brought into association with the agent causing the growth, but they have never undergone a neoplastic change.

HISTOLOGY OF THE GROWTHS

The tumors obtained on implantation resemble microscopically those in adult fowls except that the cells lie in a loose reticulum and are often of most attenuated spindle form. Slight variations occur in the morphology of the different growths, owing presumably to variations in the implanted material. But the cells are of one type, growing in a diffuse mass; and a cellular reaction is quite absent from the normal tissue round about. In general appearance the tumor cells are markedly different from those of the normal embryonic connective tissue next to them.

SUSCEPTIBILITY OF THE EMBRYO

Some embryos are naturally resistant, as are some adult fowls, and tumor implantation in them fails of success; but in most, the growth greatly surpasses that seen in adult hosts. This refers only to tumors in the embryo's membranes, since the implantations in the embryo's body have been as yet too few for a generalization. But there the findings will probably be the same. It is well known that young animals form more favorable hosts for transmissible tumors than do old. One of us has recently investigated the point further by inoculating with tumor many new-born rats and mice. These showed themselves much more susceptible than control animals three-fourths grown.

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PRIMARY ORCHITIS WITH SECONDARY PAROTITIS

THE REVERSE OF METASTATIC MUMPS

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The case in question is that of a young man, aged 18, in high school.

Dec. 3, 1910, the patient was found in bed with temperature 101 F., pulse 90, complaining of pain and tenderness in the left testicle. I questioned him as to his having had mumps recently, the disease being prevalent at this time. He denied ever having had mumps, lues, gonorrhea, tuberculosis or having received any injury, and could not in any way account for his present trouble.

On examination, I found the left testicle very tender, quite tense, and swollen to about twice its normal size, with no evidence of the usual causes of this condition. My opinion at the time was that the patient must have had a mild attack of mumps, and that his present condition was the sequel. On the usual line of treatment he seemed to improve. Six days afterward the right testicle became swollen, much the same as the left one had been. This condition lasted for seven days, and the patient was feeling pretty well when he noticed a slight swelling below each ear, in the angle of the jaws, accompanied by considerable pain. The parotid glands became very much swollen, and the patient developed a classical case of mumps.

When I last saw him sixty days after the first symptom of orchitis appeared the testicles were nearly normal. Although he wore a suspensory, he felt that he could dispense with it.

Having excluded, so far as I knew, the ordinary causes of orchitis, with one testicle involved at a time, and the parotid glands becoming involved so soon after the orchitis, I arrived at the conclusion that the order of metastasis in mumps had been reversed in this case.

I have not been able to find a parallel case.

THE STIMULATION OF ADRENAL SECRETION BY EMOTIONAL EXCITEMENT*

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Dreyer's demonstration that splanchnic stimulation increased the content of epinephrin in blood from the adrenal veins has been confirmed by several observers. Adrenal secretion therefore is under control of the sympathetic system.

Major emotional disturbances indicate the dominance of sympathetic impulses. In the cat, for example, fright causes dilatation of the pupils, inhibition of the stomach and intestines, rapid heart, and erection of the hairs of the back and tail. Do not the adrenal glands share in this wide-spread subjugation of the viscera to sympathetic control?

To try this suggestion the inhibition of contraction in strips of longitudinal intestinal muscle, sensitive to epinephrin 1 to 20,000,000, was used as a biologic test. Blood was obtained from the cat when quiet, and again after the animal was excited by the presence of a barking dog, by introducing, through the femoral vein, into the inferior vena cava to the region of the liver, a small catheter lubricated with petrolatum. The blood thus obtained was defibrinated and applied to the intestinal strip at body temperature.

After an initial shortening the strip contracted rhythmically in blood from a quiet animal. In no instance did such blood produce inhibition. On the other hand, blood taken from animals after the emotional disturbance showed more or less promptly the typical relaxing effect. As the emotional period was prolonged, the effect became prompter and more profound.

The view that inhibition of the contracting intestinal strip is due to an increased epinephrin content is justified for the following reasons: 1. The effect was obtained in blood from the vena cava near the liver when that from the femoral vein taken simultaneously produced no inhibition. 2. Removal of the adrenal glands after tying the adrenal vessels resulted in a failure of excitement to produce the effect. 3. Adding varying amounts of adrenalin to inactive blood evoked all the degrees of relaxation that have been observed in excited blood. 4. Excited blood which produced prompt inhibition lost that power on standing or on being agitated by bubbling oxygen. These conditions, together with the evidence that sympathetic impulses increase the secretion of the adrenal glands, and that during such emotional excitement as was here employed signs of sympathetic discharges were observable in the animal from the eye to the tip of the tail, prove that the epinephrin effect was due to epinephrin.

Injected epinephrin is capable of inducing an atheromatous condition of the arterial wall in rabbits, especially in elderly individuals, and is also capable of evoking hyperglycemia with glycosuria. As Ascher has shown, by prolonged stimulation of the splanchnic nerves, prolonged secretion of epinephrin with maintained high blood-pressure can be produced. In the light of the results here reported the temptation is strong to suggest that some phases of these pathologic states are associated with the strenuous and exciting character of modern life acting through the adrenal glands. This suggestion, however, must be put to experimental test.

* From the Laboratory of Physiology in the Harvard Medical School.