fall in CO_2 is not accompanied with a corresponding change in the pH, except in the case of dog 2, where the CO_2 content fell from 31.5 volumes per cent before convulsions to 26.8 volumes per cent after convulsions and the pH dropped from 7.29 to 7.09.

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3426

Metabolic Rate Differences in Amblystoma Larvae.

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Variations in the growth rates of homoplastic and heteroplastic grafts on Amphibia have been observed by many workers. Harrison,[1] for example, noted the retardation and acceleration of heteroplastic grafts in Amblystoma larvae. Differences in the metabolic rates existing between species would seem to afford a partial explanation, at least, for such results. Tests were designed, therefore, to determine the metabolic rates of 81 Amblystoma larvae involving 4 species of Amblystoma, and the strain commonly spoken of as "Axolotl."

The metabolic rates were based on the oxygen consumption for 4 hours, as determined by the Winkler method. All tests were run at 20° C., while all other factors affecting the metabolic rate, such as food and activity, were controlled. An abbreviated resumé of the results follows:

10 *A. punctatum* averaged a 46.9 per cent higher rate than 10 *A. tigrinum.*

12 *A. punctatum* averaged a 47 per cent higher rate than 12 *A. tigrinum.*

10 *A. punctatum* averaged a 24 per cent higher rate than 10 *A. jeffersonianum.*

10 *A. microstomum* averaged a 104.2 per cent higher rate than 10 *A. punctatum.*

17 *A. tigrinum* (Axolotl) averaged a 3 per cent higher rate than 12 normal *A. tigrinum.*

It is apparent, therefore, that considerable differences in metabolic rate do exist between the four species of Amblystoma larvae tested, the order in point of highest rate being: *A. microstomum, A. punctatum, A. jeffersonianum, A. tigrinum.* Such marked differences, substantiated by biometrical analysis, lead one to the general conclusion that the abnormal acceleration of heteroplastic grafts is due partially, at least, to the influence of a higher metabolic rate than the graft was accustomed to. Conversely, a lower metabolic rate on the part of the host, as compared with that of the donor, would tend to retard the growth of the graft.

The apparent difference of 3 per cent between *A. tigrinum* (Axolotl) and normal *A. tigrinum* larvae is of no significance when the probable error is considered, and the two strains of *A. tigrinum* can therefore be said to possess approximately the same metabolic rate. This fact is of interest, in that the neotonous condition of the Axolotl cannot be explained on the basis of a supposed lower metabolic rate.

This is a preliminary report.

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Effect of Some Capillary Active Substances on the Permeability of Collodion Membranes.

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Brinkman and Szent-Györgyi[1] report that various capillary active substances, alkaloids[2] and purine bases (sodium oleate, sodium linoleate, sodium glycocholate, digitonin, Witte's peptone, atropine, pilocarpine, caffeine, strychnine, quinine and morphine) cause permeability of collodion membranes to hemoglobin. Rosenthal[3] states that sodium taurocholate possesses the property of increasing the degree of permeability of semi-permeable collodion membranes to dyestuffs. Clausen has shown the presence of some capillary active substance in blood serum[4] and urine of patients suffering from parenchymatous nephritis (nephrosis) which greatly lowers the surface