also to be largely used, at any rate by the males, for purposes of display. Where the powers of luminosity are largely developed in this sex the emission of the light is usually of an intermittent flashing type. It has been noticed in various parts of the world that these flashing males tend to congregate in large companies, and that all the individuals of one of these gatherings will flash in concert. All the fireflies around one tree or group of trees, for instance, will flash together, while those around a neighboring tree will be pulsating to a different time. This feature has been observed of a European species of *Luciola* (though Mr. Main and myself were unable to detect anything of the sort with *L. italica* at Lugano), of an Indian lampyrid genus not stated, and of the genus *Aspidosoma* in South America. The American species of *Photinus* and *Photuris* do not seem to possess the habit.

The exact reason of this flashing in concert, or the method by which it is brought about, have not been ascertained. It has been suggested that the light is not really intermittent in character, but merely appears so owing to its being alternately masked and exhibited by movements of the creature's body, and that a slight puff of wind might perhaps affect all the members of a company and cause them all to conceal their lights at once. Though this explanation of the intermittent character of the light applies well enough to *Pyrophorus*, an insect we shall shortly consider, it is certainly not applicable to these Lampyridæ. It is true the light is not absolutely extinguished between the flashes, but it is so diminished as to become practically dark; moreover the flashing in unison is too regular to be caused by chance puffs of wind. A more probable explanation of the phenomenon is that each flash exhausts the battery, as it were, and a period of recuperation is required before another flash can be emitted. It is then conceivable that the flash of a leader might act as a stimulus to the discharge of their flashes by the other members of the group, and so bring about the flashing concert by the whole company.

Edward S. Morse

POLYRADIATE CESTODES

In the last number of the *Journal of Parasitology*, Vol. 2, No. 1, p. 7, W. D. Foster, of the Bureau of Animal Industry, U. S. Department of Agriculture, gives an interesting summary of the cases of polyradiate cestodes and describes an adult triradiate cestode of the species *Tænia pisiformis* "found in a mass of tapeworms expelled by an imported collie dog." He states that "no case of an adult triradiate cestode of this species has yet been published." It is to be regretted that Foster did not investigate more thoroughly the literature on the polyradiate cestodes before publishing his article.

In Science, 1910, N. S., Vol. 31, p. 837, in an article "Some New Cases of Trihedral Tænia," we published a brief description of two new species of polyradiate cestodes based on the study of four perfect and entire specimens of *Tænia serrata* = *Tænia pisiformis* and three perfect specimens of *Tænia serialis* which were secured from four dogs picked up on the streets of Lincoln.

Foster bases his description on a "number of chains of triradiate proglottids, the longest piece being 23 cm. representing the anterior half of the worm, except the head." From the study of our specimens we question the validity of a specific diagnosis of *Tænia pisiformis* from proglottids alone, without verification from the scolex.

He states that "the identification of the species was verified by feeding experiments on a rabbit" and that "although shipped in a solution of formalin of unknown strength, and kept in a 2 per cent. solution of formalin for one week after it was received, it was determined to use some of the material for feeding experiments." Foster states that he recovered seven "perfectly normal larvæ" of *Tænia pisiformis* from the omentum and body cavity of a rabbit reared and kept in captivity, thirteen months after feeding with two of the proglottids of the triradiate *Tænia pisiformis* which had been preserved and kept in formalin. It seems to us that the reliability of the results of these feeding experiments is open to serious question, first in the use of material preserved in formalin of uncertain strength and kept in a 2 per cent. solution for one week after it was received and second in the uncertainty as to the previous natural infection of the rabbit used, for we have repeatedly found our rabbits, born and reared in captivity, heavily infected with *Cysticercus pisiformis*.

Foster failed to read and consequently does not cite along with the other theories advanced as to the origin of the polyradiate cestodes, the theory offered by us in the article previously cited, namely that the polyradiate cestodes do not represent distinct species or genera which necessarily originate from and in turn give rise to onchospheres with supernumerary hooks and cysticerci with an excessive number of suckers but may arise from double embryos produced by the partial *separation* of early blastomeres and not by the *fusion* of normal embryos.

In the light of a large amount of data both in the case of natural and experimentally produced twin embryos and adults of a large number of animals which shows that the individuals may be joined in various ways and degrees, our theory as to the origin of the polyradiate cestodes seems the most logical of those offered.

FRANKLIN D. BARKER
THE UNIVERSITY OF NEBRASKA

AN ORGANIC OOLITE FROM THE ORDOVICIAN

MICROSCOPIC examination of a siliceous oolite from the so-called transition bed between the Prairie du Chien dolomite and St. Croix sandstone at McGregor, Iowa, shows the oolite grains to possess undoubted organic structures of the algal type. The matrix of the oolite grains is dolomitic, and many of the original grains themselves have been partly or wholly changed to dolomite with obliteration of structure, prior to silification.

The grains range from .1 mm. to 1.13 mm. in diameter, and, when well preserved, show good concentric and radial structure in addition to the minute sinuous fibers similar to those which characterize the *Girvanella* type of calcareous algæ. These fibers have an average diameter of about .015 mm. Typically the well-preserved grains consist of an inner structureless nucleus, followed by an intermediate band showing radial structure, and this again by an outer band bearing the sinuous fibers. In some instances, however, the two outer bands grade gradually into each other without any distinct line of demarcation.

In view of the present controversy regarding the origin of oolite, it is believed that this occurrence merits more than passing notice.

FRANCIS M. VAN TUYL
UNIVERSITY OF ILLINOIS

USE OF C.G.S. UNITS

IN SCIENCE of December 24, page 904, Professor Kent has been good enough to review the various points raised in the discussion concerning the fundamental equation of dynamics. As space is limited and the discussion has been prolonged, the pedagogic difficulty in the definition of the dyne may be passed over for the present. Whether there is real difficulty in expressing certain derived units because of the use of exponents is open to argument. The cent is a serviceable unit notwithstanding that some financial transactions run up to the millions.

Of more importance however is Professor Kent's statement:

> Of course it is not difficult for *one* who is engaged constantly in the use of the C.G.S. system and who during that year has had no occasion to use the old units, to break away from them, but it is not only difficult but impossible, for a hundred million people who are constantly using the old units to break away from them.

Has he not here overlooked the fact that of the three fundamental units, centimeter, gram and second, one at least, the unit of time, *is* constantly used by more than a hundred million people; and of the three concepts, it is perhaps the most difficult. Are not most scientific men to-day in all countries using C.G.S. units and their derivatives? Is not the kilometer more widely used than the mile; and has not the kilogram come into very general use?

ALEXANDER MCADIE

THE FIRST SECRETARY OF AGRICULTURE

TO THE EDITOR OF SCIENCE: I wish to correct a misstatement which occurred in my article on "Botany in Relation to American Agriculture," published in SCIENCE, January 7. In this article I stated that J. M. Rusk was the