

England and Scotland, as stated, but by twenty-eight county councils in Scotland alone, and this also has been the case for more than ten years.

WM. EAGLE CLARKE.

The Royal Scottish Museum, Edinburgh.
August 26.

A Mistaken Butterfly.

THE following observation will be of interest in connection with those related in NATURE, vol. xcv., 1915.

At Pennant Hills, near Sydney, on March 24 last, I noticed an interesting case of colour-attraction for a butterfly. A lady was standing talking to two other persons on the footpath opposite my house. She was wearing a plain brown straw hat, fixed with a hat-pin having a light blue porcelain knob about half an inch in diameter. A butterfly (*Papilio sarpedon*) kept flying about the knob as if fascinated, and followed the lady closely when she went up the footpath to the house, flying away only when the lady entered the house.

I watched it for quite five minutes, during which time the butterfly never went more than a few inches from the lady's head, and always returned to the blue knob, apparently trying to alight thereon. The lady several times brushed at the insect with her hand to drive it away.

THOS. STEEL.

Sydney, New South Wales.

FERTILISERS AFTER THE WAR.

IN view of the great increase in the facilities for making sulphuric acid, attempts have naturally been made to find an outlet for the new production after the war, and a Departmental Committee appointed to go into the subject has recently examined the possibility of an additional production of fertilisers, which before the war absorbed some 60 per cent. of the acid made. The report of the Committee (Cd. 8994, 1918) has already been discussed in these columns from the point of view of sulphuric acid production: it remains now to consider the effect on fertilisers. The report is very short and does not include the statistical data necessary for a full discussion of the problem: fortunately these can be collected from other sources.

Prior to the war the total consumption of artificial fertilisers in this country was something above 1,000,000 tons per annum, made up approximately as follows:—

	Estimated pre-war consumption in United Kingdom. Tons per annum	Estimated annual value. Pre-war prices £
Farmyard manure	37,000,000	11,000,000
Nitrate of soda	80,000	920,000
Sulphate of ammonia	60,000	750,000
Cyanamide (nitrolim) and nitrate of lime	10,000	110,000
Superphosphate	600,000	1,650,000
Basic slag	280,000	560,000
Guano	Say ¹ 25,000	250,000
Bones	40,000	200,000
Others	10,000	100,000
Total	1,105,000	4,540,000

¹ No good estimate can be made of the amount of guano, bones, and other materials used as fertilisers.

At the same time the areas under the various crops in the United Kingdom were as follows:—

	Million acres in the United Kingdom
Wheat, barley, oats	7.67
Potatoes	1.21
Swedes, turnips, mangolds	2.28
Other arable crops	1.55
Temporary grass	6.61
Permanent grass	27.35
Total	46.67

This distribution of land and consumption of fertilisers gave the following amounts of food:—

	Quantity obtained: millions of tons			How utilised: millions of tons	
	Home-grown	Imported	Total	Eaten by human beings	Eaten by animals
Cereals	6.5	10.4	16.9	5.2	9.2
Potatoes	4.8	0.7	5.5	5.5	—
Other roots (estimated)	44.5	—	44.5	—	44.5
Grass (estimated as hay)	60	—	60	—	60
Other foods:—					
Sugar, fish, etc.	—	—	3.4	3.4	—
Cake, straw, etc.	—	—	6.3	—	6.3

Animal food:—

Dairy produce (mainly milk)	4.7	0.5	5.2	5.2	—
Meat	1.8	1.2	3.0	3.0	—

Total ... 122.3 12.8 144.8 22.3 120

The experience of the war has shown that this type of production is not really the most satisfactory to the nation as a whole, as it leaves us far too dependent on foreign countries for supplies of wheat. On the other hand, a system of husbandry that produces much wheat is unsatisfactory to the farmer because of the possibility that heavy crops in the Argentine or North America or elsewhere might pull down prices to unremunerative levels. The risk may, in fact, never materialise, but it has been burned into the farmers' minds by the low prices of the nineties of the last century. In consequence, before the war wheat-growing was diminishing in this country, and grass was increasing.

Under the double stimulus of high prices and Government action farmers have during the war broken up more than 3,000,000 acres of grass land and thus added considerably to the area under cereals, particularly wheat and oats. The breaking up of the grass land has led to the production of much more food in the country and necessitated the use of more fertilisers. It is officially stated that we now produce breadstuffs sufficient for forty weeks per annum, whereas before the war we produced only enough for ten weeks. This does not, of course, mean that we produce four times as much food as formerly; the breadstuffs are not quite the same as they were; but it does show that we go a long way towards feeding ourselves.

The scientific problems involved are more