whose work, especially that on the preparation of synthetic reagents from the toluic acids, shows special promise; Danish Ramsay Fellowship to Mr. Kristian Höejendahl, of the University of Copenhagen, who will pursue his research in the University of Liverpool; two Swedish Ramsay Fellowships, to Dr. J. O. G. Lublin and Mr. A. W. Bernton; and two Norwegian Ramsay Fellowships to Mr. Dag Nickelson, who will work at the Imperial College of Science and Technology, and Miss Milda Prytz, who will work at University College, London. A special Ramsay Fellowship of the value of £350, which was placed at the disposal of the National Research Council of the United States of America, has been awarded to Dr. C. S. Piggot, of Baltimore, who will begin work at University College, London, in October.

UNIVERSITY AND EDUCATIONAL NOTES

AT the University of Missouri plans have been practically completed for the new agricultural building for which $200,000 was appropriated by the last legislature. The building will constitute the center of the agricultural group, including the present agricultural and horticultural buildings, and will serve as the administration headquarters of the college of agriculture.

PROFESSOR M. JULES TISSOT, of the Paris Museum of Natural History, and Mme. Tissot have given 844,483 francs to the museum to endow the chair of physiology.

DR. CHARLES C. BASS has been elected dean of the school of medicine of Tulane University.

DR. H. H. LANE, for fourteen years professor of zoology at Oklahoma University, has been appointed head of the department of zoology at the University of Kansas. He succeeded Dr. B. M. Allen, who has gone to the Southern Branch of the University of California.

DR. WALDO SHUMWAY, assistant professor of biology at Dartmouth College, has been appointed associate professor of zoology at the University of Illinois.

DR. M. KHARASCH, who has held a National Research fellowship at the University of Chicago for the past three years, has been appointed associate professor of organic chemistry at the University of Maryland.

W. T. CHAMBERS, graduate student in the department of geography of the University of Chicago, has been appointed to a newly established instructorship in geography at the University of Tennessee.

MISS MARION BELL has been appointed biochemist in pediatrics and child welfare research at the University of Iowa.

PROFESSOR D. THODAY, of the University of Cape Town, has been appointed to the chair of botany, in succession to Professor R. W. Phillips, who retires after thirty-eight years' service.

J. A. S. WATSON has been promoted to the chair of agriculture and rural economy at Edinborough, in succession to Professor Robert Wallace, retired. Professor Watson was demonstrator in botany under Sir Isaac Bayley Balfour, afterwards continuing his studies in Germany, America, and Canada.

DISCUSSION AND CORRESPONDENCE

THE FOOD HABITS OF SWORDFISH

THE recent note of Mr. C. H. Townsend ("Swordfish Taken on Trawl Lines," SCIENCE, Vol. 56, p. 18) brings up the question of whether these fishes descend to considerable depths for food. On this point I have some evidence which may be worthy of record.

The late Captain John Toothaker of South Harpswell, Maine, was always very helpful to the Harpswell Laboratory, and would bring in from his trips any of the peculiar animals he found while sword fishing. Some years ago he turned over to me a couple of deep sea fishes which he had taken in a swordfish stomach. I have forgotten the genus and species, but both belonged to the Scopelidæ, and as I recall looking the matter up, the species had never been taken in less than 800 fathoms. The specimens were quite fresh and the digestive juices had hardly affected the integument, and the phos-

phorescent organs along the sides were in good condition. One of the specimens was given to the Boston Society of Natural History as a member of the New England fauna; the other was presented to the Museum of Comparative Zoology at Harvard. The swordfish was taken on the eastern border of the Georges Banks, a little inside the 500 fathom line. From this it would appear that the swordfish do descend to considerable depths for their meals, and, from the good condition of the specimens, it would appear that they make a rapid transition from the feeding grounds to the surface for the after-dinner siesta.

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EXPERIMENTAL TRANSFORMATION OF THE SMOOTH-BLADDER OF THE DOG

THE essential difference between the pale smooth muscle of the bladder and the red involuntary striated muscle of the heart is dependent upon the differential intensity of the hydro-dynamic pressure to which the vesicular and cardiac mesenchymal cells have been subjected, respectively. By experimentally varying the velocity of application and the intensity of the intra-vesicular pressure, which causes tension of the smooth bladder muscle, during a period of eight weeks, to a point comparable with that found in the heart the non-striated bladder muscle is transformed histologically into cross-striated muscle, and physiologically into an organ manifesting rhythmicity as long as the hydro-dynamic pressure stimulus is applied.

From the dynamic or functional, embryological viewpoint the various muscles, smooth, cardiac and skeletal represent differences in the amount of *work* that has been done upon them by the differential growing parts of the embryo during the active periods of growth.[1] The essential difference then physiologically between the various muscles is their capacity for work which in turn is dependent upon the amount of work that has been expended in their production. The reason for the different degrees of energy possessed by the types of muscle is purely an embryological bio-mechanical problem and corresponds to the differential amount of optimum tension which these muscles have experienced during their formative period because of a dominant energetic zone extrinsic to the region of myogenesis. The evidence presented by these experiments warrants the conclusion that as regards cross-striated muscle, function determines structure and not the reverse.

The writer wishes to thank Dr. Charles R. Bardeen, University of Wisconsin, for rechecking the evidence leading to the above conclusions.

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AN ALBINO MUTATION OF THE DEMATIACEOUS FUNGUS BRACHYSPORIUM TRIFOLII

THIS fungus has been under study in culture since October, 1919, when it was first isolated from clover plants. A description was published in *Phytopathology*, October, 1920, and an intensive culture study of the fungus has been continued since that time. The cultures were started from a single spore and have been kept going as a pure strain ever since.

The normal fungus is of the dematiaceous type, with dark brown hyphæ, forming in culture a very dense black mat on and in the medium.

On one of a series of cultures made early in November 1921 there appeared, starting from the point of inoculation, a sector of growth which completely lacked the black-brown color of the normal mat. A microscopic examination showed that the mycelium and conidia of this light-colored area were morphologically identical with those of the normal growth of the fungus, except for the lack of the dark brown color.

Isolation cultures were made of this albino material by the isolation of sclerotia-like

[1] Carey, E. J., 1919-20, *Journ. of Gen. Physiol.*, (*a*) ii, 357; (*b*) iii, 61; (*c*) *Anat. Record*, 1920, xix, 199.