glass. Any two of these form an opaque combination—that is to say, the first glass stops all the rays which could pass the second, and the second stops all that pass the first. But a green and a blue glass do not form an opaque combination, but pass the green rays. If we place the red, the green, and the violet glasses in a row close to each other, with the green in the centre, place a piece of yellow glass so as to overlap the junction between the red and green glasses, and a piece of blue glass to overlap the junction between the green and violet glasses, and arrange the combination so that white light can pass through it, it will be seen that the yellow glass passes the red and green rays, and the blue glass passes the green and violet rays; and that the only effect of the yellow and blue glasses is to deepen the colours when the light passes through them.

Darrock, Falkirk, Sept. 23

JOHN AITKEN

Anthropology and M. Comte

PERHAPS you will allow me to state that your report of my paper "On the Anthropology of Auguste Comte," read before the British Association at Edinburgh, is wrong in two essential particulars. First, I did not attempt to "expound the views of M. Comte according to the principles laid down by Mr. Darwin." Comte's views on man and his relation to the animal kingdom were published upwards of twenty years ago; Mr. Darwin's recently. Second, I did not "maintain that Auguste Comte's worship of humanity would be the great doctrine of the future." I may, and do believe this, but I made no reference to it whatever in the paper which you have so correctly mis-reported. The Positive religion was not the subject of discussion, and I limited myself to what my paper implied.

J. KAINES

3, Osborne Road, Stroud Green Lane, N., Sept. 22

A Plane's —?

It is perhaps answering somewhat at cross purposes, but would not the word *aspect* meet Mr. Wilson's requirements? In reference to those important planes of every-day life, garden walls or house fronts, its use is well established; and there would be no violence to either custom or language in applying it to geometry.

J. K. LAUGHTON

[Another correspondent suggests the term "slope."—ED.]

Meteorological Phenomenon

AMONGST some old memoranda I find the following, which copy verbatim:—

JOSEPH JOHN MURPHY

Old Forge, Dunmurry, Co. Antrim, Sept. 18

"Monkstown, near Dublin, about 3.10 P.M. 25th of July, 1858, saw, about opposite the sun, an appearance like the rainbow, but horizontal, and extending along a few degrees of the horizon. The red was above the sea-horizon, and the green below. I could not make out beyond the green, but this might be because the blue was blended with the colour of the sea. As I did not see it commence, I cannot say how long it lasted. It faded gradually but rapidly, without any other change in the sky that I saw. The day was alternate sunshine and heavy showers; the sun was shining at the time.

"This note has been made within half an hour after its disappearance."

Lunar Rainbow

A VERY perfect lunar rainbow was seen here last night. I noticed it first at 9.42. At that time the northern portion of it only was visible, but its intensity steadily increased, and by 9.45 the arch was complete. Both at the northern and southern extremities there was a peculiar glare, extending upwards about 20°, the apex of the arch being remarkably clear and well-defined. The rainbow faded away as rapidly as it had been developed, and at about 9.50 had entirely disappeared. At the time of the occurrence the western portion of the heavens was very clear, and the moon about 8° above the horizon. Temperature cold, with a biting wind from W.S.W.

R. B.

Hinderton, Neston, Cheshire, Sept. 23

The Corona

MAY I suggest a method of observation which would possibly be a more delicate test than that which our own sight affords for ascertaining the outer limits of the corona?

It seems probable, from a discussion of former observations, that the polarisation of the sky is altogether changed during totality, and that instead of being radial to the sun as at other times, its plane is perpendicular, or nearly perpendicular, to the horizon. This appears at all events to be the case over a very large area about the eclipsed sun.

In passing along a parallel to the horizon through the sun's centre, we should expect to find, at some little distance from the limb, the pure atmospheric polarisation unaffected by any component due to the corona.

At such a point an observer using a Savart might therefore expect to find the bands disappear at an angle of 45° to the horizon. Having carefully turned out all trace of the bands upon the centre of his field, let him now pass onward towards the sun's limb (directing his attention all the time to the centre of his field only), when he there perceives the first trace of bands. He will know that the plane of polarisation has changed. If, on going backwards, the bands disappear again, while in passing onwards they continue to increase, he will know that that change is due to a component introduced by the corona; and he will be able to estimate the distance from the moon's limb at which such a component first became visible.

