UNDER the will of the late Thomas L. Gray, the Royal Society of Arts has been appointed residuary legatee of his estate for the purpose of founding a memorial to his father, the late Thomas Gray, C.B., who was for many years Assistant Secretary to the Board of Trade (Marine Department). The objects of the trust are "The Advancement of the Science of Navigation and the Scientific and Educational Interests of the British Mercantile Marine." The council now offers the following prizes: A prize of £100 to any person who may bring to their notice a valuable improvement in the science or practice of navigation proposed or invented by himself in the years 1930 and 1931. A prize of £100 for an essay on "The stability of ships, with special reference to the particulars which should be supplied by shipbuilders, and also the value of any mechanical devices for ascertaining the M. G., with which you are acquainted." Further information may be obtained from the Secretary, Royal Society of Arts, John Street, Adelphi, London W. C. 2.

FOR the twenty-third consecutive season the University of Michigan will maintain its summer station for instruction and research in biology from June 29 to August 22, on the shores of Douglas Lake, Cheboygan County. Because of its natural surroundings, the Douglas Lake site offers unique opportunities for pursuing a variety of problems in biology. To the north of the camp is a region of evergreen coniferous forests, while to the south are hardwood forests, making the station the best situated in this respect of any in the country. Lowlands near the lake furnish a variety of plants, including orchids and insect catching types, while Cecil Bay and Big Stone Bay on Lake Michigan are not too distant for study of forests free from fire for fifty years. Bird and animal study is facilitated by the wide variety of natural conditions. A beaver colony with three dams is near by, and 150 species of birds are found in the region in summer. Invertebrate fauna, mollusks, both land and aquatic, crustacea, insects and examples of animal parasites are numerous and well suited to study.

DISCUSSION

A METHOD FOR EXPLANTING THE KIDNEY

ACCURATE determinations of the physiological activities of the kidney require that successive samples of blood be drawn from the renal vein in healthy, unnarcotized animals. A suitable technique for attaining this end has long been desired but has been difficult to evolve. Certain surgical procedures have been carried out in animals under ether anesthesia in an attempt to solve the problem.

Both rabbits and dogs have been employed as experimental animals. In preliminary trials, the left kidney was brought out through a small lumbar incision and the skin and muscle layers were lightly closed around the pedicle. Protection from trauma and drying was afforded by the use of a simple but effective dressing, and after a considerable period, epithelium grew in from the edges of the skin, eventually covering the entire organ. Following removal of the right kidney, animals so treated have remained in perfect health for more than a year. It was found, however, that an excess of granulation tissue formed about the base and prevented easy access to the vessels. This procedure was therefore abandoned, and an effective operative technique substituted.

Dogs were found to be more suitable for these tests. In these animals it was possible to bring out the kidney through a simple, muscle-splitting, lumbar, flank incision and to close the muscle layers loosely around the pedicle. The organ was then tipped posteriorly to render the renal vein as prominent as possible, and a flap of skin was brought down over the organ from the dorsal side and so sutured as to make the position of the kidney a permanent one. Then a strip of skin was cut and sutured down to the subcutaneous tissue on either side of the renal vein. leaving the vein covered by and enclosed in a gutter of skin which was semi-circular in cross-section.

The wounds healed by first intention, and within ten days the right kidney could be removed safely. With the removal of the right kidney, a carotid artery was usually explanted in a tube of skin in accordance with the method described by Cohn and Levy. This was done to facilitate arterial puncture and to obtain constant records of blood pressure.

The technique described herewith has been carried out on forty-five animals, the first of which are now six months post-operative, in excellent health, and without evidence of renal insufficiency as evidenced by alterations in blood chemistry.

By explanting kidneys in the manner outlined above, it has been possible to determine renal circulation, urea excretion and utilization of oxygen by the kidney under a variety of conditions.

