

is positive. The line may be visible to the unaided eye in untreated bones. The results of the examination of the gross specimen should be confirmed by study of celloidin or frozen sections from the other half of the bone or other bones. Control rats and rats which fail to give the test do not show the line of calcification. The new line of calcification may extend completely across the bone or may be incomplete or fragmentary, according to the extent of the deposition of the lime salts induced by the substance which is under examination. Since complete starvation also causes the typical linear deposit of lime salts to appear in the cartilage of rachitic animals, the food intake of both test and control rats must be carefully watched during the course of the experiment. Control and test animals must be kept under identical conditions.

This method is applicable to the study of the calcium depositing-power of any chemical substance or physical force.

61 (1808)

**The effects of pituitary extract on the body temperature of animals rendered poikilothermous by destruction of the optic thalamus.**

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In earlier work the writer has shown that destruction of the cerebral hemispheres and the optic thalamus of birds reduces the animal permanently to a poikilothermous condition. In birds this is not an operation that leads to immediate death for they may be kept alive for one to three months by keeping them constantly at an atmospheric temperature of 30° to 35° C. The routine procedure was to remove the cerebral hemispheres in toto by the scalpel and then destroy the optic thalamus with an electro-cautery.

It has been pointed out elsewhere that to produce the poikilothermous condition there must be extensive destruction of the thalamus and that localized injuries did not appreciably change

the body temperature regulation. This destruction of the structures around the third ventricle, it is obvious, might also involve the hypophysis. Inasmuch as a subnormal temperature is among the cycle of disturbances following injuries or removal of the hypophysis (Cushing and others) the temperature disturbance might be attributed to hypophyseal injury, rather than to the lesion in the brain. The experiments have been repeated therefore taking particular care not to traumatize the hypophysis.

A series of pigeons were reduced to the poikilothermous condition by cauterization of the thalamus. After death absence of any gross visible changes in the hypophysis was confirmed. The organ in each of these animals had a perfectly normal appearance although there may have been circulatory alterations or cytological changes invisible to the naked eye.

However this may be the injection intra-peritoneally of from .2 to 1.0 c.c. of pituitary extract (posterior lobe—Lilly) causes a sharp rise in body temperature of the poikilothermous birds.

TABLE I.  
POIKILOTHERMOUS DECEREBRATE PIGEON.

Date.	Time.	Temperature of Cage.	Body Temperature.
Nov. 3 . . . . .	8.00 A.M.	25° C.	31.2° C.
" " . . . . .	11.00 A.M.	25° C.	30.4° C.
" " . . . . .	12.30 P.M.	Injection of .4 c.c. of pituitrin	
" " . . . . .	2.00 P.M.		25° C.
" " . . . . .	3.30 P.M.	25° C.	36.0° C.
" " . . . . .	5.00 P.M.	26° C.	38.1° C.
" " . . . . .	8.00 P.M.	26° C.	37.0° C.
" " . . . . .	11.30 P.M.	26° C.	36.2° C.
Nov. 4 . . . . .	10.00 A.M.	25° C.	34.8° C.
" " . . . . .	2.00 P.M.	25° C.	34.6° C.
" " . . . . .	2.15 P.M.	Injection of .4 c.c. of pituitrin	
" " . . . . .	3.15 P.M.		24° C.
" " . . . . .	4.30 P.M.	24° C.	38.0° C.
" " . . . . .	6.00 P.M.	24° C.	39.1° C.
" " . . . . .	7.30 P.M.	24° C.	39.3° C.
Nov. 5 . . . . .	10.00 A.M.	25° C.	32.0° C.

Injection of the extract into normal birds causes no temperature reaction greater than the range of the diurnal variations.

In the poikilothermous pigeon whose body temperature is artificially maintained at a normal level by keeping in a warm incubator, injection of pituitary extract is followed by a rise in temperature such as to threaten heat prostration.

TABLE II.  
POIKILOTHERMOUS DECEREBRATE PIGEON.

Date.	Time.	Temperature of Cage.	Body Temperature.
Nov. 6. . . . .	12.15 P.M.	30° C.	40.2° C.
" " . . . . .	2.00 P.M.	30° C.	39.0° C.
" " . . . . .	4.00 P.M.	30° C.	40.0° C.
" " . . . . .	4.15 P.M.	.4 c.c. of pituitrin	
" " . . . . .	5.30 P.M.	30° C.	43.1° C.
" " . . . . .	6.00 P.M.	30° C.	43.2° C.
" " . . . . .	7.30 P.M.	30° C.	43.5° C.
" " . . . . .	9.00 P.M.	24° C.	—
Nov. 7. . . . .	10.00 A.M.	24° C.	32.0° C.

The rise in body temperature persists for twelve to twenty-four hours and then falls to a level determined by the environmental temperature.

We have been unable to continuously maintain the body temperature at the normal level by pituitary extract alone without the aid of the warm incubator. Frequently repeated injections of the extract lead to the death of the animal preceded by weakness and general prostration.

A number of quite different factors seem to be involved in this thermic reaction. Further details and discussion will be presented later.

62 (1809)

### Relation of splenectomy to growth and appetite in the rat.

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With a view of studying the alleged effect of splenectomy on appetite and growth,<sup>1</sup> experiments were carried out on white rats using the standard feeding technic of Osborne and Mendel. The growth was thus accurately measured and the qualitative as well as quantitative aspect of the food intake carefully controlled. Sixteen rats were splenectomized as nearly as possible at the age of 40 days. Of these, five were observed for 34 weeks, three for 43,

<sup>1</sup> Richet, *J. de Physiol. et de Pathol.*, 1912, xiv, 689; 1913, xv, 579. Prym, *Verhand. des Kongr. f. innere Med.*, 1911, xxviii, 398.