data. For 3 cases in which the difference was abnormally high, the data were determined again at a later date. In 2 of these, the difference remained abnormal. In the third, the last result was normal. It is interesting to note that this patient received radium and colloidal lead phosphate after the determination of the first data and had shown a marked improvement. The observed value was higher than the calculated in 2 instances of those which showed a maximum deviation. In 3 instances it was lower. These 3 cases all had carcinoma of the cervix. This observation may be entirely fortuitous. Abnormal albumin and globulin contents of blood have been observed in cancer patients.[3] It is probable that an abnormal serum protein content or distribution is responsible for the abnormal results obtained in our series. For 7 of the cancer patients the difference between the calculated and observed plasma [CO_2] was no greater than for the normal group. It should be noted that several of these patients were very anemic.

Summary: In calculating the plasma [CO_2] of blood from cancer patients by the Van Slyke line chart, an error of 2 to 3 volumes per cent may be introduced. Of 11 cases studied, 6 observed values showed a normal agreement with calculated values. Of the 5 values which showed an abnormal deviation, 2 were in one direction and 3 in another.

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Egg-Laying in Triturus Viridescens Following Pituitary Transplants.

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From the work of Smith,[1] Smith and Engle,[2] and Engle[3] it is known that anterior pituitary transplants hasten sexual maturity in rats and mice. In females the ovaries contain an excessive number of mature follicles and superovulation occurs. Egg-laying, mating, and subsequent development of the fertilized eggs has also been induced in frogs, in autumn, by Wolf.[4]

[3] Wells, H. G., "Chemical Pathology," W. B. Saunders Company, 1925, 572.

[1] Smith, P. E., *Anat. Rec.*, 1926, xxxii, 221; PROC. SOC. EXP. BIOL. AND MED., 1926, xxiv, 131.

[2] Smith, P. E., and Engle, E. T., *Am. J. Anat.*, 1927, xl, 159.

[3] Engle, E. T., *Anat. Rec.*, 1928, xxxvii, 275.

[4] Wolf, O., PROC. SOC. EXP. BIOL. AND MED., 1929, xxvi, 692; *Anat. Rec.*, 1929, xliv, 206.

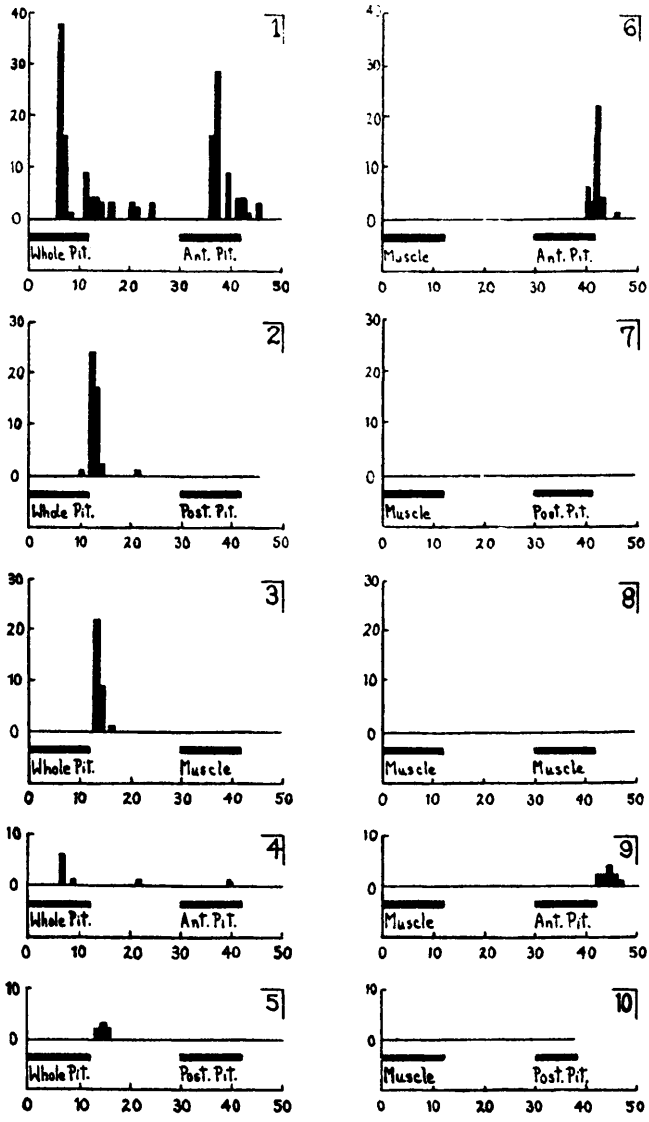
Experiments were undertaken to see if females of urodeles *(Triturus viridescens)* would also deposit eggs out of season if they received transplants of the pituitary gland. In October, a student working with the writer, placed, on alternate days, whole glands in females unilaterally castrated. After 7 transplants one individual laid an egg (October 22nd). Transplants were continued and 15 more eggs were laid up to November 16th when the animal was killed. Six other females also shed eggs at other times after varying numbers of transplants.

Early in December, 5 normal adult females received whole pituitary gland transplants from normal adult males (one transplant daily for 12 days). Five others (controls) were engrafted with small bits of muscle. All grafts were implanted either intramuscularly or intraperitoneally. Animals receiving pituitary glands laid eggs during (Numbers 1, 2, 4) or after (Numbers 3, 5) the grafting (Graph 1). Numbers 1, 2 and 3 laid 86, 45 and 32 eggs respectively over a number of days while Numbers 4 and 5 laid 8 and 7 respectively. The last 2 animals were small as compared with the first 3 and were selected purposely for comparing with the large specimens which from external examination very evidently contained sizable ovaries. None of the animals (Numbers 6-10) which received muscle laid any eggs.

After the egg-laying in the pituitary-engrafted animals ceased, another series of transplantations was begun (January 7th) using the same animals. Numbers 1 and 4 (previously engrafted with whole gland) and Numbers 6 and 9 (previously engrafted with muscle) received anterior lobe while Numbers 2 and 5 (whole gland group) and 7 and 10 (muscle group) received posterior lobe. Number 3 (whole gland group) and Number 8 (muscle group) received muscle. In each animal into which anterior lobe was transplanted, egg-laying occurred (Numbers 1, 4, 6, 9). Again Numbers 4 and 9, the small animals, laid few eggs (1 and 11 respectively) while Numbers 1 and 6 laid 71 and 36 respectively. No animal receiving either posterior lobe or muscle deposited eggs. Another control series which was engrafted daily with a pair of thyroid glands failed to lay eggs.

While these experiments were under way a paper[5] appeared reporting induction of egg-laying in *Eurycea bislineata* by anterior pituitary transplants. The data in the present account therefore add another instance of egg-laying induced in urodeles by pituitary

[5] Noble, G. K., and Richards, L. B., *Am. Mus. Novitates*, 1930, Jan. 9, No. 396.



GRAPH 1.

Effects of pituitary and muscle transplants on egg-laying in *Triturus viridescens*. On ordinates are given numbers of eggs laid; on abscissae, number of days experiment continued.

grafts. These experiments seem to indicate that either anterior lobe or whole gland (anterior lobe being the active factor) may be employed. Whole gland is somewhat easier to use since no time is sacrificed for the separation of the anterior and posterior lobes.