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The pH of the Blood of Chicken Embryos.

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In continuing our work on physiological ontogeny we have thought it of value to study the variation with time of the hydrogen ion concentration of the blood of chicken embryos. Estimates were made on embryos from 7 days of age to term. In making the measurements we used glass electrodes. We have taken precautions on the score of injury, the changes which take place during the process of dying, glycolysis and of temperature, the measurements being carried out in a warm room between 38 and 39° C. The usual precautions in the handling of blood have also been taken.

We find that at 7 to 8 days the blood is, relatively speaking, acid, and from 9 to 15 days maintains a rather level course somewhat more alkaline. At about the 16th day, the blood becomes still more alkaline and approaches the value found in adult chickens. We have studied both arterial and venous blood and mean to report upon these experiments in detail at a later time.

We have also taken blood from the foetuses of cats. From these we obtained figures indicating the presence of the same order of acidity. The data seem to indicate that the values are characteristic of embryonic growth in general and are not peculiar to the method of development, that is to say, of eggs versus foetuses.

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Parasites in Artificial (Inoculation) Malaria.

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The treatment of general paralysis by inoculation with malaria has been employed for the past five years at the Psychiatric Institute.[1] More than 300 patients with general paralysis have been inoculated intravenously with a single strain of malaria which has been therapeutically effective. The present results are concerned with:

[1] Bunker, H. A., and Kirby, G. H., *J. Am. Med. Assn.*, 1925, lxxxiv, 563.

1. A detailed microscopic study of the life-cycle of this parasite made by blood smears taken hourly from 4 patients inoculated with malaria about 3 years ago.

2. The significant finding was the total absence of gametocytes (the sexual forms of the malarial parasite). This agrees with contentions of Gerstmann.[2] The asexual cycle of this strain of malaria is identical with the asexual cycle of "natural" malaria. From a biological point of view it is interesting to note that our malarial strain has apparently become "sterile", which means that it has lost its capacity for sexual propagation. The absence of gametocytes would make it impossible to infect mosquitos, thus limiting the life-cycle to man alone. Incidentally, we have failed in our efforts to cultivate this strain of malaria in artificial media.

3. A strain of malaria free from gametocytes is of considerable practical value in the treatment of general paralysis in that:

(a) It eliminates the possibility of the transmission of malaria to other members of the community.

(b) It precludes the occurrence of malarial relapse following adequate quinine administration.

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Spectrophotometric Analysis of Dye Penetrating Nitella from Methylene Blue.

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When living cells of *Nitella* are placed in methylene blue solution the rate of penetration of dye into the vacuole is more rapid at pH 9.2 than at pH 5.5. The penetration at pH 5.5 is too slow for satisfactory spectrophotometric analysis but at pH 9.2 this is possible. The dye in the vacuole gives an absorption curve characteristic of a dye consisting chiefly of azure B and a trace of methylene blue with an absorption maximum at 655mμ, while the external solution gives a curve characteristic of methylene blue with an absorption maximum at 664mμ. The presence of methylene blue in the sap is not due to contamination because the sap is extracted by cutting the end of the cell which is wrapped in dampened absorbent cotton and kept

[2] Gerstmann, S., *Die Malariabehandlung der Progressiven Paralyse.* J. Springer. 1925.