licle was cystic. After 143 days there was some loss of demarcation of the corpora lutea so that fusion of the corpora was suggested. Rarely was a fibrous core visible in these corpora. Primordial follicles were not evident. The picture suggested that the corpora were coalescing toward the formation of the luteoma.

Summary. An ovary placed in the spleen of an animal that has one normal ovary undergoes atrophy that starts as early as 24 days after transplantation. Severe atrophy is reached before 55 days, and subsequent changes are minor. The degree of atrophy is almost as intense as that noted in the hypophysectomized castrate animal with an ovarian transplant in the spleen (*2*). The transplanted ovary shows no evidence of any type of response to the hormonal influence that has stimulated the ovary that remained *in situ*. Removal of the normal ovary introduces the hormonal imbalance that was present in the original tumor animals. The atrophic ovarian parenchyma in the spleen in these, as well as in the hypophysectomized animals previously reported, retained its growth potentials and responded to the hormonal forces by assuming the changes that characterized the development of the luteoma. The action of the atrophic ovarian parenchyma is reminiscent of malignant cell deposits that may remain dormant or quiescent for long periods and then, for some unknown reason, suddenly undergo growth.

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Effect of Ryanodine on the Oxygen Consumption of *Periplaneta americana*

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Extracts of the plant *Ryania* have been found to possess insecticidal properties and are being investigated for physiological effects. Injections of the material produce paralysis and death in insects. The paralysis is of such nature that no responses can be obtained to mechanical or electrical stimuli, yet the oxygen consumption rises very noticeably. The oxygen uptake of the cockroach, *Periplaneta americana*, has been studied in the Fenn differential manometer before and after the injection of Ryanodine (concentrate of active principles of Ryanex ethanol solution, furnished by Merck & Co., Inc.).

Adult roaches of both sexes were used. Those used for controls were immobilized by confinement in a jacket consisting of a section of braided wire cable shielding of suitable size. These jackets were flexible enough to permit insertion of the animals without harm but rigid enough to prevent movement; they were also porous enough not to interfere with the movement of gases. The roaches were weighed, slipped into the jackets, and put into the manometer vessels, after which the O_2 uptake was measured for 2–2½ hrs at 25° C. They were then removed, and some were injected intrasternally with 0.05 ml of 0.01% Ryanodine, in an insect Ringer solution.

TABLE 1

O_2 Uptake and Percentage of Change Before and for the Period of 30 Min–2½ Hrs After the Injection of Ryanodine Extract or Ringer Solution

Ryanodine			Saline solution		
$mm^3/O_2/gm/min$		Change (%)	$mm^3/O_2/gm/min$		Change (%)
Before injection	After injection		Before injection	After injection	
5.14	16.41	203.3	5.97	6.45	8.0
3.91	12.09	209.2	4.84	6.91	42.8
1.96	7.89	302.6	4.34	6.72	54.8
6.71	20.34	203.1	2.27	5.35	135.7
6.04	18.12	200.0	6.34	10.34	63.1
9.25	14.52	57.0	6.06	15.55	156.6
6.02	17.76	195.0	10.12	11.87	17.3
5.43	15.20	179.9	7.12	8.56	20.2
5.00	14.69	193.8	5.90	5.26	−10.8
7.25	16.52	127.9	9.23	9.14	−1.0
9.14	13.75	50.4			
1.06	8.23	676.4			
4.61	14.15	206.9			
6.87	12.80	86.3			
5.16	13.12	154.3			
2.51	14.98	496.8			
5.88	17.00	189.1			
1.98	10.17	413.6			
2.94	8.57	191.5			
2.23	4.49	101.3			
Means 4.97	13.54	220.0	6.22	8.62	48.8

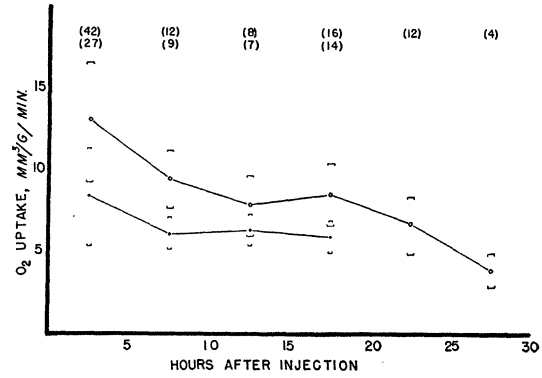

Fig. 1. Decrease in O_2 uptake, over a 30-hr period, of Ryanodine- and saline-injected roaches. Experimental series, ○; controls, ●. The points represent the mean values for 5-hr periods, and the figures in parentheses above give the number of readings represented by each point. The brackets above and below the points show the standard deviation of the mean value for each point.

