Chloretone anaesthesia was used. In the case of the last dog which eliminated about 80 c.c. of CO_2 per minute, it may be estimated that a reduction from 57 to 34 per cent. would remove from the body in the course of one hour, about 800 c.c. of CO_2 or enough to raise the R. Q. from 0.75 to 0.88. It cannot be assumed as Porges has done that the blood gases, under the circumstances, would reach an equilibrium within 10–15 minutes, for with the circulation diminished to one half and the heart beating at its normal rate, or higher, the blood would pour through the lungs twice as often and would continue to lose carbon dioxide until the tension in all the tissues became very much reduced.

In dog II the compensation in the rate of respiration was almost sufficient to prevent loss of CO_2.

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On the influence of certain diets upon the growth of experimental tumors.

By **J. E. SWEET, E. P. CORSON-WHITE** and **G. J. SAXON.**
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The study of the experimental tumors of animals has brought forward numerous interesting observations upon the variation in susceptibility of animals of the same species obtained from different sources, to a given tumor strain, as well as variation in the rate of growth of the transplanted tumors. We have undertaken the study of the relation of certain diets to tumor growth and wish to briefly report the results obtained with a diet based upon the work of Mendel and Osborne. In their studies of the effect of feeding with pure vegetable proteins they encountered numerous combinations which effectively prevented growth, the animal meanwhile appearing in good health. This seemed to us to offer a most interesting opportunity to study the behavior of the tumor cell under these conditions; in other words, regardless of whatever the cause of cancer may be, can an inoculable tumor grow in a host which is apparently incapable of normal cell growth?

This report, while based on a small series as tumor experiments go, shows a result so uniform and striking that its con-

sideration would seem justified. In these series we have made use of white mice, having by preliminary observations determined that a diet made up on the basis of Mendel and Osborne's work, of a combination of glutenin and gliadin, would effectively retard the growth of young white mice. One series of fifty mice inoculated with the tumor obtained through the courtesy of Dr. Rous, of the Rockefeller Institute, gave twenty-three tumors out of twenty-five mice on a normal control diet, but only four out of twenty-five on a vegetable protein diet, of which three tumors later disappeared. In another series of fifty males, all again inoculated with the same tumor, eighteen out of twenty-five on normal diet developed tumors, with three out of twenty-five on a vegetable protein diet; a third series of fifty females gave fifteen tumors out of twenty-five on normal diet with seven out of twenty-five on a vegetable protein diet. Expressed in percentage, 75 per cent. of seventy-five mice developed a tumor under normal conditions; 19 per cent. of seventy-five mice developed a tumor when fed on a vegetable protein diet, and further the tumors in the latter series at thirty days were hardly larger than the tumors in the normal fed mice at ten days.

By referring to the work of Mendel and Osborne it will be seen that it is not a question of starvation in the ordinary sense of the word nor of anemia, but that the most probable conclusion is that the tumor cell is subject to the same laws of growth as is the normal somatic cell.

III (807)

On the inhibitory action of certain anilin dyes upon bacterial development.

By CHARLES E. SIMON, B.A., M.D., assisted by MARTHA A. WOOD, M.D.

The triamino triphenyl methanes possess a well-marked inhibitory power over the development of certain pathogenic organisms, notably staphylococci, streptococci, pneumococci and meningococci, besides the anthrax bacillus and actinomyces. This is quite pronounced, even in a dilution of 1 : 100,000. The common pathogenic *bacilli* are not affected by the dyes in question, in this concentration.