president of the institution. The college, which is at Aledo, Ill., has received an addition to its endowment of $25,000, a gift from Mr. Ed. Drury.

THE board of administrators of Tulane University of Louisiana have elected Mr. Henry L. Freeman to be acting assistant professor of mechanical engineering for one year to supply the place of Mr. J. M. Robert, who has been granted leave for one year. Dr. Wallace Wood has been elected dean of the department of dentistry to succeed Dr. A. G. Friedrichs, resigned.

DR. VIRGIL H. MOON, of the Memorial Institute for Infectious Diseases, Chicago, has been appointed head of the pathology department of the Indiana University Medical College at Indianapolis.

DR. JAMES W. JOBLING, formerly pathologist of the Michael Reese Hospital, has been appointed professor of pathology in the Vanderbilt University, Nashville, Tenn.

DR. ARNOLD V. STUBENRAUCH, for some years past in charge of the pomological investigations of the United States Department of Agriculture, has gone to California to become head of the new division of pomology in the University of California.

DR. VICTOR E. SHELFORD has been appointed assistant professor of zoology in the University of Illinois on part time and biologist in the Illinois State Laboratory. He will apply the experimental methods which he has developed to the problems of the state laboratory.

MR. RALPH MCBURNEY, graduate of the Virginia Polytechnic Institute and M.S. from Oklahoma Agricultural College, has been appointed instructor in the department of bacteriology of the Oregon Agricultural College.

MR. ROGER L. MORRISON, highway engineer with the United Gas Improvement Company of Philadelphia, who received the degree of master of arts at Columbia University last June after having completed the graduate course in highway engineering, has been appointed professor of highway engineering in the Agricultural and Mechanical College of Texas.

MR. A. J. MARGETSON, assistant professor at the City and Guilds (Engineering) College, Kensington, has been appointed to the professorship of civil and mechanical engineering at the Technical College, Finsbury, in the place of Professor E. G. Coker.

PROFESSOR LEON ASHER has been elected professor of physiology at Berne.

## *DISCUSSION AND CORRESPONDENCE*

### THE LIFE OF ISOLATED LARVAL MUSCLE CELLS

IN the course of some experiments on the culture of the cells of *Diemyctylus* larvæ outside the body a few preparations were made of isolated larval muscle cells in the plasma of the adult animal. The usual hanging drop cultures were employed, and the slides were kept for a part of the time in an ice chest, and for a part of the time at ordinary room temperature. The muscular tissue was taken from the myotomes of the tail, and teased apart more or less so as to isolate some of the cells. The cells when isolated were not completely differentiated. They were from two to three times as long as thick and only their outer portion was fibrillated, leaving an inner core of undifferentiated protoplasm containing the single nucleus.

The isolated cells were examined from time to time to see if they were undergoing further differentiation. During the eight months in which they were kept under observation they had not changed their form, nor had they undergone any marked changes in structure. To all appearances they were healthy; at least they showed no signs of deterioration such as dead or dying cells usually manifest. But were they really alive?

This was tested by ascertaining if they would respond to a stimulus by contracting. A stimulus was applied by heating a needle and applying the point to the cover slip immediately over a particular cell. The muscle fibers so stimulated almost always responded by a vigorous twitch. Relaxation of the fiber followed almost immediately, and several contractions could often be evoked from the same cell. Muscle cells kept for eight months *in*

*vitro* showed vigorous twitches, even in preparations in which the culture medium had not been changed.

I have observed that threads of fibrin when affected by the local application of heat will also contract and quickly extend again. The muscular contractions observed are not dependent, however, on any contraction of the medium around the cell, since they occur as well in the fluid of blood serum as in the coagulum of plasma, and are much more decided and vigorous than the contractions similarly evoked in threads or sheets of fibrin. Similar experiments with muscle fibers isolated from adult amphibians gave negative results, even though the fibers were kept for only a few days in hanging drop cultures.

While isolated larval muscle cells gave little evidence of further differentiation, it was found that in several larger pieces of the same larvæ, containing a number of different tissues, muscle fibers became more elongated, and had differentiated in other respects much as in the course of normal development. In one set of experiments tails of *Diemyctylus* larvæ were cut into several pieces which were kept in Ringer's solution. These pieces were seen to undergo differentiation in many ways. Through the absorption of water they increased greatly in size. The muscle fibers of these pieces became not only more elongated, but more completely fibrillated. It is probable that tension is required to cause myoblasts to increase in length, and this tension was supplied, in the pieces observed, by the general increase in size. It is not improbable that other stimuli arising from the association of the myoblasts with other cells occasioned their further differentiation in structure.

The persistence of larval muscle fibers in an active condition for eight months is a fact of interest in relation to the tendency of the muscles of the adult animal to atrophy when deprived of their nerve supply and hence of their usual stimuli to functional activity. The dependence of muscle upon nerve is a secondary acquirement, for several experiments have shown that the early differentiation of myoblasts proceeds in a normal way after the removal or destruction of the nervous system. In the young larvæ from which the muscle cells were isolated in my experiments the muscular tissue had not come to depend, to any considerable extent, upon nervous stimulation.

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## FIAT NOMENCLATURE

In the "Eighth List of Generic Names (Mammals) under consideration in connection with the Official List of Zoological Names," published in Science for July 10, we get an enlarged view of what the International Commission is expected to do with its "plenary power authority." Though only sixteen names are now presented for "fixation by fiat," large possibilities are revealed, since thousands of such cases could be developed.

The orang, evidently the pet of the menagerie, is allowed to steal the generic name that belongs to the Barbary ape, and the specific name that belongs to the chimpanzee. As the Barbary ape is the type of the genus *Simia* Linnæus, the generic name used for the orang will need to be distinguished as *Simia* Fiat. The orang's specific name must be *Simia satyrus* Fiat, *Simia satyrus* Linnæus being the original name of the chimpanzee. It would be interesting to know why the orang should discard his original Linnæan specific name *troglodytes*. Fiat will easily become one of the most prolific authors, with such facilities for displacing clearly established names, including those of Linnæus.

It must be a fine thing to have this "plenary power authority," and feel able to correct the errors and improprieties that are always creeping into nomenclature. At last we are in the way to follow the golden counsel of Rafinesque, to keep on giving names until we find the most appropriate. Fiat, as we have seen, is to fix specific names as well as generic, and can also "fix the most classical form of the name, not necessarily that which was first used." Anything that seems "advisable" may be done. Thus:

An early reference by Pallas in connection with *Oryx gazella* makes it advisable to affix the name