

his difficulties would vanish, and he would already know the proposition.

All that I contend for is, that the new book on geometry ought to be capable of such usage. If it contains little more than the chief steps of the solutions, and those disguised (to the unpractised and tottering mind) under symbols, it will not satisfy the want now felt.

A FATHER

The Beef Tapeworm

As an entozoologist and correspondent of the Academy of Natural Sciences of Philadelphia, I request permission to correct an error recorded in the report of the Academy as given in your columns (at p. 500) this week. Dr. Leidy is represented as having stated that "the minute acetabular pit or fovea at the summit of the head [of *Tænia mediocanellata*] is not mentioned by Kuchenmeister and subsequent observers as a character of that species." I beg to remark that I both figured and described this supplementary sucker-like structure in the first edition of my small work on "Tapeworms," published in 1866 (p. 33 *et seq.*). At least two other observers have figured and described this central depression, not only in the adult but also in the meale or cysticercal stage of the worm. Even Bremser recognised it, but his description was for a time overlooked.

84, Wimpole Street, London, Oct. 21 T. S. COBOLD

Winter Fertilisation

In the first number of NATURE, (for Nov. 4, 1869,) I ventured on a hypothesis, founded on a series of observations, that plants which flower in the winter have their organs of reproduction specially arranged to promote self-fertilisation. The following fact, which has just come under my notice, appears to confirm this theory. Plants belonging to the order *Caryophyllaceæ* are, as a rule, strongly protandrous (see my paper in the *Journal of Botany* for October 1870), the anthers discharging their pollen at so long an interval before the maturing of the stigma as to render cross-fertilisation almost inevitable. The other day, Oct. 21, I came across a late flowering patch of *Stellaria aquatica* Scop., in which the anthers were discharging their pollen simultaneously with the maturing of the stigmas, each of the five styles being curled in a singular manner round one of the stamens, so as to bring the stigmatic surface in actual contact with the dehiscing anther. This occurred in several flowers that were just opening, and there was abundance of seminiferous capsules on the plants.

ALFRED W. BENNETT

Velocity of Sound in Coal

YOUR correspondent will find in Prof. Tyndall's beautiful work on "Sound" the data required for the exact determination of its velocity in different media. I believe that in coal it will be found to be between six and seven times that in air, or about 7,000 feet per second.

If Mr. D. Joseph places his ear against the solid coal of the "rib" or side of the "heading" or gallery, at a distance of some twenty to thirty yards from a collier at work, he will hear two sounds for each blow of the workman's pick or mandril—the first being transmitted through the coal, the second more slowly through the air, the impression being almost irresistible that two persons are at work.

This is probably the origin of the legend, common in more than one coal district, of a collier who always worked alone, did more work than his fellows, and whose diabolical assistant was often heard but not seen.

C. J.

Changes in the Habits of Animals

YOUR correspondent Mr. Potts in the last number of NATURE furnishes us with a few interesting facts regarding the *Kea*. In a paper which I read about three years ago to the Dumfries Natural History Society, entitled "The Influence of the Human Period on the Sagacity of Animals," and subsequently in a letter published in NATURE, vol. i., on the "Mental Progress of Animals," I endeavoured to show from general considerations, and from the few facts which we possessed on this subject, that the habits and instincts of animals were not so fixed and definite as might be supposed. The general principle for which I contended was that whether we considered the globe to have received

its human inhabitants according to the laws of evolution, or in some miraculous manner, the arrival of the human race produced great modifications and changes of surrounding circumstances. These changes were in the direction of increasing the fertility of all vegetable productions capable of sustaining life, and at the same time securing their use entirely for the human family. Hence arose, in the vicinity of man, two new factors; the superior attraction of better food for all kinds of animals, and at the same time the extinction of such animals whose greed was not overruled by sufficient wariness or cunning to become successful thieves. Hence a probable gradual increase in these qualities in the animals maintaining themselves against man.

Since my attention was drawn to this subject, we have had some interesting observations on modifications of swallow's nests by Pouchet, and a discussion as to the validity of his conclusions by Noulet, and now I have read with pleasure Mr. Potts's observations. Most likely the progress of development in the carnivorous habits of the *Kea* will meet with a check now that shepherds are alive to its depredations; but without the influence of the human period we can scarcely suppose that such development would have begun. I recollect a case of change of habits in weasels. They multiplied so thickly in a parish in the south of Dumfriesshire that some hungry philosopher among them took the initiative in sucking the blood from the cattle. Suspicion having been aroused, the fact was proved, but its discovery was fatal to the weasels, for the whole country-side arose against them, and all but extirpated them in that quarter. It is very interesting to observe what modifications are being produced in the habits of various species of sea-gulls since Glasgow, by its enormous increase of commerce, has wrought great changes in the River Clyde, filling it with all kinds of garbage. The conditions of existence having been favourable, the gull is steadily passing more and more time inland; ascending tributaries of the Clyde, and alighting in flocks on fields that used to have him very seldom.

A new amusement within my own recollection has been afforded the river passengers during the summer months in feeding these sea mews, &c., by throwing overboard food to them, and their increased tameness and boldness of approach in following the river steamers within the last thirty years have been frequently commented on.

J. SHAW

Oct. 23

A Plane's Aspect

MR. LAUGHTON has hit the nail on the head. "Aspect" is exactly the word wanted. The aspect of a plane is the direction of its normal; and "parallel planes are defined as those which have the same aspect." Two aspects determine one direction, and two directions determine one aspect. Mr. Laughton deserves the thanks of geometers for suggesting so good a word.

Rugby, Oct. 23

J. M. WILSON

THE words "aspect" and "slope" have already a use in relation to the position of planes. They indicate two elements which together fix the position. Neither of them, taken alone, can indicate the position of a plane, unless a new and artificial meaning be assigned to one or other. Thus if I speak of the "aspect" of one of the faces of a roof as southerly, I have done something but not all that is necessary, towards describing the position of that face; if I add further that the "slope" is 30° I have definitely assigned the position. Again if I speak of the "slope" of Saturn's rings as 28° (the plane of reference being ecliptic), I have done something towards the description of their position; if I add further that their "aspect" is toward such and such a degree of the sign Gemini, I fully assign their position in space. And so on.

In the preceding sentences I have used the words "slope" and "aspect" as they are already understood. I apprehend that I have also used the word "position" as it is already understood, and that no other word could properly be used in the same sense in descriptive writing. I can see no reason why "position" should be dismissed from the position it has so long occupied, nor why "aspect" and "slope" should be regarded in a new and unfamiliar aspect.

It chanced that I have long since had occasion to consider the question suggested last month by Mr. Wilson. In each of twelve books which I have written during the past six years, I have had repeated occasions to consider the slope and aspect, that is, the "position" of many important astronomical planes.