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VISIT TO BROOKHAVEN NATIONAL LABORATORY OCTOBER 22 AND 23

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The increase in the biology budget for FY 1954 has made it possible to add some additional young scientists. The cut in the fund from Research has resulted in a shift of indirect costs to the Biology Division. For this reason it has not been possible to employ assistants and technicians for some of the new men.

With the present scientific staff the Biology Division has about attained its planned level except for additional assistants. Consequently, no major increases in the biology program are planned. The young men who have been added to the staff during the past year are very able and enthusiastic.

It has been found that resistance of oats to rust can be induced by irradiation. The genetics of this change has been worked out and found to depend upon several dominant mutations. This is significant genetically because dominant mutations are very rare. It is very significant economically because this work points the way to inducing resistance to rust in otherwise desirable, but rust-susceptible, varieties of oats.

Pituitary tumors in the mouse do not form after radiothyroidectomy following small amounts of I^{131} , but larger doses of I^{131} or whole-body x-radiation result in tumor formation. Similar doses of x-rays alone do not lead to their growth. It appears that ionizing radiation induces these atypical growths in pituitaries physiologically altered by radiothyroidectomy. More research is needed to learn how much the pituitary is disturbed by thyroidectomy or by the increased sensitivity of the pituitary. A series of organic compounds were added to the blood perfusing the isolated hind legs of rats at a constant blood-flow to study capillary and cellular permeability. This type of preparation, apparatus and technique are well suited to assess cellular functions under a variety of physiological conditions and also determine the pathways by which molecules penetrate the capillary walls.

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