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CENTRAL BODIES IN THE SPERM-FORMING DIVISIONS OF ASCARIS

THE early investigations of O. Hertwig, Brauer, Boveri and others have long been regarded as estab-

lishing the identity of the centrioles seen in the sperm-forming divisions with the similar ones found in other types of mitosis, including the maturation-division of the egg. This comparison has recently been challenged with the contention that in the sperm-forming divisions the centriole is only secondarily associated with the astral centers, and that it is primarily a blepharoplast for the production of the axial filament of the sperm-tail. A crucial test for this interpretation is offered by *Ascaris megalocephala,* where the mature sperm shows neither tail nor axial filament. It was with this point in mind that the late Professor Robert H. Bowen suggested a reinvestigation of the facts in that animal.

My preparations of the sperm-forming divisions in *Ascaris megalocephala* make it perfectly plain that in all essentials the behavior of the centrioles conforms exactly to the classical scheme. There can be no doubt of the fact, uniformly seen in large numbers of cells, that in the first metaphase the centrioles divide at a time when neither the surrounding centrosome nor the aster show any indication of division. In the early anaphase the centrosome becomes ellipsoidal and divides, each daughter centrosome containing a centriole. It is toward the end of the telophase stage that these daughter centrosomes, each with its centriole, begin their movement to opposite sides of the cell, never losing their identity from this stage to the prophase of the next division.

These facts can easily be demonstrated and with perfect clearness. Since in this animal the sperm has no flagellum or axial filament there is no ground for considering the centrioles as blepharoplasts or as differing in any material way from those seen in the mitosis of other kinds of cells.

These results, confirming in all essentials those of the early cytologists, are to be reported in detail hereafter.

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MORE ABOUT SHIPWORMS

ON my return from the West Indies my attention was called to Dr. W. T. Calman's article, "The Taxonomic Outlook in Zoology," being the address of the president of Section D—Zoology, of the British Association for the Advancement of Science, published in SCIENCE, September 19, 1930. On page 281, Dr. Calman uses the sentence:

> Dr. Bartsch, of Washington, in his "Monograph of the American Shipworms" (1922), simplified his task by the assumption that any species found on the coasts of the American continent must, of necessity, be different from any found elsewhere, and he was thus able to write "n. sp." after twenty-two out of the twenty-nine specific names. It was soon shown, however, by other American zoologists that this assumption was without foundation, and that the most destructive species on both the Atlantic and Pacific coasts of North America was the European *Teredo navalis.*

Personally this note has called for no resentment on my part, but only provoked a smile; yet some of my best friends insist that it requires a "retort courteous," lest it be deemed that silence on my part be consent.

European shipworms, unlike men, are apparently as clannish as American shipworms. American shipworms have been carried by the Gulf Stream from the West Indies to European shores since the Gulf Stream came into existence, or, probably still better, since trees grew and were set adrift in the West Indies by various agencies. These trees have always fallen a prey to shipworm attacks, and American shipworms in such floating timbers have thus paid visits to European shores since time immemorial.

Jeffreys, who has done more work upon European shipworms than any other man, pointed out long ago that in spite of the constant immigrations from American waters none of these sea waifs had succeeded in establishing themselves in European waters. By a study of the extensive Jeffreys collection, which rests in the United States National Museum, I am able to confirm his conclusions. The environmental factors of the two regions are evidently sufficiently delimiting to prevent such colonization.

Why some American authors, and my critic, persist in claiming that European shipworms are less choice in selecting a habitat than the American forms has always been a puzzle to me, and seems explainable only on three grounds: (1) European man has found America good; why shouldn't shipworms? (2) Because we love to cling to ancient concepts and are loath to change them. In the days gone by, due to little comparative material much sloppy work was done in determining shipworms and many names belonging to European species were hastily and wrongly applied to American forms. (3) The game of playing politics in science has recently crept in, it being the belief of some naturalist that if we had only one shipworm, *Teredo navalis,* in all the waters of the world, we could get a better or easier hearing for the forming of an international attack upon this animal. Personally, I do not see that it makes any difference whether there is one species or a thousand species of shipworms. Shipworms, except where cultivated for food, as in Siam, are like the Indians of old, all bad, and undesirable.

I find upon careful study based upon a huge amount of material that shipworms are well-behaved mollusks following the laws of distribution that dominate the other bivalves, and I see no reason or justifi-