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-yoked eggs, and once a monstrosity having four legs.

Shirenewton Hall, Chepstow. 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

calculation to become acquainted with the fact that about 2000 years ago this period of invisibility occurred nearly a month earlier.

A very interesting point relating to the Pleiades is the great number of different names which have been applied to them, and also the curious myths which have arisen from time to time. A most interesting account of these has recently been published by M. Richard Andrée,[1] who has brought together a mass of matter relating to both names and myths. First, with regard to the names which were used when referring to the cluster. The general words defined them as a heap, troop, host of dancers, sieve, &c.; sometimes the simple word "many" was adopted. One finds them spoken of as herds, or hosts of animals, birds, such as hen with chickens, parrots, doves, &c. The simplest expressions really used meant "mass," and an examination of the records confirms this view.

In observing the Pleiades anyone would remark how closely they are packed together. This closeness led early peoples, no doubt, to refer to them as a host or herd of animals, and hence the well-known name, "the hen with her chickens."

Among many foreign names for this, we have in German, Der Glucke mit ihren Küchlein; in Danish, aftenhöne (evening hens); in French, la poussinière; in Italian, gallinette, &c. Instead of a host of animals, we have a host of people referred to, such as, for instance, in the Solomon Islands, where they are called "togo ni samu," meaning a company of maidens. The North American Indians have also known them under the name of "dancers."

It may be thought that a natural name by which they would be known would give some idea of the number of stars in the group; this was often the case, only with different names, for a very good pair of eyes could distinguish seven stars, while generally only six were counted. The word for the Pleiades, for instance, in old high German was "thaz sibunstirri" (seven stars), while that of the South Americans, "cajupal," meant six stars. Again, in Cook's Islands the word "Tau-ono" (six) was used, while the Greeks had a special name for *each* of the seven stars.

Seeing that so much importance has been attached to the Pleiades by peoples of all countries, it is natural to find that the number of myths is by no means few; this is shown to be the case by examining the records of the ancient Greeks, the peoples from East Asia, South Sea Islands, America, &c.

To describe a few briefly, let us refer first to that which we owe to the Greeks. The Pleiades in this myth were the daughters of Atlas and Pleione, each one of which bore a separate name. The Hyades, for sorrow at the death of their sisters, or, as others say, at the destiny of their father, Atlas, killed themselves and became fixed as a constellation in the heavens. Another myth, by Pindar, describes them as the comrades of Artemis, who were turned into doves, and eventually into stars.

A myth of much interest is that of the Dyaks, and the Malays of Borneo. They say the Pleiades were six chickens followed by their mother, who remained always invisible. At one time there were seven chickens in all. One chicken paid a visit to the earth, and there received something to eat, at which the hen got so angry as to threaten to destroy both the chicken and the people on the earth. Fortunately the latter were saved by the constellation of Orion, leaving only six chickens in the brood. At that period of the year when the Pleiades are invisible, the Dyaks say that the hen broods her chickens, while at the time of visibility "the cuckoo calls."

The South Sea islanders have a myth which has some originality about it. It is to the effect that the Pleiades were originally a single star, which shone with such a clear lustre as to incur the envy of the god Tane, who was in league with the stars Aldebaran and Sirius, and followed the Pleiades. Trying to save himself in a stream, the course of which Sirius had so diverted as to bring him close to Tane again, he was broken up into six bright stars by Tane himself, who hurled Aldebaran at him.

The blacks of Victoria, Australia, have a myth in which the Pleiades are considered a host of young wives who play with the young men. The myth of the Kamilaroi blacks is as follows: The Pleiades were once pretty maidens on the earth, who were followed by some young men called the Beriberi. To get away from the latter the girls climbed trees, and thence sprang into the heavens, where they were transformed into shining bodies; one maiden who remained behind was termed "gurri gurri," the shy one, and she is represented by the least bright star in the group. The Beriberi were eventually placed in the heavens, where they appear in the girtle and boomerang in the constellation of Orion.

These and many other myths, all of great interest, are mentioned by M. Andrée. They inform us to a certain extent of the characters of the different nations. Much might be learnt also about the origin of the various tribes of people, by seeing if the different myths can be traced back to an initial one. Those of the North American tribes, for instance, seem to have a common origin. In some instances the Pleiades were undoubtedly looked upon as a god who, besides regulating the year and looking after the fruitfulness, was the ruler of all meteorological and astronomical appearances. Hesiod refers to the rising of the Pleiades as the time for harvest, while the period about which they disappeared for some time he termed ploughing time. Forty days and nights were they invisible, appearing again only as soon as the sickle was sharp. Another very well-known use made of the visibility and invisibility of the Pleiades was the regulation of the traffic of ships in Greece, hence probably the Greek word for to sail, πλεειν. The rising of this group of stars was the commencement, so to speak, of the shipping season, their disappearance denoting its conclusion. At Rome, also, the same practice was in vogue.

Enough has been said to attract the reader's attention to some of the numerous interesting references about this group of stars. The nineteenth century has already seen the end of many a myth which has been solidly upheld; but as science advances, facts take the place of myths, and although much of the romance may appear to be lost, one always looks back at them with delight. Few stars, perhaps, have been so shrouded in myth as the Pleiades, and the unravelment of these myths has been the source of pleasure to many.

[1] See *Globus*, Bd. lxiv. No. 22, "Die Plejaden im Mythus und in ihrer Beziehung zum Jahresbeginn und Landbau."

NOTES.

A MEETING of the International Meteorological Committee has been arranged to take place at Upsala, commencing August 20. Since the meeting at Munich in 1891, four new members have been added to the committee—Mr. William Davis, Cordoba; Mr. John Eliot, Calcutta; Mr. R. L. J. Ellery, F.R.S., Melbourne; and Dr. A. Paulsen, Copenhagen. The last named has replaced Dr. Lang, Munich, who died last year.

THE arrangements for the sixth session of the International Geological Congress have now been made. The meeting will be held at Zurich, from August 29 to September 2. The president is Prof. E. Renevier; Prof. A. Heim is vice-president, and Prof. H. Golliez, of Lausanne, is secretary. The subscription is twenty-five francs, which should be sent to M. Casp. Escher-Hess, Bahnhofstrasse, Zurich. In addition to the