I feel disposed to think that by this method he will be able to trace the corona further than he could by the unaided eye; for it will be somewhat equivalent to making the corona shine upon a perfectly black background of sky; and much more than equivalent to accomplishing this with a Nicol only, for the Savart will detect less than one-eighth of the polarisation detectable by the Nicol.

The visible outer border of the corona is where our eye first distinguishes a difference between

The light of the sky
and

The light of the sky + the light of the corona,

while by this method the visible outer edge of the corona will be where we first distinguish a difference between an area of no polarisation and polarisation due to the corona.

In using a Savart with a large field, the central portion of the field might well be marked by fixing in the common focus of the telescope a plate of glass with a small circle etched upon it corresponding say to 8' or 10' of diameter in the field of view.

A. C. RANYARD

A Rare Moth

A FINE specimen of the rare moth *Deilepia pulchella* (crimson speckled footman) was captured by R. Beck on the Moors near Scarborough on the 11th inst. Could any of the readers of NATURE inform me whether it has ever been taken so far north before?

W. E. WALLER

Oliver's Mount School, Scarborough, Sept. 22

Meteorology in America

THE writer of the article on this subject may be interested in hearing that a meteorograph, similar in some respects to that invented by Prof. Hough, was sent to the International Exhibition just closed in London. It was invented and constructed in Sweden, and one similar is said to have been performing satisfactorily for nearly three years. In the Swedish, as in the American instrument, the height of the mercury in the barometer, and the wet and dry thermometers, is felt by steel wires descending the tubes; but in the Swedish instrument the levers to which these wires are attached are acted on by very fine screws, the revolutions of which, translated by a series of wheels into the language of barometers and thermometers, are printed every quarter of an hour on an endless roll of paper. The whole apparatus is set in motion by a galvanic battery, which even winds up the clock which regulates its own action. The barometer is tapped before it is registered, but there is no correction for temperature. The price is 350l.

The barometer invented by Prof. Wild seems to bear some resemblance to the barograph invented by Mr. King, and now used at the Liverpool Observatory.

W. R.

Ruined Cities of Central America

IN the summary of the proceedings of the late meeting of the British Association, in the issue of NATURE for August 31, is an abstract of a paper by Captain L. Brine, R.N., *On the Ruined Cities of Central America*. The gallant captain is wrong in stating that the existence of these ruined cities was unknown

until within a comparatively recent period. All the early chronicles abound in allusions to them—Remesal, Vasquez, Cogolludo, Villagutierrez, Juarrez, and others. Uxmal and Chichen Itza, which Captain Brine speaks of as “discoveries,” were undoubtedly occupied places at the time Grijalva touched the shores of Yucatan. Copan, although then a ruin, was visited and minutely described by Dr. Palacios as long ago as 1576. Captain Brine would lead us to infer that these remains have been “discovered” since the expedition of Del Rio to Palenque in 1787.

That these Ruined Cities were built by the progenitors of the various families of the Tzeudal or Maya stock found in Central America at the time of the discovery, and who are still there, and that many of them were then occupied and flourishing does, not admit of doubt—is capable of demonstration.

Big-eyed Wonder should be eliminated from modern speculation!
E. GEO. SQUIER

New York, Sept. 14

The Dinnington Boulder

I HAVE been favoured with a letter from a geologist residing at Newcastle-upon-Tyne, who kindly informs me that he has inspected the “fossiliferous boulder,” and pronounces it to be a block of carboniferous limestone.

This gentleman, from his knowledge of the district, says, that this limestone (underlying the coal measures) crops out about seven or eight miles to the west or north west of Dinnington, from whence probably it came. The question asked of its direction of travel is therefore satisfactorily answered.

J. BROUGH POW

Barbourn, Worcester, Sept. 21

Mechanical Drawing

IN the opening address of the President of the Mechanical Section of the British Association, descriptive geometry and geometrical projection are both spoken of as subjects of little value to the mechanical draughtsman.

Now, being interested in the matter, I would like to ask the nature of that special kind of mechanical drawing of which the President spoke, and which leads to mensuration and geometry. I suppose from the address, descriptive geometry and geometrical projection will be dispensed with, seeing, as he says, that it is no loss to the mechanical draughtsman to be ignorant of the latter. As an illustration of that *real* mechanical drawing which he advocates, would Prof. Jenkin be kind enough to show the method he would adopt in the construction of a drawing which would show the lines of intersection of the surfaces of a cone and sphere whose axes are not in the same plane?