Others were injected with an equal amount of the saline solution alone. They were then returned to the manometer vessels, and the O_2 uptake was measured for another period of 2–2½ hrs. Because of the time consumed in injections and setting up and equilibrating the vessels, measurements began about 30 min after the treatment. This delay prevents measurement of the initial rise. Subsequently the O_2 consumption of the animals was measured after longer periods, up to 80 hrs.

A definite increase in O_2 consumption was recorded after injection of the Ryanodine. Table 1 shows that the mean rate of 4.97 $mm^3/O_2/gm/min$ for normal animals increased to 13.54 $mm^3/O_2/gm/min$, or 222%, while for those animals injected with saline solution the rate changed only from 6.22 to 8.62 $mm^3/O_2/gm/min$, or 48.8%.

The high O_2 consumption was maintained for a considerable time, as shown in Fig. 1. By the end of the first 24 hrs it had dropped to the normal level, and later, between 30 and 40 hrs, it decreased to a constant level at 2 $mm^3/O_2/gm/min$. Measurements made between 40 and 80 hrs showed no further change, and this level probably indicates the onset of death. Because of the total lack of movement after the Ryanodine injections, the time of death was otherwise indeterminate.

A New Method of Reporting Data on Reproduction and Lactation in the Mouse[1]

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In studying the nutritive requirements of the mouse for reproduction and lactation, it was the practice in this laboratory, in common with that observed in other laboratories, to consider all survival failures as being due to an inability of the mothers to nurse the young, and, consequently, as indicative of the inadequacy of the diet to provide normal lactation. However, the persistency with which newborn mice died during the first 4 days of life cast suspicion on the reproduction rather than the lactation performance.

The idea that the maternal diet exerts a great influence on the health of the newborn is not new. In fact, a host of data has been accumulated concerning the role of the diet of the mother with regard to the welfare of the unborn child. For example, Burke, *et al.* (*1*) have observed a statistically significant relationship between the quality of the diet consumed by the mother during pregnancy and the health of the infant at birth. Every stillborn infant, every infant dying within a few days after birth, the majority of babies with marked congenital defects, and all premature and "functionally immature" infants were born to mothers whose diets were inadequate. At the prenatal clinic in Toronto, Ebbs and Moyle (*2*) found that the number of miscarriages, stillbirths, premature births, and infant deaths was greatest in the case of mothers receiving a poor diet. Lastly, in spite of inevitable suffering and hardships endured by women in England during the war years, babies born in that country have been heavier and longer in their first year of life. According to Garry and Wood (*4*), nutrition was the only factor which improved in England during the recent war.

Yet, various investigators who have studied the effect of purified diets on experimental animals are of the opinion that the problem of reproduction has been solved, whereas that of lactation still awaits solution. Spitzer

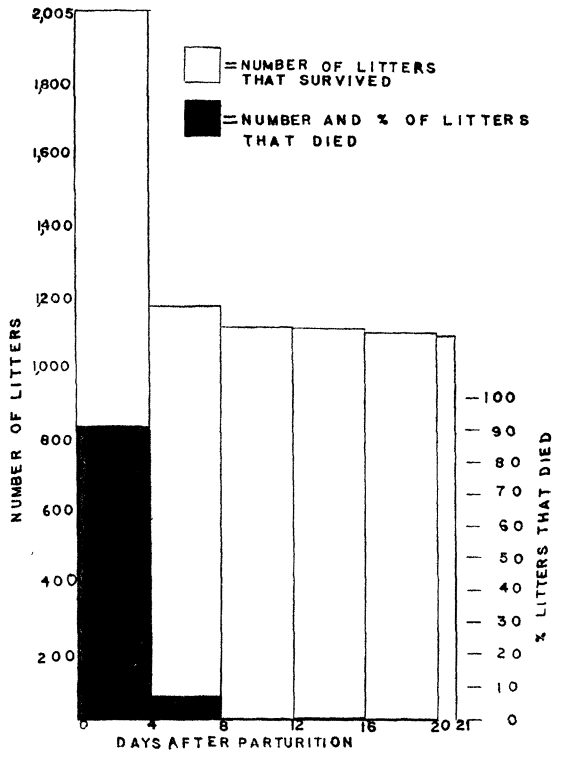

FIG. 1

and Phillips (*6*) state: "Young that were born alive appeared normal at birth, but did not live more than 1 or 2 days after parturition. Although the young attempted to nurse, no milk could be found in their stomachs. When this condition was observed in these experiments it was considered to be due to lactation failure." A similar conclusion was drawn by Fenton and Cowgill (*3*): "Reproduction and lactation have been studied in highly inbred strains of mice fed purified diets. . . . The problem appears to be one of lactation."

It is our contention, supported by observations on 2,005 litters, that the problem is primarily one of reproduction and not of lactation. If a diet is qualitatively adequate for reproduction, it will also be, according to our findings, adequate for lactation. However, the converse does not necessarily follow. Fig. 1 shows that, of a total of 900

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