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The behavior of transplanted mixtures of tumor and embryo.By **PEYTON ROUS.**

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Mixtures of hashed mouse-embryo and transplantable mouse-tumor were inoculated into the subcutaneous tissue of adult animals. It was found that growth of both elements took place, often in intimate association. But to obtain these results a balancing of avidity was necessary, such as Apolant used in his mixtures of sarcoma and carcinoma. Only tumor-cells of sluggish character can be implanted with the embryonic cells, which otherwise are outgrown and soon die. This is interesting in view of the enormous proliferative ability of the embryonic cells *in utero*, and it would seem to show that such ability depends at least as much on the excellent nutritive arrangement *in utero* as on inherent cell-energy. The transplanted cells not only lack the power of unlimited growth that characterizes tumor, but during their temporary growth in a new environment lack the proliferative energy that many tumors show.

In a mixed graft that has only partially succeeded, tumor and embryo tend to grow or fail together. This must be largely a matter of immediate nutritive conditions, which are best, for example, at the edge of the graft. But it is also notable that at those points where one element has elicited a supporting reaction from the host tissues and is growing, the other has also succeeded. When the tumor mass is walled off from the host by a layer of developing embryo, it nevertheless grows, utilizing as stroma the embryonic connective tissue.

In a number of quantitative experiments it was found that tumor and embryo succeed better alone than when mixed. This difference is at first not marked. Later, when the embryonic element of the mixed graft, after its short period of development, breaks down, more or less of the tumor is involved with it.

It was observed not infrequently that the embryonic epithelium and the carcinomata united when they met during the process

of growth, and this though the one was squamous in type, the other adenomatous. So perfect was the apposition of cells that but for the sharp transition from one tissue to another, an observer in ignorance of the conditions of experiment could well believe that here had occurred a metaplasia. The fact thus experimentally proven that cancerous and normal epithelium can secondarily unite must not be forgotten in judging instances of apparent metaplasia at the edge of tumors.

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Vaughan's split products and unbroken proteins. A comparative study of their effects.

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The following is a brief summary of our results :

*Comparing the Action of Vaughan's Egg-white Poison to
Unbroken Protein.*

1. Inoculations of the unneutralized acid poison into normal guinea pigs gave the same picture as that of the unbroken protein when inoculated into sensitized guinea pigs, whether the poison was given intraperitoneally or intracerebrally. The filtrate from the neutralized poison injected intracardiacally also gave typical symptoms.

2. *Effect of Heat.*—The egg-white poison was not affected when heated to 100° C. for 15 minutes; heated to 120° C. for 15 minutes it was reduced, but its toxic action not completely destroyed.

3. *Chloral Hydrate.*—Normal guinea pigs under the influence of chloral were completely protected against one and a quarter fatal doses of the poison. If two or more fatal doses are given death results. Chloral mixed with the poison, and then given, caused irregular results which was interpreted as meaning that there is no chemical union of the chloral and poison *in vitro*. We assume that the chloral protects by union with certain vital cells.

4. *Lecithin (Egg) Effect on Serum Anaphylaxis.*—Emulsified with the serum and the resulting emulsion injected into serum