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.]*

Clouds and Shadows.

IN NATURE of April 18 Mr. Charles Tilden Smith described a cloud-like appearance which he considered was no cloud, as it remained quite stationary while stratus and small lower clouds were driven quickly across the sky. I think I can throw some light on the subject, as I observed a similar appearance both on April 5 and on April 8, the date of Mr. Smith's observation.

On April 5 I was observing pilot balloons when my attention was directed to a cloud which formed in the east; it was a cloud with very soft edges, which were constantly changing their shape and were frequently ripple-marked. I enclose a photograph of the cloud taken about 6 p.m. What chiefly attracted my attention was the fact that the cloud remained stationary, though it was obvious from the motion

of the pilot balloons that there was a very strong wind in the upper air. The pilot balloon ascents at 5.27 p.m. and at 6.24 p.m. showed that at one kilometre above the surface the velocity was 20 metres per second or more, which is fairly high for such a low level; the velocity fell off a little at greater heights, but it was 15 metres per second or so at three kilometres.

As a north-west wind, which was the direction on this day, never seems to decrease very materially below the level of the stratosphere, it is obvious that the cloud in question was remaining stationary, though it was floating in a strong wind; presumably the particles of which it was composed were condensing on the windward side and evaporating on the leeward side of the cloud, as in cloud streamers seen round the peaks of mountains. That this was really the case I could not determine at the time, as I was taking observations of balloons, but on April 8 I noticed very similar clouds shortly before sunset, and by watching them carefully it was quite clear that in this case the above supposition was correct. There was a great development of these soft-edged clouds just before sunset; they were arranged more or less in parallel bands, with a vanishing point in the south-west; the particles of which they were composed were coming from the north-west. At one time I noticed that the edges of one cloud broke up into ripple clouds which moved rapidly from the north-west until they reached another cloud into which they merged.

If Dr. W. N. Shaw's supposition is correct that changes of pressure in the lower layers of the atmosphere are caused very largely by changes which occur in the level just below the stratosphere, it follows that a diminution of pressure at this level will cause a decrease of pressure through the whole of the underlying layers, and, as Dr. Shaw has pointed out, condensation and formation of cloud may take place wherever there happens to be a damp layer, and we get, what is so often seen, the simultaneous formation of sheets of cloud at widely different levels.

On April 5 there was a great development of cloud at different layers at sunset. If at any particular layer condensation is almost taking place, any uplift of air will hasten it, and any wave motion that may exist will become visible by condensation in the wave crests. On April 5 the strong wind passing over the irregularities of the surface, such as the South Downs in this neighbourhood, might have caused local uplifts of air which might have extended to considerable heights; thus at some particular layer condensation might take place, the cloud particles forming where the air was rising and evaporating further to leeward, where the air was descending. Soft-edged clouds, formed in a somewhat similar way, may sometimes be seen covering the tops of the Downs and closely following their contours, giving the hills a strange appearance of increased height, as recorded by Richard Jefferies in "Wild Life in a Southern County."

It is difficult to estimate the heights of the clouds seen on April 5 and 8, but I think, though I am not quite sure, that I saw a pilot balloon projected on one of them when it was at a height of about three kilometres; if this were so, the clouds must have been at a greater height.

CHARLES J. P. CAVE.

Ditcham Park, Petersfield, May 5.

Mammalian Remains at the Base of the Chalky Boulder Clay Formation in Suffolk.

MR. E. P. RIDLEY, Mr. Frank Woolnough, curator of Ipswich Museum, Mr. Fredk. Canton, and myself have to-day assisted in the removal of a large curved tusk which was found at the base of the chalky boulder clay formation, and on the top of the underlying middle glacial sand, at a depth of 11 ft. 3 in. from the present surface of the ground.

Numerous pieces of bone evidently belonging to the same animal have been found lying near the tusk, but were removed before we arrived. The spot where this discovery has been made is in a shallow valley at Charsfield, a village about eleven miles north of Ipswich, and it is owing to the kindness of Mr. W. H. Youngman that I was apprised of the find.

This shallow valley is a typical example of the dry valleys so often met with in Suffolk and elsewhere, and is not apparently connected with any present river system.

The section in the small pit, which is being worked for stone, shows 1 ft. of surface humus, 3 ft. of blackish gravel, 4 ft. of chalky boulder clay, developing into, and evidently a part of, a loamy gravel about 3 ft. in thickness.

At the bottom of the section the fine, stoneless middle glacial sand is exposed. The accompanying