

the data obtained from the five *Ascaridia*-free ring doves it is found to be the smoothest of the series and quite similar in its several parts to the curves for suprarenal hypertrophy and oviducal growth found in that earlier work. These several series of measurements therefore seem definitely to show that coincident with ovulation in the pigeon there occurs an increase of the blood sugar to 25 per cent. or more above the pre-ovulation value.

The results indicate: (1) That the stage with reference to ovulation is probably a factor influencing the values obtained for blood sugar in other animals and is probably too large a factor to be left out of consideration in dealing with samples taken from reproducing females. (2) That, the essential similarity of the curve expressing the rise of the blood sugar with the curve expressing the coincident hypertrophy of the suprarenals, as earlier reported by one of us, is a further evidence for the relationship of the suprarenals to carbohydrate metabolism on the one hand and to sexual functions on the other. (3) That the enforcement in pigeons of frequent and continuous ovulations throughout the year, as this has been practised and reported by Whitman and by Riddle—with important results on sex, viability, and longevity of offspring—is doubtless accompanied by an increased and nearly continuous mobilization of carbohydrate in the female parents.

185 (1932)

Seasonal tide of blood phosphate in infants.

By **ALFRED F. HESS** and **MARION A. LUNDAGEN**.

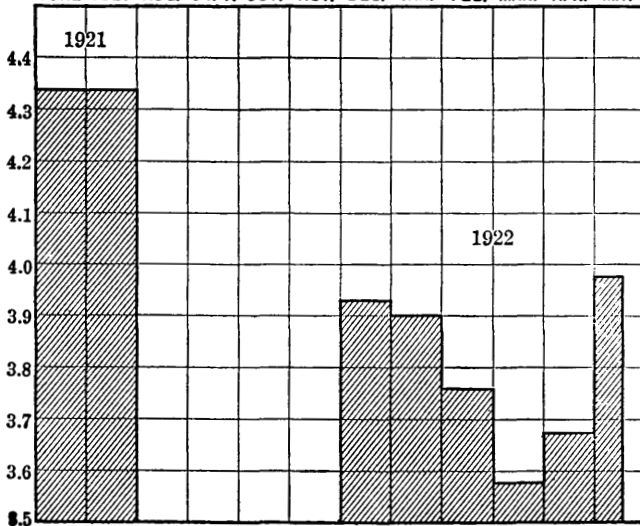
[From the Home for Hebrew Infants, New York City.]

In a previous communication it was shown that in infants the inorganic phosphate of the blood could be raised to the normal level by frequent exposures to the sun's rays.¹ The same result can be brought about by means of the carbon arc-lamp. The most effective radiation in bringing about this alteration are the ultra-violet rays. As has been shown by Dorno, the rays of the sun

¹Hess, A. F., and Gutman, P., *PROC. SOC. EXPER. BIOL. AND MED.*, 1921, **xix**, 31.

during the summer are incomparably richer in ultraviolet than those during the winter and early spring. It seemed, therefore, of interest to follow, month by month, the content of inorganic phosphate in the blood of a group of infants, where dietetic and hygienic conditions could be controlled. The accompanying tables indicate the result of a systematic study of this kind. Table I shows that in June and July of last year the average in-

TABLE I.
SEASONAL TIDE OF BLOOD PHOSPHATE (INORGANIC).
JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY



organic phosphate of the blood of these infants, who varied in age from about 6 to 18 months, was 4.35 mg. per cent. During the summer and fall analyses were not carried out. In December the average percentage had fallen to 3.92 mg., and then decreased steadily during January, February and March. In April, especially during its latter half, and in the first half of May, the inorganic phosphate again began to rise. These averages represent some 270 individual tests. Table II shows that the high percentages in the summer and the fall, and the steady and marked ebb during the winter months, occur quite irrespective of the nature of the diet. This seasonal tide of the blood phosphate is to be attributed mainly to the seasonal variation of sunlight. It would seem that the ultraviolet rays are necessary for the normal metabolism of the growing infant, especially in relation to its exchange of inorganic salts.

TABLE II.
SEASONAL TIDE OF BLOOD PHOSPHATE (INORGANIC).

	1921 June } July }	Dec.	Jan.	Feb.	Mch.	Apr.	May ½ Mo.
Protein M.....	4.45	3.91	3.86	3.64	3.48	3.45	} 3.95
Dry M.....	4.21	3.87	3.77	3.68	3.30	3.46	
Raw M.....	4.33	3.98	3.83	3.81	3.52	3.67	

186 (1933)

Localized lesions in the corpora striata produced by buried radium emanation.

By D. J. EDWARDS and H. J. BAGG

[From the Department of Physiology and the Memorial Hospital,
Cornell University Medical College, New York City.]

When a small glass capillary tube, containing about one milligram of radium emanation, is imbedded in living tissues definite localized destructive reactions occur, mainly due to the relatively intense beta-ray radiation given off in the immediate vicinity of the tube.

Bagg has shown that when normal brain tissue is thus treated, and examined after a period of about two weeks, the tissue about the tube is completely necrotic, and is surrounded by a broad zone of polynuclear leukocytes beyond which there is some hyperemia. The entire lesion is limited to an area 1 cm. in diameter. The lesion is well localized, the brain cells beyond the one-centimeter zone retain their normal morphological character. That the lesion is practically entirely due to the irradiation of the radium emanation, and not to the presence of the glass tube, or the traumatism incident to its insertion, has been satisfactorily proven by control experiments.

The lesion just described is not produced at the time the small tube is placed in the tissues. From previous data obtained by examining various radiated areas at different periods after the time of insertion, it was found that the lesion slowly increased in size. At the end of 24 hours the zone of necrosis about the tube