In the ovary, the egg develops as an ovocyte having a huge nucleus equal to about a sixtieth of the cell body. This nucleus can be removed in frog Ringer using watchmaker's forceps and braking pipettes[7]. Analyses of deoxyribosides were carried out on separated nuclei and cytoplasms (see table). The results indicate that already in the ovocyte a high proportion of the deoxynucleic acid is located in the cytoplasm. Preliminary evidence is that about one-third of the cytoplasmic deoxyribosides are present in a diffusible state. The remaining two-thirds become diffusible only after treatment with Kunitz's depolymerase.

For the hen's egg (yolk plus white), we have evidence of the same nature as reported for the amphibian egg, of an extranuclear localization of the greater part of the egg's deoxyribosides. It has recently been reported[8] that avidin from the white of the hen's egg is a deoxyribonucleoprotein. It is therefore likely, though not yet certain, that in the hen's egg we have two kinds of extranuclear deoxyribosides, namely, cytoplasmic and egg-white deoxyribosides.

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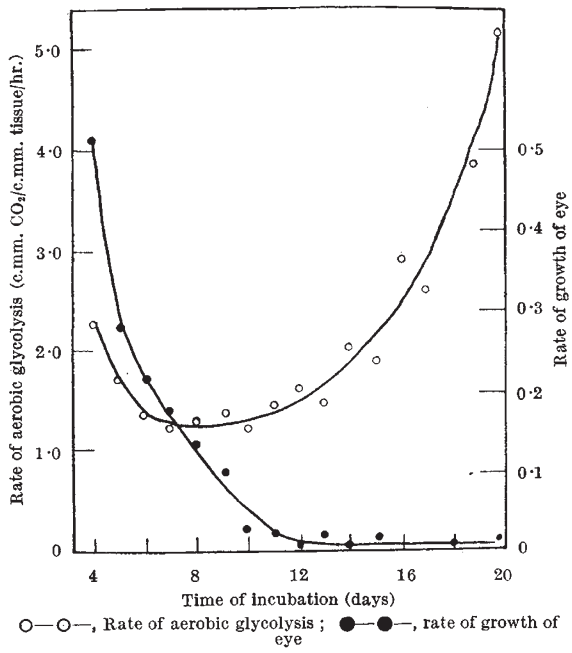
Growth and Aerobic Glycolysis in the Retina of the Chicken Embryo

In the midbrain of the chicken embryo a close relationship has been demonstrated between aerobic glycolysis and cell division[1], from which it can be inferred that growth is dependent on aerobic glycolysis. The rate of aerobic glycolysis has been measured in the retina of the chicken embryo by similar methods and the daily averages plotted (see accompanying graph). The rate of growth of the retina has not been measured directly, but the assumption has been made that it is approximately equal to the rate of growth of the eye. This has been measured in terms of its diameter, the rate of growth on any one day being expressed as the difference in the logarithmic value (in mm. to the base 10) on that day and the day preceding. Rates of growth so determined are plotted in the graph.

Until the eighth day of incubation, the rate of growth of the eye (and, it is assumed, of the retina) decreases similarly to the rate of aerobic glycolysis, suggesting the relationship found in the midbrain. This relationship does not hold after the eighth day, as there is a rise in the rate of aerobic glycolysis not associated with a rise in the rate of growth. These results suggest that the relationship between aerobic glycolysis and morphogenesis is different at the earlier and later stages of incubation. It is possible that such differences may be due to aerobic glycolysis



O—O—, Rate of aerobic glycolysis; ●—●—, rate of growth of eye

proceeding by more than one metabolic path, as has been suggested by its response to radiation in the adult retina[2].

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Influence of Crushing on the *p*H of Grass Silage

Silage of good quality has a *p*H of 4·2 or less, with the possible exception of silage made from wilted materials. If grass with a high protein content is ensiled, acids or carbohydrates may have to be added to obtain such a low *p*H. It seems, however, that merely crushing the grass also has the effect of lowering the *p*H. Gneist[1] probably was the first who noticed that crushing resulted in lower losses of nitrogen-free extractives and digestible protein. He ascribed this effect to the inactivation of enzymes. Crasemann and Heinzl[2] found that the formation of lactic acid was speeded up by crushing. Watson[3] is of the same opinion, and thinks that it might be possible to make good silage merely by crushing.

In the course of laboratory experiments on the ensilage of grass with potato pulp, we noticed that if the grass was crushed a much lower *p*H was attained. In our experiments the grass was crushed, or rather ground, by passing it three times through a small roller mill. Fresh and crushed grass were kept in preserving jars at a temperature of 24° C. After fourteen days the *p*H of the juice pressed from the silage was determined using a glass electrode. The accompanying table summarizes the results of our experiments. Crushing clearly results in better silage; but a *p*H of 4·2 was not always attained. In practice it would, of course, be impossible to grind the grass as thoroughly as we did, but if the grass was merely bruised a favourable effect was still