The malignant cells have been carried on for over a year. They retain their malignancy and produce tumors like the original when inoculated into rats.

The technic, still in the process of development, is relatively simple. The test-tube (16 x 150 mm.) is lined by a thin layer of a blood plasma mixture in which the colonies are planted. After the clot is firm a supernatant fluid of blood serum, embryonic juice and saline is added and the tube sealed. It is then put in a rotating rack, 6 to 10 revolutions per hour, in an incubator. The supernatant nutrient fluid thus washes over the colonies, diluting the waste products and supplying food. The nutrient fluid (about 1 c.c.) is changed every 4 to 5 days and the colonies are cut up and replanted in fresh tubes every one to four weeks. Colonies frequently attain diameters of 10 to 20 mm. and sometimes the cells spread out over most of the inner surface of the tube. One to 30 or more colonies can be carried in one tube.

THE EXCRETION OF INULIN BY THE DOGFISH, *SQUALUS ACANTHIAS*

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A study was made on the simultaneous rates of excretion of inulin, xylose and creatinine in the normal and phlorhizinized dogfish. It was found that in the normal animal the clearance of inulin exceeded that of xylose by a mean of 28 percent, and that this difference is abolished by phlorizin. In the normal fish at low concentrations of creatinine in the plasma its clearance is several times that of inulin, and, when the plasma creatinine is raised, its clearance falls absolutely and approaches the simultaneous clearance of inulin. Under the action of phlorizin the creatinine is lowered, but not to the extent of identity with the inulin clearance.

Because of certain considerations discussed in the paper it is suggested that in the phlorhizinized dogfish the clearances of inulin, xylose and glucose, which are identical with each other, are identical with the rate of glomerular filtration; and that in the normal fish this lies somewhere between the clearances of inulin and of creatinine at high plasma levels.

(The complete article appeared in the December 20th number of the *Journal of Cellular and Comparative Physiology,* vol. 5; 1934.)

COLLECTING AT THE MOUNT DESERT ISLAND BIOLOGICAL LABORATORY DURING THE SUMMER OF 1934

ULRIC DAHLGREN AND CORNELIUS KAYLOR

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The past summer was unusually fine for shore-collecting due to the absence from the island of many of the wharf- and shore-collectors. The most valuable find of the summer was an abundance of male

and female parasitic bdellonemerteans, *Malacobdella grossa.* They were found in the mantle cavity and attached to the body of a small pelecypod mollusc, *Petricola pholadiformes,* but were completely absent from any of the other pelecypods. Malacobdella is small enough to afford easy and good preparations of total mounts for class study. It was the first time this nemertean was found at the island.

Gorgonocephalus agassizi, the basket-star, was found in greater abundance than ever before and was collected in perfect shape. Taking these stars from the lines of the small trawl-boats was the best method of bringing in the animals without breaking off their arms.

Frequent trips with the drag-boats showed the rose-fish, *Sebastes marinus,* to be infected with a large ectoparasitic copepod, *Sphyrion laevigatum.* The egg cases of these parasites were full of their characteristic flattened eggs. This was the first time Sphyrion has been reported at the laboratory. Another new ectoparasite, *Philura orata,* was taken from the outer skin of the common dog-fish.

The approximate breeding season was determined for some of the common invertebrates of the island shores. *Acmaea testudinalis,* the limpet, breeds from early thru late August. The limpet, it might be noted, was not as abundant as in former years. This was due probably to two causes, i.e., a food competition with a far greater number of *Littorina litorea, Buccinum undatum,* and *Purpura lapillus,* with whom the limpets were invariably found, and the use of the free-swimming limpet larvae as food for larger animals. Eggs of *Asterias vulgaris* and *Echinarachnius parma* were artificially fertilized in the laboratory. They were carried through the free-swimming gastrula stage in ordinary crystalizing bowls, but beyond that stage bacterial infection from the sea-water killed them. Tow samples at regular intervals gave all the larval stages of these two echinoderms plus those of the sea-urchin, *Strongylocentrotus drobrachiensis.* The star-fishes and sand-dollars breed during July and early August. About the middle of August *Littorina ruber* eggs were found attached to the *Laminaria* in tidepools at otter-cliffs. They were brought into the laboratory and carried thru their early embryological stages up to the veliger stage. No attempt was made to carry them further. Ripe *Echiuris pallasi* eggs were found in two females brought in on the 28th of August. The sea-cucumber, *Cucumaria frondosa,* was thought to breed sometime in April or early May, since on the 29th of June baby cucumbers were found which had formed tube feet and about two to four calcareous plates. The swimming stages are taken in the tow in early June.

The gelatinous egg masses of the nemertean worm, *Lineus viridis,* were found between tide marks in June and were raised to young worms in the laboratory.

It was an off year for *Aurelia aurata,* due possibly to the very severe winter with much ice which killed off the hydroid stages. The tubularian hydroids were few in number and about balanced the nudibranch, *Dendronotus.* These two forms alternate in abundance, according to records, since the nudibranchs feed on the hydroids and become more abundant as the latter decrease in numbers.

The eel-grass, *Zostra,* which suffered complete destruction several years ago due to bacterial parasites, was gradually making its appearance in the small inlets about the island. Many small animals usually found in association with Zostra were also reappearing.

In all, over ninety species of marine animals were collected in carefully prepared lots for winter work of several kinds. Practically all of these were taken by other means than dredging.

WORK AT MOUNT DESERT ISLAND BIOLOGICAL LABORATORY IN 1934

DUNCAN S. JOHNSON, E. D. DELAMATER AND BENJAMIN GOLDBERG
The Johns Hopkins University

Duncan S. Johnson studied the differences in species present and in the density of stand found in different seasons in the algal population of the intertidal zone at Otter Cliffs. In the "Upper litoral belt" here (see Johnson and Skutch, Ecology 9: 202, 1928) the green alga *Codiolum longipes* was about 10 times as abundant in August 1934 as in any August for a decade past. In August 1923, the year in which our study of this area began, *Codiolum* though more abundant than in any year after that up to 1934, did not cover half the area that it did last summer.

Bangia fusca-purpurea also was decidedly more abundant in August last than in any summer for 10 years past. Only in late March 1927, the one year in which we studied this area outside the summer season, have we seen *Bangia* present here in at all comparable abundance (see Johnson & Skutch, Ecology 9: Figs. 6 and 25).

Photographic as well as written records are being made each year of the algal population of certain definite areas and these show clearly the widely differing abundance of the same alga in different years. It is surprising that *Codiolum* and *Bangia* should be so unusually abundant in a summer following the severest winter of a decade and more on this coast. Evidence is accumulating that such climatic conditions as direction of wind and height of waves at the time of spore discharge affect critically the chances of lodging of the spores of *Codiolum* and *Bangia.* It is probable also that the intensity of sunlight and the evaporating power of the air are likewise critical factors that determine how long the young sporelings can persist after they are once started. These two sets of factors together must be chiefly responsible for the relative abundance of these algae in different years.

D. S. Johnson also continued his laboratory study of the development of certain *Myrtaceae* collected in Guatemala. The results of the study of *Batis* which was referred to in this report last year will appear in the *Bulletin* of the Torrey Botanical Club for January 1935.

Edward D. DeLamater worked at the laboratory in August especially on the distribution of the kelps and the germination of their zoospores.

Benjamin Goldberg worked on the reproductive structures of the *Florideae.*