the process of glycogenolysis. That the alimentary tract does influence acid-base balance in the blood is shown by the experiments of Tingl,[18] who demonstrated an increase in blood alkali in the course of digestion.

In the light of our experimental findings, we advocate administration of glucose and the use of diets high in carbohydrate in cases of poisoning with selenite. Tellurium compounds behave in the body similarly to selenium. Since it has been shown that glucose detoxicates sodium tellurite by reduction to free tellurium,[19] we also recommend like treatment in poisoning with tellurites.

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3320

On Specificity of Opalina in the Frog.

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It is well known that the ciliate, *Opalina,* parasitic in the rectum of the leopard frog, *Rana pipiens,* and in the pickerel frog, *R. palustris,* occurs but rarely or not at all in the closely allied adult green frog, *R. clamitans,* and bull frog, *R. catesbiana.* Tadpoles of *R. clamitans* have been found by us to be almost universally para-

sitized.[1] Experiments by the first author were conducted to determine if *Opalina* would live and reproduce when transferred directly from the rectum of *R. pipiens* to that of the two genera of green frogs.

The frogs used in these experiments included *R. pipiens, R. clamitans,* and *R. palustris,* collected within 70 miles of New Brunswick, N. J., and *R. catesbiana* from New Orleans, La. The parasite employed in these transfers was *O. obtrigonoidea.* Removal of the rectal contents was accomplished with the aid of a fine glass pipette introduced through the cloaca of the host after previously relaxing the surrounding muscles by the action of M/8 magnesium chloride for 20 minutes. A pipette full of Ringers solution was first forced into the rectum before withdrawing the contents for examination or for introduction into a second host. The experiments were carried on from October to late May of the following year. The green frogs and bull frogs used in these experiments were examined in each instance prior to inoculation. One specimen of *clamitans* was found to harbor a heavy infection of *Opalina,* due, possibly, to contamination from close proximity to *pipiens* and their faeces, since the former frog does not normally harbor these parasites.

There follows the inoculations made together with the source of parasites used: *R. clamitans;* from *pipiens* 5, from *palustris* 2, and secondary transfers from artificially infected *clamitans* and *catesbiana,* 1 each. *R. catesbiana;* from *pipiens* 3, from *palustris* 3, and from artificially inoculated *clamitans* 1.

Reëxaminations were made of these frogs at intervals of approximately one month with the following results:

R. clamitans: Five showed no infection after 1 month. Good cultures of *Opalina* were obtained from 2 frogs 162 and 174 days respectively after inoculation from *pipiens.* One gave a good culture 16 days after inoculation from *palustris,* and one showed a fair culture 82 days after secondary inoculation from an artificially infected *catesbiana.*

R. catesbiana: Four showed no infection after 1 month. One gave a good culture 35 days after inoculation from *pipiens,* but none at 71 days. One showed a fair culture of *Opalina* 105 days after inoculation from *pipiens.* In 3 frogs inoculated from *palustris,* and one secondary inoculation, from an artificially infected *clamitans,* the parasites failed to become established.

CONCLUSIONS.

Metcalf[1] has suggested that since *Rana clamitans* and *R. catesbiana* remain for more than one year in the larval condition, adjust-

ment by *Opalina* to the adult stage of the host has not been necessary, infection taking place directly from each generation of tadpoles to the succeeding one. The presence of *Opalina,* however, in toads and in other adult *Anura* which metamorphose in less than one season throws doubt upon this explanation. The occurrence of *Opalina* in an occasional specimen of *R. clamitans,* and the successful propagation of this parasite for 174 days in *R. clamitans* and for 105 days in *R. catesbiana* indicate that *Opalina* may be in the process of adjustment to these two adult hosts. Additional support of this hypothesis is the fact noted by Metcalf that *R. catesbiana* introduced into Hawaii, and from there imported into California, harbored the parasite.

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3321

Some Effects of Alveolar Carbon Dioxide Tension on the Carotid and Femoral Flow of Blood.

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The importance of volume-flow, as well as composition of the blood, to the transport of oxygen and carbon dioxide and to respiratory control, led to the development of the electrometric method of recording volume-flow of blood, and its use in the study of disturbances in respiratory equilibrium. This report deals briefly with the effects of artificially produced changes in the alveolar concentration of carbon dioxide.

The volume-flow in the carotid and femoral arteries was continuously recorded, along with mean blood pressure and pulmonary ventilation. Room air and carbon dioxide (4 to 12 per cent) in room air were administered with re-breathing tanks. In some experiments the gases were administered by natural respiration, and in others pneumothorax was established, and the gases administered by closed circuit artificial ventilation.

The administration of carbon dioxide by either method elicited, in general, an increased flow of blood through the carotid artery, followed by a decreased flow on re-administration of room air. The same administration elicited a decreased femoral flow of blood, which increased on re-administration of room air.