

tetany developed within twenty-four hours and death occurred within forty-eight. Isotransplantation or isografting (two grafts) was unsuccessfully resorted to 24 hours after the supervention of tetany.

*Summary.* — Our experiments have proved that in dogs

1. Parathyroid glands are essential to the life of the animals, and that tetany follows their removal.

2. Transplanted parathyroids (autografts) may for an undetermined time perform at least the most evident function of these bodies.

3. One successfully transplanted parathyroid may suffice to maintain a fair degree of health; traces of hypoparathyroidism may persist.

4. In autotransplantation success is more common than failure.

5. Heterotransplantation rarely succeeds.

6. For the successful transplantation of these organs a deficiency of parathyroid tissue should be created.

7. Transplanted in excess of what is required by the organism parathyroid glands do not survive.

8. Excised or deprived of their blood supply in the course of an operation parathyroids should probably be reimplanted, preferably into the thyroid gland.

9. Complete excision of the thyroid lobes is well borne, for months at least, by these animals. Myxedema begins to manifest itself in a few weeks.

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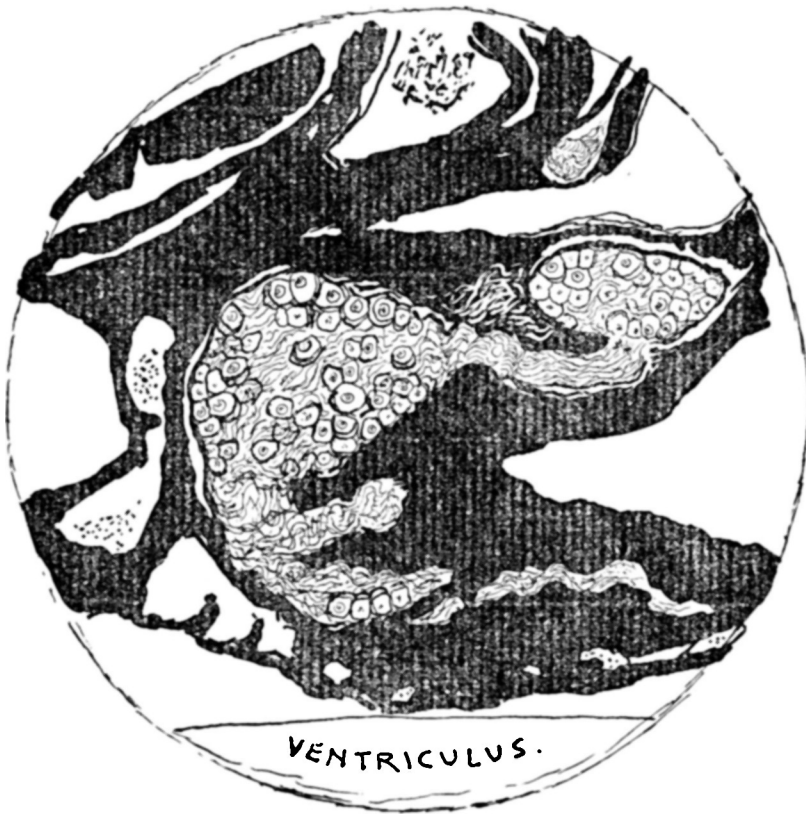
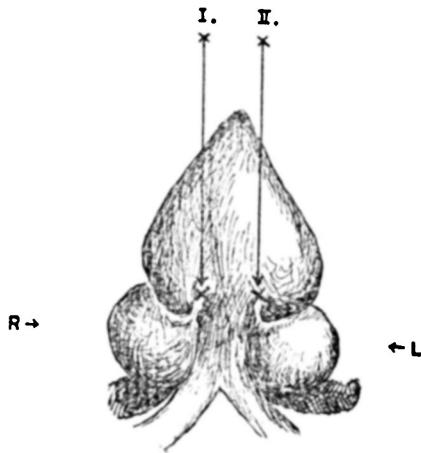
### **The nervous coördination of the auricles and ventricle of the heart of the lizard.**

By **MARIE IMCHANITZKY.**

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*Communicated by S. J. Meltzer.*

The following investigation was carried out on the hearts of lizards (*Ocellata lacerta*) for the purpose of studying the nature of conduction between the auricles and ventricles in these animals. The experimental part was done at the Zoölogical Station of



Villafranca. Ligatures were applied between auricles and ventricle and the pulsations counted before and after. The histological examination of stained serial sections was made later in the Physiological Institute of Bern.

An abbreviated protocol will illustrate the experimental results.

October 4, 1907. The beating heart of a large lizard whose brain was destroyed, was turned over within the open thorax so that the dorsal surface, where the chief nervous connections between auricles and ventricle are to be found, was lying upward. Whitish cords connect the auricles with the ventricle; the left cord is finer than the right and not always distinguishable. Besides these cords only connective tissue can be noticed between auricles and ventricle.

The heart was beating 25 times a minute, auricles and ventricle beating in regular sequence. After ligating the right cord the ventricle stopped beating for one minute, while the auricles continued to beat irregularly. Four minutes later the auricles were beating 18 times and the ventricle 10 times a minute. Later counts gave the following relations: 24 to 12, 24 to 18, 22 to 16. Twenty minutes after ligature the auricles were beating 25 times and the ventricle 22 times a minute. After ligating the left cord also, auricles and ventricle stood still for about one minute, when both began to beat. Again the relations were 10 to 3, 10 to 5, and 14 to 6.

Other experiments gave constantly similar results.

Kronecker and Spalitta observed in Palermo similar incoördination after applying ligatures to the heart of a sea turtle, but the results were not constant. (Report of the Berlin Academy of Science, May 25, 1905.)

In the hearts of lizards in which the cords were not visible, ligatures made through the corresponding part of the wall produced the same incoördination. Ligatures on the anterior (ventral) surface had no effect.

The histological examination showed that there are no traces of muscle bridges connecting the auricles with the ventricle. Neither is there in the septum a tract of muscles corresponding to the bundle of His. There are, however, a multitude of nervous connections between auricles and ventricle. The cord consists

of fine non-medullated nerve fibers intermingled with numerous large ganglion cells. There are also large capsules filled with nerve cells. Some of these oval-shaped capsules send out quite large nerve tracts, others give off only fine nerve fibers. With the intravital method of staining, fine nerve plexuses can be seen all over surrounding muscle fibers.

According to these studies the lizard heart may serve as a typical instance of a purely neurogenic origin of the coördination of the heart beats.

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**The influence of diet on the chemical composition of the body.<sup>1</sup>**

By **LAFAYETTE B. MENDEL.**

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The investigation was an attempt to ascertain to what extent, if at all, the fundamental chemical structure of an organism can be altered by variations in diet or changed nutritive conditions. White mice were kept on dietaries of widely different character, *e. g.*, high protein, protein and fat, low protein and carbohydrate, etc., during considerable periods of time, and then killed and analyzed. The data are being published elsewhere. They are interpreted to indicate that although the fat and water content of such organisms show variations through a very wide range, there is a constant interdependence, even in cases of malnutrition. High content of fat is accompanied by lower water content, and *vice versa*. When the water content of the body is calculated on the basis of the fat-free tissue, the range of variation is remarkably small (70 to 74 per cent. of water). In order to afford some direct basis for a comparison of the tissue substance aside from its water and fat and the inorganic skeletal structure, the nitrogen content of the entire animals was calculated on a water-, fat- and ash-free basis. With few exceptions the animals afforded figures within narrow range above or below 16 per cent. of nitrogen. The constancy of composition of the organism suggests that it is

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