LETTERS TO THE EDITOR.

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Transport of Molluscs by Waterfowl.

YESTERDAY (March 19) I witnessed an interesting instance of the capacity of quite small waterfowl to carry aquatic molluscs of considerable size. A pheasant-tailed Jaçaná (*Hydrophasianus chirurgus*), which was at large, with partially clipped wings, on the tank in the Museum grounds, had attached to one of its feet a fresh-water mussel well over an inch long, which remained there for about an hour and a half to my knowledge.

The Jaçaná, although quite a small bird, only about the size of a turtle-dove, nevertheless flew quite as well with this burden as without, covering as much as sixty yards at a flight, with its legs naturally extended behind.

Of course the partial clipping of its wings hindered it from rising high and going off altogether; but had it not been thus handicapped I am sure it could have transported its burden for miles if forced to leave the tank.

I have had more than one specimen of this Jaçaná in which a toe, or part of one, was missing, an accident which might possibly be due to the pinch of a bivalve behaving as described above. A fish or turtle might more probably be guilty of such amputation, although the Jaçaná's slim green toes look very like weed-stems when it is swimming, and the resemblance might be protective so long as the bird floated quietly without paddling.

I find from my notes that six years ago I observed one of some Tree-ducks (*Dendrocycna javanica*) which I was then keeping on this tank, with what appeared to be a big water-snail remaining attached to its toe for some time.

Indian Museum, Calcutta, March 20. FRANK FINN.

Preservatives in Milk.

I HAVE been astonished to learn from your English Government Blue-book about the scandalous, unnecessary and unnatural practice prevailing in England of putting drugs into milk for purposes of its preservation—a wrong and unnecessary act of adulteration. It is amazing that it should be pursued and for one moment permitted. Your highly appreciated publication will, I am certain, feel the necessity of defending nature's produce. All milk drawn from healthy cows is yielded sterile. The remedy against the use of drugs and late-refrigeration, &c., is to purify and preserve the milk in its natural sterile condition by quickly—on drawing it—aërating, cooling and refrigerating it down to the non-decomposing and non-fermenting temperature of 50° Fahrenheit or lower at the farms and rural factories before being sent off from the country, and having it conveyed, so chilled, into ordinary cold stores—the same as doubtless most of your butchers have, and with less reason—at the town dairy premises. Meat is so preserved and so conveyed, I understand, in England, and it is not nearly so susceptible to decomposition. The totally unnecessary consequences that are revealed by your recent official inquiry are scandalous. Dairy men evidently—and must constantly—find the milk they have to sell, not only in an advanced, but also dangerous state of fermentation, which, in self-interest, they can only, however, temporarily suppress by the processes of drugging, late-refrigeration and other disorganising practices, through neglect in the country of purifying and cooling the milk at once when drawn warm from the cow. There are plenty of simple portable appliances to use for the purpose, so why should not English farmers have them, and rural ice depots near railway stations for refrigeration of milk, as well as Continental, and notably American, country milk producers? Your farmers and milk distributors certainly need reform in their system, for you cannot possibly compete in quality of milk, butter or cheese with other countries where immediate purification by the practice of quick aëration and refrigeration of milk is pursued down to a non-fermenting temperature as soon as possible after being drawn from the cow. I have heard of a new method of milk preservation based on the infusion of gases (oxygen and carbonic acid) into milk. Whatever may be the merits of this new process I am not prepared to say, but if drugs are to be prohibited, this infusion of gases should be swept away with the rest of the doctoring methods of milk. By all means let the prohibition be utterly complete, and thus allow the consumer to drink nature's production and not chemical compounds. In this country (Belgium) the use of any drugs has long been prohibited, and our milk is superior and never complained about, and were drugs permitted a general protest would result. L. J. SERIN.

Mont-sur-Marchienne, Charleroi, Belgium.

[Mr. Serin does not seem to be aware of the fact that the Departmental Committee on the use of Preservatives in Food condemned the use of preservatives in milk. (See NATURE, December 5, 1901, p. 102.)—EDITOR.]

Rearrangement of Euclid Bk. I., pt. i.

AS very widespread attention is being paid to the question of reform in geometrical teaching, and as a good many teachers are convinced that in this country the reform must be in the direction of a modification of Euclid's elements, I should be glad to elicit opinions as to the following rearrangement of the theorems in the first part of Book I. (to prop. 32, inclusive).

First the theorems relating to angles made by two intersecting straight lines, viz., I. 13, 14, 15.

Then those relating to parallels, viz. 27, 28, 29, 30. Prop. 27 can be proved by superposition; for, if a transversal EF crossing two lines AB, CD makes the alternate angles equal, the portion BEFD can be exactly superposed on CFEA, so that, if AB, CD meet towards B, D, they must also meet towards C, A, which is impossible, $\therefore$ AB, CD are parallel. I. 28 follows from I. 13; and 29, 30 from Playfair's axiom.

By taking these propositions early, we are enabled to rearrange the propositions respecting triangles in such a way that connected propositions are juxtaposed, which is of great assistance to the memory and to the growth of orderly ideas in the pupil's mind. The natural order would be to take those propositions which relate to a single triangle and then those which deal with the comparison of two triangles.

First, the fundamental theorem I. 32, with its corollaries, including I. 16, 17, and Euclid's axiom (which is the converse of 17).

Then 5, 6 with their extensions, viz. 18, 19, to which might be added the corollary that the perpendicular distance of a point from a straight line is the shortest.

Then 20, 21.

Then follow the *congruence* theorems 26, 4, 8, to which might well be added the conditions for the congruence of right-angled triangles in what would otherwise be the ambiguous case.

And lastly 24, 25, which are extensions of 4, 8 in much the same way as 18, 19 are extensions of 5, 6.

If to these are added the simple *locus* theorems regarding the locus of points equidistant from two given points, and the locus of points equidistant from two intersecting straight lines, the whole forms a well-rounded-off "First Part" of the deductive course.

The only innovation suggested here is the early introduction of the theorems relating to parallels. The effect of this is to render the course much more compact and orderly than is possible if the theory of parallels has to be approached through I. 16.

It is on the desirability (and the possibility, from the point of view of examinations) of this innovation that I earnestly desire opinions.

There is one other modification tacitly adopted in the above arrangement, and that is the cutting out of "constructions" from the deductive course. I believe this requires no defence. It is the first and greatest necessity, for any real improvement in geometrical teaching, that the course of constructions should be a parallel course to that of theorems, and not part of it.

Coopers Hill, April 2. ALFRED LODGE.

Protoplasmic Networks.

IN a presidential address delivered at Yale (*Contrib.*, Botanical Laboratory, Univ. Pennsylvania, ii., 1901, p. 183), Prof. Macfarlane announces his discovery of a "linin and chromatin" network continuous with the nuclear chromatin distributed through the protoplasm of plant cells. Certain other observations lead Prof. Marfarlane to suggest that these run from cell to cell, so that there is continuity, not only of cytoplasm, but also of the "hereditary substance."