

numbers counted as heads, the even numbers as tails. The 120 throws were divided into 3 groups of forty in each, and gave the results of all-alike 8, 12, 8, total 28; as against not all-alike 32, 28, 32, total 92. The most probable expectation having been 30 to 90.

FRANCIS GALTON.

#### Clerk Maxwell's Papers.

I DO not know whether the Clerk Maxwell Memorial Committee have ceased from their labours, but I cannot help thinking that more might be done towards rendering the work of Maxwell more readily accessible to students. The pair of ponderous volumes issued by the Committee are very well in their way, but they are certainly bulky, and the chronological order of papers, though eminently suited to their purpose, is not so suited to the practical needs of students.

For instance, the papers on the kinetic theory of gases seem to me far and away better than much that has been written since, and it would be very convenient to be able to procure them separately.

My suggestion is, then, that with the aid of a moderate subsidy a publisher be induced to issue Maxwell's papers on special subjects in cheap, handy, separate volumes, which might run somewhat as follows:—

On Colour and Optics.  
On Graphical Statics.  
On the Kinetic Theory of Gases.  
On Dynamical Problems.  
On Electro-dynamics.  
Lectures and Addresses.  
Articles and Reviews.

Under one or other of these heads almost all the papers could be included; there would be no need to include anything that did not seem likely to be of frequent use. The series of small books would be a boon to students, and a knowledge of the work of their great author would be more widely spread.

OLIVER J. LODGE.

#### Abnormal Eggs.

THE occurrence entitled "A Curiosity in Eggs," related in NATURE for February 1, is by no means as unusual as your correspondent imagines. It occurs in domestic poultry from over-stimulation of the system by generous feeding. The explanation of the production of one egg within another is very simple. The ovum or yolk when mature is received into the upper part of the oviduct, a tube nearly two feet in length in the domestic fowl, and in its descent is clothed successively with the layers of albumen or white, the lining membrane of the shell, and finally, on arriving at the calcifying portion of the oviduct, is enveloped in the shell. In the ordinary course of events the mature egg is then expelled, but in the case of the production of a double-yolked egg, a reverse action of the oviduct occurs. In place of being expelled, the egg is carried back again to the upper portion of the oviduct, where it meets with another mature ovum, and the two descend together, both being surrounded with a second investing series of albumen, membrane, and shell.

Some of the occurrences connected with abnormal eggs are very remarkable. I had one forwarded to me during the last month, which was alleged to contain a marble. On examination I found that the supposed marble was a small abortive yolkless egg, which in colour and form, but certainly not in weight, closely resembled a common clay toy marble. It is not unfrequent for persons to allege the occurrence of various foreign bodies in eggs. The most common substance said to be found in an egg is a horse-bean, which is closely simulated by a mass of hard coagulated blood which has escaped from the ovarium into the oviduct, and is included along with the yolk in the investing structures. I need not further allude to such circumstances as a horse-hair in an egg, or a small coin not unfrequently found at the breakfast-table, inasmuch as these are merely the result of practical joking, and require no further explanation. There is, however, one circumstance that may interest some of your physiological readers, and that is the extreme rarity of the hatching of any egg the shell of which is in the slightest degree malformed. In my own experience I have rarely, if ever, found an egg the shell of which was in the slightest degree unsymmetrical, that has been channeled at one end, or having an irregular zone around the middle, to produce a chicken. The occurrence of two ova in the same egg

is by no means uncommon. It results from excessive feeding, and rarely, if ever, occurs in a state of nature. I have known two perfect birds, both chicken and pigeon, produced from such an egg, but the more general result is that the two ova, being developed together, coalesce, possibly from want of room to develop in the confined space, and thus arises the presence of two-headed, or six or eight-limbed monsters, which are much more frequent in fowls than in any other animals whatever. I have from time to time forwarded specimens of these abnormalities to the museum of the College of Surgeons, where they may be seen by those who are interested in the subject.

W. B. TEGETMEIER.

North Finchley.

ON two occasions fully shelled eggs of about the size of those of the thrush have been found by myself within ordinary hen eggs, one of which is still in my possession. Several times I have hatched twin chickens from double-yolked eggs, and once a monstrosity having four legs.

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E. J. LOWE.

#### THE PLEIADES.

AMONG the many constellations and star clusters which attracted the attention of our early ancestors, few, indeed, were so constantly observed as that small bunch of twinkling brilliants known as the "Pleiades." From a very early date, when our forefathers were not so well acquainted with the divisions of the year as we are to-day, they needed some means by which they could tell when to sow their corn, and make arrangements for other agricultural pursuits which could only be done properly in their right seasons. That they could, at any rate, get a rough approximation of such divisions of the year by means of the positions of the heavenly bodies, they soon found out, and they were thus led to observe sometimes stars, sometimes groups of stars, near the rising or setting of the sun, and even certain stars, or groups of stars, at their times of rising and setting.

That they should have chosen that group of sparkling stars, the Pleiades, to serve their purpose, does not seem at all astonishing if one considers how easily they can be recognised in the sky, and also their important position in more remote times.

The different relative positions of the sun and the Pleiades had no doubt first attracted special attention to this group of stars, and we know how important a rôle they played in ancient times for calendar purposes?

Let us just consider the several positions of the Pleiades as a result of the earth's rotation and revolution round the sun. Commencing about the end of May, we find that the Pleiades are altogether invisible, as they rise and set together with the sun. As time goes on, they will appear above the horizon before the sun, the difference in the time of rising of these two objects gradually increasing. In August the Pleiades cross the meridian about the time the sun rises, and by the end of November they are visible throughout the whole night, their upper culmination taking place at the same time as the lower culmination of the sun. As November draws to a conclusion, they set earlier and earlier, and by the end of February are visible only for a short time, disappearing altogether for a time after the middle of May.

Owing, however, to a slight movement of the axis of the earth, which makes a revolution round the pole of the ecliptic once in about 25,800 years, the point of intersection of the ecliptic with the equator is not fixed but movable; thus we can understand that the positions of all heavenly bodies as regards their right ascensions and declinations suffer a continual but slow alteration.

This slow movement explains the reason why the Pleiades have not always been invisible at the end of the month of May, and we have only to form a simple