

the crop yields consistently follow the chief analytical figures, and especially the ammonia. Again, stable (horse) manure is said to be more liable to loss on keeping than cow manure. Recent experiments show that horse manure loses much less nitrogen than cow manure during storage for periods of three or four months. The chapter on garden remedies and insecticides is likely to be very useful this summer, when pests of all kinds are unusually active. E. H. R.

*The World and its Discovery.* By H. B. Wetherill. Part i., *Africa*, pp. 119. Part ii., *Asia*, pp. 99. Part iii., *America*, pp. 131. Part iv., *Australia*, pp. 62. (Oxford: At the Clarendon Press.) Price 1s. each.

MR. WETHERILL has a story of surpassing interest to tell, and he succeeds in conveying, by means of the accounts of the work of the chief explorers, a succinct summary of the main features of the geography of the four continents other than Europe. Told in this fashion, with the emphasis on the lands and their peoples, the geography of the remoter continents becomes vivid, and thus appeals to the pupils with a sense of reality; experience with this book leads to these conclusions. For example, the characteristics of the people and the lands near the Gambia and the Niger gain in precision and definiteness in relation to the travels of Mungo Park; and the gradual development of the story of the conquest of the Central Australian desert provides a useful account of the control exerted upon life on the earth by the absence of rain in a hot region.

#### LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

#### The Formation of Dust-ripples.

LAST evening when returning from a visit to the trenches I noticed an interesting illustration of the formation of dust-ripples. A battery of field-guns had been placed nearly parallel to a road some 2000 yards behind the lines. Owing to the continued fine weather the roadway was covered by a coating of fine dust. The guns were about 100 yards from the road, on lower ground, and pointing so that the shells just cleared. The battery had been in action all day. There was very little wind and no traffic over the road during day-time. The whole surface of the road in front of the guns was covered by a series of small ripples at right angles to the direction of the guns. The ripples were about  $1/12$  in. apart, from east to west. They were evidently caused by the explosive wave passing over the road. The same effect can be produced by discharging a Leyden jar across a spark-gap near a card on which some light powder has been sprinkled, or by tapping sharply a piece of parchment stretched tightly over the end of a lamp-glass containing fine powder. H. U. G. (C.F.).

France, August 10.

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#### A Sunset Phenomenon on July 22.

REFERRING to the sunset phenomenon seen on July 22, and described in NATURE of July 27, it seems probable from information kindly sent by various correspondents that the clouds seen were somewhere in the neighbourhood of Plinlimmon. If this were the case, the height of the tops of the clouds would have been from 18,000 to 18,500 ft., and the two clouds would have been about eight miles apart. A correspondent who watched the sunset from Minchinhampton Common reports that no clouds were visible from there, but even from so far west the altitude of clouds at a height of 18,000 ft. over Plinlimmon would not have exceeded  $1^{\circ} 40'$ , and they would have only been visible if the horizon were a good one and the atmosphere very clear. In asking for information from Ireland I was casting my line too far; the top of a cloud the height of which is 24,000 ft. (which is probably high for a cumulo-nimbus in these latitudes) would not be visible more than 100 miles away. The distance of Plinlimmon from Farnborough is 154 miles; clouds at such distances can probably only be seen when the sun sets behind them in an otherwise clear sky. C. J. P. CAVE.

Meteorological Office, South Farnborough,  
August 14.

#### The Utilisation of Waste Heat for Agriculture.

WITH regard to Mr. Carus-Wilson's fear (NATURE, July 27) that the heating of the earth will multiply pests, one may point out that earth-warming is already greatly used. Large areas of land are covered by glass to maintain a high temperature, and land is also heated directly for forcing rhubarb. One may conclude that farmers would welcome further means for heating the land if the expense were not too great.

If the waste heat from electricity stations were used in the manner I have suggested, it would still be possible to remove the heat during winter months to destroy pests, if this were found desirable, or we could even cool the ground artificially.

I would like to mention here Prince Kropotkin's astonishing book, "Fields, Factories, and Workshops," in which he shows that agriculture may be speeded up in a way that would surprise most people who look on farming as an almost non-progressive industry. In it the author states that even in France, with its abundant sunshine, growers are experimenting with the direct heating of the soil, and if found an advantage there, surely it would be even more so in this country. C. TURNBULL.

Electricity Works, Tynemouth, August 4.

#### A Peculiar Thunderclap.

THE writer would suggest as an alternative explanation of the peculiar thunderclap described by Mr. Don (NATURE, August 17) at different places within the circumscribed area he mentions that probably the lightning discharges were not from cloud to earth, but in the reverse direction, from a large area of ground heavily charged relieving itself at several points simultaneously. H. O. F.

#### ENGINEERING EDUCATION AND RESEARCH IN RELATION TO THE ORGANISATION OF BRITISH ENGINEERING INDUSTRY.

THE Manchester Engineers' Club, which was established about three years ago, includes among its members most of the leading engineers in South-East Lancashire. During the first winter of the war a series of debates was held in