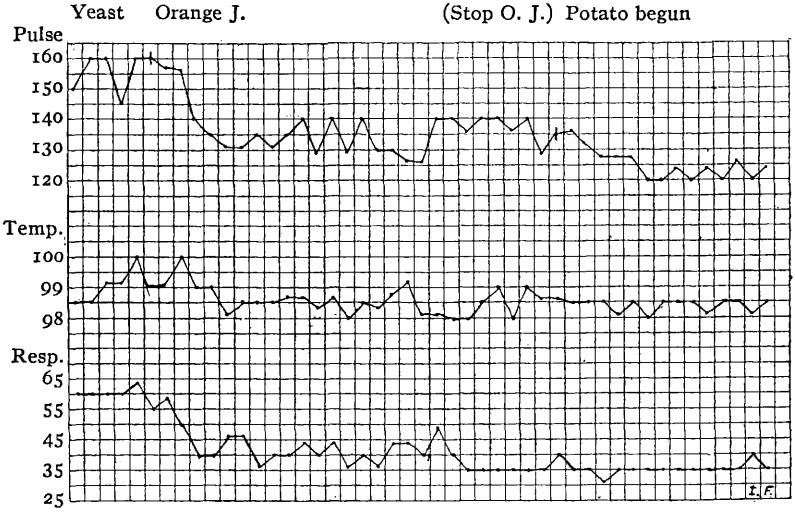
This pathological syndrome evidently is due to an involvement of the pneumogastric. It is interesting as another proof of the important part which the nervous system plays in this disease,



and in associating it still more closely with other so-called "deficiency diseases" such as beriberi and pellagra, in which the disturbances of the nervous system seem to be primary in nature.

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On the question of the transformation of fibrin into fibrous tissue in tissue culture preparations.

By R. A. LAMBERT, M.D.

[*From the Pathological Laboratory of the Presbyterian Hospital, New York.*]

During the past year there appeared a paper by Baitsell[1] working in Professor Harrison's laboratory at Yale University describing changes in the fibrin clot of tissue culture preparations, which he interpreted as a transformation of the fibrin meshwork into fibrous tissue. Extending his observation to the living animal this author has described[2] in the healing wounds of frogs similar changes in the fibrin which early fills the wound and concludes that instead of forming a temporary scaffolding to be removed

[1] Baitsell, *Jour. Exper. Med.*, 1915, XXI, 455.

[2] Baitsell, *Jour. Exper. Med.*, 1916, XXIII, 739.

later, the fibrin becomes transformed into permanent collagen fibrils such as are found in the healed scar. This view is so at variance with that generally held that a careful review of the work seems desirable.

The changes in the fibrin referred to may be briefly described. When the tissue culture is first prepared the fibrin meshwork of the clot is so delicate that the coagulum appears as a homogeneous almost translucent mass. Within two to five days as the clot contracts there appear in a certain number of the preparations, coarse fibrils sometimes wavy in character which radiate generally from the central fragment of tissue. We have observed this change in clotted fowl, human and rabbit plasma, as well as in frog plasma studied by Baitsell. The formation of these coarse fibrils is evidently the result of the contraction of the clot with fusion of many of the delicate fibrin threads. The change may be facilitated, as Baitsell has pointed out, by mechanical disturbances such as loosening of the clot at certain points. In human pathological material one sees a similar formation of coarse fibrils wherever fibrin in any quantity is deposited as for example, in fibrinous pleurisy, peritonitis, thrombi, pneumonic exudate, etc.

Baitsell's interpretation of this change in the fibrin clot as a transformation of fibrin into true fibrous tissue was based on the physical character of the unstained fibres and their reaction to connective tissue stains. Chemical tests were also applied. In their physical character the newly formed fibrils resemble collagen fibrils, but in the opinion of the author and of those to whom the preparations were shown the resemblance is superficial and is certainly not important in a differential study of this kind.

The stains used by Baitsell were those commonly employed to differentiate connective tissue: Van Gieson's picro-fuchsin, which stains connective tissue red and fibrin yellow, and Mallory's fuchsin-anilin blue with which connective tissue is stained blue and fibrin red. Baitsell obtained negative results with Van Gieson's stain, but with Mallory's stain as modified by Mall[1] the coarse fibrils appeared an ultramarine blue in contrast to a purplish blue of the fine fibrin threads.[2] In my hands this modified stain

[1] Mall, *Amer. Jour. Anat.*, 1901, I, 329.

[2] Baitsell states that both the modified and unmodified Mallory stain was used but his descriptions appear to apply only to the results obtained with the modified tain.

has not proved to be a differential stain at all since even the freshest fibrin takes a bluish hue. The difference between the coarser and finer fibrils appears to be one of intensity of stain. On the other hand the original Mallory stain as well as the modification made by Mallory himself in 1905[1] differentiates sharply between fibrin and connective tissue. The coarse fibrils as well as the fine fibrin strand taking a rich orange red in contrast to the deep blue of the connective tissue fibrils. I have used still a third connective tissue stain, the Bielschowsky silver method, which is regarded as a more delicate stain even than Mallory's. This method gives the same results as the others, that is, the fibrils react as fibrin and not as fibrous tissue (fibrin, dirty brown; connective tissue fibers, deep black).

My results with chemical tests—digestion with weak acid and pancreatin—agree with those of Baitsell. The coarse fibrils under question are readily dissolved, indicating their fibrinous character.

It has therefore been concluded that the only support for Baitsell's transformation idea consists of results obtained with a modified stain which does not differentiate fibrin and fibrous tissue. Chemical tests and reactions with all three of the differential connective tissue stains in general use show that no such transformation takes place.

5 (1183)

A comparative study of different methods of performing the Wassermann test for syphilis.

By J. WHEELER SMITH, JR., and W. J. MACNEAL.

[*From the Laboratories of the New York Post-Graduate Medical School and Hospital.*]

Wassermann tests were performed by three methods upon 496 identical specimens from 477 patients. In the first method a cholesterin-reinforced antigen was employed and the first incubation was carried out at 37° C. In the second method a simple alcoholic extract was used as antigen, with incubation also at 37° C. In the third method this latter antigen was again employed, but the first incubation was carried out in the refrigerator for a period of four to twenty-four hours.

[1] Mallory, *Jour. Med. Research*, 1905, XIII, 113.