medicine can not be acquired upon the basis of a high-school preparation. For the adequate study of modern medicine collegiate training in physics, chemistry and biology is essential; to use an academic term, they are prerequisites. How much collegiate training in these branches is necessary is open to discussion; the most general opinion among teachers of medicine is that two years are sufficient. I beg to state that, in my opinion, the majority of the members of the medical profession of this country, as represented in the recognized societies, do not believe that the tests preliminary to medical education need not exceed the requirements for graduation at the best high schools. The teachers of medicine may be said to be almost unanimous in the belief that collegiate preparation in the sciences is necessary for the study of medicine. The majority of the high-grade medical schools have already either inaugurated or announced collegiate requirements for admission; with other institutions the maintenance of the older system is purely a matter of present financial conditions and does not reflect the real policy. These changes have not been made in spite of the profession, but rather with the sympathy and support of the best elements in the profession. In any event, ought it not to be the function of the universities to lead and not to follow the professions?

There is a quite current confusion of two movements. One is the culture requirement for entrance upon professional study; the other is the training requirement. Knowledge of Greek literature, of esthetics, of political science, may be advantageous to the physician, but it is not essential to the study of medicine; knowledge of and training in physics, chemistry and biology of the collegiate type and quality are necessary for the proper study of medicine as it is taught to-day in our best institutions. Departments of medicine are requiring collegiate preparation; in a few instances it may be partly upon the basis of a veneration for general culture, in all instances from the realization of the direct necessity of that training in the natural sciences which colleges alone are able to give. With this adjustment of the prerequisites in science deemed necessary to the study of medicine, the matter of democracy in educational policy, alluded to by both President Schurman and President Hadley, has no concern. The science of medicine has developed to such an extent that it can not be so mastered in four years following a high-school education as to adequately prepare the physician for his duties in life. To extend this course, by prerequisite collegiate work, until it fulfills its obligations to the student and its duty to the public, can not be stigmatized as undemocratic.

Alonzo Englebert Taylor.
The University of California,
December 1, 1902.

ILLEX ILLECEBROSUS (LESUEUR), THE 'SQUID FROM ONONDAGA LAKE, N. Y.'

The specimen of squid, the capture of which in Onondaga Lake has been described by Dr. John M. Clarke in a previous number of Science,* has been sent to the present writer for examination. It proves to belong to the well-known species of our northern Atlantic coast, the 'cold water' or 'short-finned squid.' The specimen has been compared with the description of *Ommastrephes illecebrosus* given by Verrill,† and with two well-preserved individuals (male and female) of this species from Provincetown, Mass., preserved in the collections of the Museum of Biology, J. C. Green School of Science, Princeton University. The result of this comparison is as follows:

Total length of our specimen, from tip of tail to tip of third pair of sessile arms, upward of thirteen inches. Since the largest figure for this dimension given by Verrill is a little over fourteen inches, our individual

* December 12, 1902, p. 947.

† *Ommastrephes illecebrosus* (Lesueur): Verrill, A. E., 'North American Cephalopods,' in *Trans. Connect. Acad.*, Vol. 5, 1880, p. 268, pl. 28. According to the 'Synopsis of Recent Cephalopoda' given by Hoyle, W. E., in 'Voy. *Challenger* Zool.,' Vol. 16, 1886, p. 34, the name of this species stands now as *Illex illecebrosus* (Les.).

is to be regarded as full grown. Other dimensions can not be taken on account of the distorted condition of the respective parts.

Body and head somewhat contorted and out of shape. Skin largely mutilated and worn off. General form agreeing with that of this species. The same is true of the shape and size of the caudal fin, which exhibits the characteristic outline. Details of head normal. Opening of the lids of the eyes widely distended, irregularly circular, anterior sinus indistinct (this is apparently due to preservation).

Sessile arms agreeing in size and shape with this species. All marginal membranes (outside of the suckers) very slightly developed (or worn off), the dorsal and lateral folds of these arms indistinct, and this is especially true of the high median keel of the third arm, of which only traces are seen in our specimen. Owing to the slight development of these keels all the arms appear less angular and more rounded in cross section, although the typical shape is still indicated. Tentacular arms agreeing completely with this species, only the keel on the back side of the club is less strongly developed. Marginal membranes of the suckers indistinct.

No hectocotylization on the fourth sessile arms visible; thus our specimen seems to be a female.

Arrangement, size and structure of suckers of the sessile as well as the tentacular arms agreeing perfectly with Verrill's description and the specimens used for comparison; the only difference I see is that outside of the two rows of large suckers of the club of the tentacles there are only a few smaller ones; but these may in part have been torn off and lost.

The buccal membrane agrees with this species. Color, yellowish-white, with purple chromatophores, but skin largely damaged, so that the usual color pattern is not visible; but the dark blotches above the eyes are well marked. The pen has not been taken out.

To sum it up, our specimen agrees in all essentials with *Illex illecebrosus;* the only differences observed, namely, the wide eye opening, the lack or slight development of the marginal membranes and the keels of the arms, and the absence of some suckers on the tentacles, are no doubt due to preservation and rough handling. That the latter has taken place is shown by the general abrasion of the skin, and the fact that a large number of the suckers have lost their horn rings or are entirely torn off. Similar mutilations and changes are very often observed in ill-preserved cephalopods. Therefore, I arrive at the conclusion that the present individual is in no wise different from *Illex illecebrosus* of our northeastern coasts.*

As to the alleged capture of this species in Onondaga Lake, I can only refer to what Dr. J. M. Clarke says (*l. c.*), and if it is a fact that this species lives in this lake, the only explanation is, as suggested, by a former, post-glacial connection of this lake with the St. Lawrence Gulf. But I am loath to believe that this species *lives* in Onondaga Lake. In this connection I venture only one single suggestion: this squid is largely used for bait, and the capture of squid forms a regular trade on our northeastern coasts. Could it not be possible that somebody has secured by purchase a barrel of squids, to be used as bait at the locality where our specimen was found?

A. E. ORTMANN.

PRINCETON UNIVERSITY,
December 12, 1902.

* This species is abundant from Cape Cod to Newfoundland. Rarely it is found to the south of this range (Vineyard Sound and coast of Rhode Island).

KALLIMA BUTTERFLIES.

TO THE EDITOR OF SCIENCE: Dr. Bashford Dean will find some interesting remarks on the mimicry by this butterfly, and some criticisms of museum representations of it, in an interesting article by E H A 'On the Influence of Mind in Evolution,' *Natural Science,* Vol. IX., pp. 297–302, November, 1896. The main point as regards museums made by this competent observer is that he never saw a *Kallima* sitting with its apparent stalk towards the twig of a tree. On the contrary, it 'always alights head downwards, so as to face anything coming up the tree, which is