I can assure Prof. Jenkin that a word of advice from him will always be a great boon to the hardworking student.

DRAUGHTSMAN

Fall River, Mass., Sept. 18

Ice-Fleas

I SHOULD have thought that the “ice-fleas” described by Prof. Frankland had been almost as familiar to Alpine travellers as their more offensive namesakes of the chalets. They are described by De Saussure (*Voyages*, § 2249), by Mr. Morell, “Scientific Guide to Switzerland,” p. 275; by myself “Alpine Regions,” p. 207, where references are given, chiefly to a paper by M. Nicolet in “Neue Denkschriften der Allg. Schweiz. Gesellsch.” vol. v. (1841); and by other writers on the Alps.

T. G. BONNEY

St. John's College, Cambridge

Thermometer Observation

ONE very hot day last summer I exposed to the sun, in the same position, three thermometers; No. 1 was a new one mounted on box wood, No. 2 was similar, but very dirty from exposure to the weather; No. 3 is what is known as a bath thermometer, with a metal scale. In the shade they all agree to about 1°, but in the sun No. 2 rose about 8° above No. 1, and No. 3 about the same above No. 2. Here we have a discrepancy of about 16°, caused no doubt by the different heat absorbing and radiating powers of the substances on which the thermometers were mounted. I think this may somewhat account for the various readings we see announced by different observers.

D. J. STUART

THE USE AND ABUSE OF TESTS

THE gradually increasing recognition of the claims of Science by the Government is cause for unmingled satisfaction to every one who is interested in the material and moral progress of the country. And now that the Government has set its hand to the work, it seems disposed to let no timorous counsels or half-measures prevail. The readiness with which the demands of astronomers have been met last year and this, the really admirable practical instruction recently given to science teachers at South Kensington, are evidence of the earnestness of the intentions of those in authority.

In the present attitude of the Government towards Science, however, everything is not yet as it should be. Much of the practical value of this earnestness consists in the manner in which details are carried out, and there is one department of the administration in which a spirit of mischief appears to delight in neutralising all efforts at improvement. The recent movement to compel all candidates for employment under Government to submit themselves to an educational test is in the main a good one; but it may be carried to an excessive, even to a ludicrous, extent. Tests are in themselves valueless, unless they are so contrived as to test the possession by the candidate of those qualifications which will best fit him for the office he aspires to fill.

There are at the present time vacancies in one of our Government scientific establishments for two junior assistants, and the principal of the establishment was desirous of appointing two young men who possessed the needful qualifications of neat and orderly habits, punctuality, and obliging demeanour, and a love of Science for its own sake. The establishment in question has, however, the misfortune to be under the control of the Board of Works; and when the authorities of this department heard of the vacancies, they insisted, notwithstanding the remonstrances of those most interested, in announcing them for public competition. The consequence will be that the posts will, in all probability, be given to those who display the best acquaintance with English History or French, but who have not proved themselves possessed of a single qualification for these particular posts. This Procrustean system of measuring all men by the same standard will not answer. The inevitable result will be to fill all the square holes with round men, and all the round holes with square men. As reasonably might we require all the clerks in the Foreign Office to be acquainted with the properties of the chemical elements, or every assistant in the library of the British Museum to be able to name the bones in the human skeleton; for these are as essential to the liberal education which every gentleman ought to possess, as a knowledge of English History or French. The system pursued in the British Museum, which is fortunately under the control of another department of the administration, would satisfy all reasonable requirements: that the principals of all establishments should have the right to nominate candidates to vacancies, subject to a qualification-test of their general acquirements. It is but fair that in departments where the efficiency of the subordinate officials depends so much on their willingness to co-operate heartily with their superiors, and on the possession of qualities which no examination can possibly test, the principals should have some voice in the appointment of those who may probably succeed to the offices they themselves occupy. An opportunity is thus also given for the encouragement of young scientific aspirants, who may be known as earnest and careful workers, but who would otherwise stand little chance of Government employ.

We make these strictures in no carping spirit, but simply with a desire that the good work now commenced may not be marred by errors of administration. The only object of the system of competitive examinations, and of compelling all candidates for Government posts first to submit