TABLE I.
Average measurements in mm of *Rana pipiens* larvæ.

Date:	5/14	5/21	5/28	6/4	6/11	6/18
Control diet	41	48	53	59	63	70
Plus Hanson's extract	41	47	52	58	62	72
" Thymocrescin	39	48	52	58	62	70

which time most of the animals were undergoing metamorphosis.

Animals exhibiting one fore limb were considered certain to complete metamorphosis. The first appearance of such animals was on 6/11/38, at which time one was found in each of the aquaria. Observations were made daily until 6/29/38 (Table II) when the majority of the animals had metamorphosed.

TABLE II.
Daily numbers of *R. pipiens* larvæ noted, newly showing one fore limb.

Date:	6/11	6/15	6/16	6/17	6/18	6/20	6/21	6/22	6/23	6/24	6/25	6/29
Control diet	1	3	2	4	0	2	2	2	2	3	0	0
Plus Hanson's extract	1	4	0	0	1	2	1	3	3	2	1	3
Plus Thymocrescin	1	3	1	5	1	4	0	2	3	2	2	2

From the data presented it appears that under the conditions of the experiment there was no specific effect of either thymus extract upon growth or metamorphosis of *Rana pipiens* larvae. The possibility exists, of course, that some effect might have been obtained if larger quantities of the extracts had been used, or if the material had been administered by injection.

10137

The Jacobson Method for Assay of Liver Extracts.

R. RODRIGUEZ-OLLEROS AND R. RODRIGUEZ-MOLINA. (Introduced by A. M. Pappenheimer.)

From the Clinic of Therapy, Universidad Central de Madrid, and the Department of Internal Medicine, School of Tropical Medicine, San Juan, Puerto Rico.

In relation to the study of tropical anemias, it was the intention of the authors to follow the method advocated by Jacobson.[1-5] This

[1] Jacobson, B. M., *Science*, 1934, **80**, 211.
[2] Jacobson, B. M., *J. Clin. Invest.* (Proc.), 1934, **13**, 714.
[3] Jacobson, B. M., *J. Clin. Invest.*, 1935, **14**, 665.
[4] Jacobson, B. M., *J. Clin. Invest.*, 1935, **14**, 679.
[5] Jacobson, B. M., *Brit. J. Exp. Path.*, 1936, **17**, 307.

method, which requires the use of the guinea pig in the bioassay of the antianemic principle present in liver extracts, has been employed also by Miller and Rhoads[6] and Mermod[7] in the study of other antianemic substances. While such investigators as Mermod, Miller and Rhoads, Landsberg and Thompson[8] have followed and accept the reliability of the Jacobson method, Goodman, Geiger and Klumpp[9] failed to corroborate the validity of the method.

A total of 40 normal, adult, male guinea pigs (400-700 g), obtained from several local sources, have been used, from which 20 animals were selected according to the standards recommended by Jacobson. All animals remained healthy during the experiment. The reticulocyte count studied during a 10-day period of standardization at 2- or 3-day intervals did not show figures of over 1.2%, except in 2 animals, in which the reticulocyte count was 2%. The animals were fed a mixture of Michigan State rabbit ration and Para grass before and during the experiment. The least possible amount of blood was obtained each time from the ear vessels. The technic employed by C. Mermod (loc. cit.) was followed and a minimum of 1000 red cells were counted in each determination.

One intramuscular injection of 0.5 cc liver extract (prepared from Lilly's 343 and potent in sprue and of which 1 cc was equivalent to 5 g raw liver) was then given to 10 animals (Group I). Another series of 10 pigs (Group II) received 1 cc liver extract. Reticulocyte counts were made on all animals on the 3rd, 5th, 7th, and 9th day following injections of liver extract.

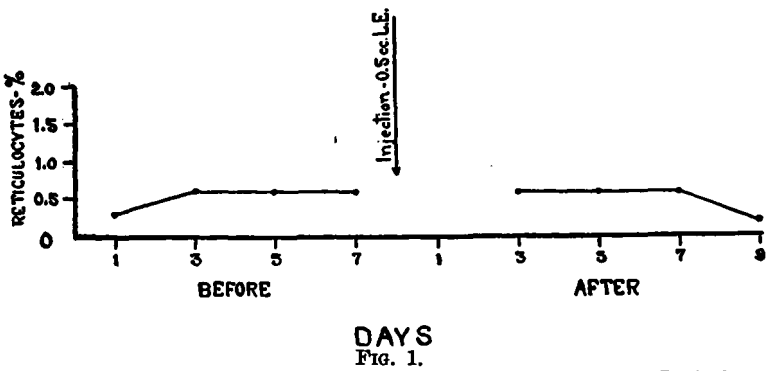

FIG. 1.

Mean reticulocyte percentage obtained in 10 animals (Group I) before and after injection of liver extract.

[6] Miller, D. K., and Rhoads, C. P., *New England J. Med.*, 1935, **213**, 99.

[7] Mermod, C., *J. Clin. Invest.*, 1936, **15**, 559.

[8] Landsberg, J. W., and Thompson, M. R., *J. Am. Pharm. Assn.*, 1934, **23**, 964.

[9] Goodman, L. S., Geiger, A. J., and Klumpp, T. G., *J. Clin. Invest.*, 1936, **15**, 435.

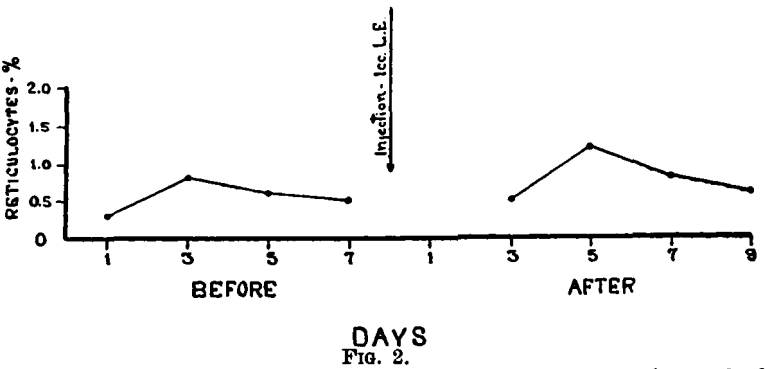

FIG. 2.

Mean reticulocyte percentage obtained in 10 pigs (Group II) before and after injection of liver extract.

Results. The average of reticulocyte counts for all animals obtained on the days following intramuscular injections is given in Figs. 1 and 2.

None of the animals in Group I gave a reticulocyte response of over 2%. A reticulocyte count of 4% was obtained in one of the animals of Group II on the fifth day after injection. This was the only guinea pig of both groups in which the reticulocyte response was significantly greater than 2%, which is considered as the index of reactivity by Jacobson. Two other animals of Group II gave reticulocyte counts of 2.1%, which might be considered as reactive. This rise occurred on the fifth day following injection. In other words, only 3 of the 20 animals used in the experiment were found "reactive" to the method of Jacobson.

The results obtained lead us to consider the method as not sufficiently sensitive in the evaluation of the antianemic principle.

10138 P

Rôle of Inherited Natural Resistance to Tuberculosis.

MAX B. LURIE.

From Henry Phipps Institute, University of Pennsylvania, Philadelphia.

The pioneer studies of Lewis and Wright[1] on inheritance factors in tuberculosis in guinea pigs as well as the writer's observations[2] have prompted a continuance of their studies.

[1] Wright, S., and Lewis, P. A., *Am. Naturalist*, 1921, **55**, 20.

[2] Lurie, M. B., *J. Exp. Med.*, 1933, **58**, 305.