

Luminous Centipedes.

WITH reference to the paragraph in NATURE of November 23 (p. 233) on luminous centipedes in France, it may be of interest if I mention that these were very frequent in the neighbourhood of Albert and Fricourt in the autumn and winter months a year ago. They appeared to be *Geophilus electricus*, which I had often seen glowing, particularly on mild, damp evenings in late autumn, in Surrey lanes, and sometimes on garden paths in London suburbs.

As the troops marched across the damp grassland to and from the trenches by night, the spots of phosphorescence on the ground at their feet were taken for glowing match-ends, though one might occasionally hear a man from the country refer to them as "glow-worms." I have more than once known an officer get seriously perturbed when troops were marching across a danger zone and the glowing points on the ground seemed evidence that the men were disobeying the "no smoking" order which had been passed along the column!

Luminous centipedes were also to be found in the trenches themselves. (Sergt.) F. M. ROBERTS.

Sutherlands Auxiliary Hospital, Reading,
November 27.

Searchlights.

SEARCHLIGHTS are now so common that it may be of interest to record that, as might have been expected, the beam shows the presence of polarisation, if it is viewed through a Nicol prism, the line of sight through the prism being perpendicular to the direction of the beam. On rotating the prism, the part of the beam viewed changes its intensity in such a way as to show that the light reflected from it is polarised in a plane passing through the length of the beam and the eye of the observer. The best results occur, of course, when the haze reflecting the beam is thin in character, its particles being small. In such cases the light nearly disappears for a suitable azimuth of the Nicol.

C. T. WHITMELL.

Invermay, Hyde Park, Leeds, December 1.

Columnar Ice-Crystals.

AFTER the recent frost a thin layer of gravel became separated from the rest on the paths here (in the park), and on examination was found to be supported by columnar ice-crystals resembling basalt or sal-ammoniac in formation.

The columns were vertical and parallel, closely packed together and of uniform length (about one centimetre).

I should be glad if some reader would kindly explain this (to me) remarkable uniformity.

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AGRICULTURE AND THE WHEAT SUPPLY.

THE present high price of food has directed attention to the urgent need for increasing the production of wheat in this country so that we may be less dependent than at present on foreign supplies. Prior to the outbreak of war the official statistics showed that we were producing only about one-fifth of the wheat we consumed. As the war came in August our home-grown supply was at its maximum, and the Board of Agriculture was able to issue a reassuring report as to the quantities in hand. But the shortage of

available shipping has so affected the amounts of imported wheat that the demand has exceeded the supply, and in consequence prices have risen.

The production of wheat on a large scale in this country is by no means a simple matter. There are, broadly speaking, three factors, soil and climate, economic conditions, and labour, each of which has to be considered separately.

The most fundamental way of increasing the amount of wheat is to increase the yield per acre, and this can be done by either (a) improving the soil conditions, or (b) introducing new varieties capable of better growth than those already in use.

The improvement of soil conditions is brought about by increasing the supply of plant nutrients, i.e. artificial fertilisers, by cultivation, and in other ways. Before the war the world's consumption of artificial fertilisers was increasing more rapidly than the supply, so that prices were going up; this was particularly true of nitrogenous fertilisers. During the war farmers have had a demonstration of the value of artificial fertilisers, which will probably lead to a larger consumption after the war. The whole trend of the activities of the educational and advisory staffs of the agricultural colleges and other institutions is in this direction. The newer agriculture in other countries also calls for more fertilisers: Japan, Australia, India, Africa, and Java are all importers of artificial fertilisers from Europe. It seems reasonable to anticipate, therefore, a considerable increase in the consumption of these fertilisers provided the supply is forthcoming, and one of the most important and most hopeful problems for the future is to ensure these supplies.

Better cultivation of the land requires better implements, but, above all, a better understanding of what cultivation does to the soil. Research in this direction is in hand at Rothamsted and elsewhere, but considerably more work is wanted on the study of implements and better opportunities for testing them.

The production of new varieties is another method by which yields may be increased. Soil and climatic conditions are capable of only a certain degree of modification, and it is clearly an advantage when the plant-breeder can meet the soil-improver half-way and produce a new plant better adapted than the old ones to the conditions actually obtaining. The work of the newer school of botanists seems full of promise in this direction; Prof. Biffen at Cambridge has already done a good deal, and the move of the Botanical Section of the British Association in appointing a special committee to consider this matter is a welcome sign of their intention to attack an important and highly interesting problem.

Another method for increasing the amount of home-grown wheat is to increase the area devoted to wheat either by taking in more land or by displacing some other crop already grown. Increasing the area of land is a favourite suggestion, but one fraught with numerous difficulties. The non-technical tourist walking over Dartmoor or