

the camera to any degree of altitude. These supplementary boards are then pivoted at the centre of part of a divided circle, previously inlaid in the wood at the extremities of the base line, in such a manner that a line passing through the axis of the lenses would cut the pivots. The cameras thus furnished can be adjusted with ease to any vertical or horizontal angle. These angular adjustments of the two instruments must always coincide, with the slight exception that the horizontal ones must make internal angles with the base included between them, or, in other words, the lenses of both require to be directed to a point opposite to the centre of the base line.

The cameras also require their rapid exposing shutters to be electrically connected, to ensure the pair of sensitive plates being impressed at the same instant, and each dark slide employed to have a fine wire strained at its centre from top to bottom immediately in front of the prepared plate, and as close as possible to it without touching. The transparent lines produced in the developed negatives by these wires will constitute the zero of distance of any pair, and during the operation of reading off must be made to agree with similar ones on the scale of measurements obtained as follows:—

Upon a large cardboard rule a number of squares in fine black lines, one inside the other, and each one slightly out of the centre of its predecessor to the right hand, the outside square being then divided with a line at a tenth part of its diameter to the left of its centre. This line will indicate the zero of the scale. After placing a distinguishing mark or number in the corner of every square for purposes of identification, the cardboard will be ready to be photographed and reduced at the same time to the intended size of the cloud negatives. Two transparent positives copied from this and observed when placed side by side in a suitable stereoscope with the edges representing the left-hand one of the cardboard together, will appear in that instrument with the lines composing the zero only a few inches away, and the squares as a succession of vertical planes commencing some distance from that and receding from the eye in the order of greater to less, each one representing its own distance in space.

To find the value of these distances it will be necessary to focus the two cameras upon some terrestrial objects whose distances can be measured by any of the known methods, and negatives taken. The two resulting landscapes, when placed in the stereoscope, each superimposed face to face upon its respective scale, and the fine vertical lines of the whole made to occupy one apparent distance, an operation offering but little difficulty, every object or point of the landscape will be found to stand out in the vertical plane suited to its own distance, the relation between them being noted for the values found by measurement of the one to be marked upon the other. As a scale prepared thus would be of no value for any other angle at which the cameras might be placed, it would be most convenient to make use of two or three angles only, more being quite unnecessary, and prepare a scale for each, or one with a reference table of values for the respective angles would suffice. Again, in respect of altitudes. As the terrestrial measurements would only be absolutely accurate for those of clouds in the zenith, or of them, if it were possible, from the earth's centre in any direction, the tables of reference would have to include calculated corrections for altitude, or the graduations could be valued for the most useful degrees by experimental means.

It will be gathered from the above that the constancy of length of the base line can be ascertained, and corrected if necessary, by taking a couple of views of the same landscape for comparison with the preceding pair; slight fluctuations of length would not however be of much consequence in dealing with the comparatively coarse measurements of thick masses of cloud floating in so short a distance as the few miles of atmosphere capable of forming them consists.

To ascertain the height of clouds photograph a pair of negatives, and place these in the stereoscope with a pair of scale plates agreeing with the angle at which they were taken, and adjust as for the landscapes described above. The data required may then be read off by noting the vertical plane each stratum occupies.

Prints of these negatives should afterwards be made for the particulars of height, direction of motion of the respective layers, point of compass, wind rate, state of barometer, thermometer, and general remarks upon the weather, to be recorded upon them for comparison or circulation.

Meteorological observatories fitted with such an addition to their present splendid collection of instruments would have their

powers of dealing with the atmosphere and weather changes greatly reinforced.

Wick, near Arundel

JOHN HARMER

Correction of an Error in "Island Life"

MY friend Dr. Günther has kindly called my attention to an extraordinary error at p. 322-323 of my "Island Life," where I state that the Loch Killin Charr (*Salmo Killinensis*) inhabits a lake in Mayo County, Ireland; instead of a small lake in Inverness-shire, 2000 feet above the level of the sea, as given in Dr. Günther's original description in the *Proceedings* of the Zoological Society, 1865, p. 698. On referring to my MSS. notes for this part of my work, I find that the habitat was first correctly given, but subsequently scored out and altered to the erroneous Irish locality! Why this was done I cannot now discover; and I can only regret that I should have fallen into so palpable an error, and request such of the readers of NATURE as possess my book to make the necessary alterations.

ALFRED R. WALLACE

Natural Science for Women

WILL you allow me to supplement your kindly reference to the instruction in physical science given to women in Bedford College, London, by the statements that for the last two sessions a class in biology has been conducted there by Mr. Charles Stewart of St. Thomas's Hospital Medical School. The course of study is in every sense a practical one, with special reference to the Preliminary Scientific and First B.Sc. examinations at the University of London, and the best testimonial to the excellence of the instruction in these various subjects is furnished by the remarkable success during the present year of the Bedford College pupils at the University examinations, a success not less marked in the Science than in the Arts examinations.

ALFRED W. BENNETT

Movements of Leaves

A YEAR ago we had in our conservatory a healthy young plant of *Acacia mollissima*. It bore no flowers, but consisted of a simple axis adorned with the soft feathery leaves of its genus, which closed up at night. Our gardener however thought it would improve in appearance if it could be made to bear a few branches; and with that view he cut it back. His end was achieved: a new stem shot up from the section, and graceful limbs were thrown out in turn by it. But along with this a strange result followed: the fresh leaves borne by the new stem and by the branches now closed at night, while the old leaves below the section ceased to do so. These lower leaves have long since fallen off, but the upper ones kept to their habit, and at the present time all fold up at dusk save a few of the very oldest, which only partially shut, or, in one case, do not shut at all. When our plant was cut back it stood three feet high; now it stands seven: which shows that the vigour of the plant as a whole in no wise diminished by the operation.

Chislehurst, December 23

M. L. ROUSE

ON DUST, FOGS, AND CLOUDS¹

DUST, fogs, and clouds seem to have but little connection with each other, and we might think they could be better treated of under two separate and distinct heads. Yet I think we shall presently see that they are more closely related than might at first sight appear, and that dust is the germ of which fogs and clouds are the developed phenomena.

This was illustrated by an experiment in which steam was mixed with air in two large glass receivers; the one receiver was filled with common air, the other with air which had been carefully passed through a cotton-wool filter and all dust removed from it. In the unfiltered air the steam gave the usual and well-known cloudy form of condensation, while in the filtered air no cloudiness whatever appeared. The air remained supersaturated and perfectly transparent.

The difference in the behaviour of the steam in these two cases was explained by corresponding phenomena,

¹ Abstract of a paper read to the Royal Society of Edinburgh, December 20, by Mr. John Aitken. Furnished to NATURE by the Council of the Society.