case than when the dry powder is used. It is estimated that the cost of treatment works out to about one farthing per bird, 1 lb. of sodium fluoride sufficing for about a hundred hens.

Investigations of the Upper Air.¹

THE interesting publications referred to below deal with the investigation of the upper air, the first two being written in German. Dr. Everdingen, in Holland, has experienced the same difficulty that has occurred in England and elsewhere in carrying on the investigation owing to the scarcity and badness of the necessary materials, on account of which the mean height of the kite and captive-balloon ascents, when compared with that of previous years, was reduced considerably. The two years' reports contain full particulars of each ascent made; they are noteworthy as showing the increasing importance of aeroplanes compared with the old method of kites as a means of observation.

The third publication, Geophysical Memoirs, No. 14, gives an account of the pilot-balloon ascents made in November and December, 1911, by Capt. Cave and Mr. J. S. Dines in the Scilly Isles. Plenty of information about the relation of the wind to the surface-pressure gradient up to a few kilometres height over land is available, but similar information about the wind over the sea is very scarce. The expedition to the Scilly Isles was planned and carried out by Capt. Cave expressly to meet this want, and the results, which contain a large and useful amount of information, have at last been published.

The islands are noted for their fine formation of rock, and they are exposed to the full force of the Atlantic gales; in no part does the surface rise much above the sea-level, and the whole land area is small, thus the influence of the land on the air-currents must also be small. Moreover, except to the south-west, readings of the barometer are available, and hence the isobars on the daily weather charts can be

drawn in the neighbourhood of the islands with fair precision.

The balloons were mostly followed by two theodolites at the ends of a base line of 5260 metres, but on a few occasions, on account of the difficulty of reaching the distant station, only one was used. The period covered was from November 22 to December 8. The weather was mostly rough and stormy with a prevalence of clouds, so that the balloons could seldom be followed to any great height, but the conditions were very favourable for the purpose of the observations. The authors found, as they expected, that the effect of surface-friction is far less at St. Mary's than inland, and they give the loss of velocity at the anemometer head at Scilly as 20 per cent., against 35 to 50 per cent. at Ditcham Park.

The question of the rate of ascent of pilot balloons is considered. The same kind of balloon was used as at Ditcham Park and the same free lift given. The mean rate of ascent was 160.6 metres per minute. It has been found inland that balloons show a tendency to rise faster in the first half kilometre, but this was not the case at Scilly. The rate of ascent varied considerably from minute to minute, but no systematic difference was found, and hence the authors conclude that the general results obtained from single theodolites may be looked upon as quite trustworthy.

The last section deals with the type and height of the clouds prevalent during each ascent, and some evidence was found of the motion of the upper clouds away from the centre of the depression which dominated the weather at the time.

The whole memoir is very interesting and should be read by every student of meteorology.

Bionomics of *Glossina palpalis*.

NO. XVII. of the Reports of the Sleeping Sickness Commission of the Royal Society (H.M. Stationery Office, price 4s. net), which has recently been issued, includes the third, fourth, and fifth reports on the bionomics of *Glossina palpalis* on Lake Victoria by Dr. G. D. Hale Carpenter, of the Uganda Medical Service.

Interesting descriptions are given of the natural features and of the fauna and flora of the thirty-six islands visited. These should be consulted in the original by those interested. From a study of the conditions prevailing in these islands it was deduced that the conditions for the prevalence of fly above the average are (1) suitable breeding-grounds, viz. dry sand or gravel ridges representing old lake-shore levels; (2) abundant shade combined with open spaces to permit of the movements of the fly; and (3) absence of large spiders (?Nephila).

The characters of a suitable breeding-ground are the following: (1) Loose soil, (2) dry soil, (3) well-ventilated soil, (4) adequate shade, and (5) within 20-30 yards of water. Further research will probably enable us to define these conditions still more precisely and to decide whether they, as one would expect, are also the optimum for the development of pupæ.

The practical suggestion is made that fly may be controlled by constructing artificial shelters with the characters above defined which would be attractive to the fly as breeding-grounds, and where the pupæ would be regularly collected and destroyed. It might be possible to add some chemical to the soil in these shelters which would obviate the necessity of collection and destruction. The author has established the fact that flies pupate in these shelters.

¹ "Koninklijk Nederlandsch Meteorologisch Instituut," No. 106. "Ergebnisse Aerologischer Beobachtungen," parts v. (1916) and vi. (1917). Air Ministrv. Meteorological Office. Geophysical Memoirs, No. 14: "Soundings with Pilot-balloons in the Isles of Scilly."