jections an appreciable time before it did among those which were not given the injections.

Summary and Conclusions. Preparations of the posterior lobe of the pituitary gland cause a marked increase in the weight of frogs which is found to be due to increased absorption of water. A comparison of the effects of pitocin, pituitrin, and of pitressin in producing an increased absorption of water indicates that pitocin is the most effective of the 3 in this regard. With the doses used, pitocin caused an average increase in weight of about 19%, whereas pitressin caused an increase of only 11%. The effects of pituitrin come practically midway between the other 2. About 5% of the excess water taken in through the skin may be held in the subcutaneous spaces along the sides, back, and legs. The rate of loss of water when frogs are removed from the water is definitely increased by injections of pitocin.

7710 P

Utilization of Calcium Salts by Children.

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Children 4-12 years of age have been given calcium salts in amounts such that the calcium content was equivalent to that in a pint or quart of milk. The retentions of calcium and phosphorus have been determined and compared with the retentions from the equivalent quantities of milk. The calcium and phosphorus retentions of children from 1 to 4 years of age have been determined when a quart of milk was given as the chief source of calcium, and when a calcium salt was substituted for one pint of the milk. A few studies were made wherein the salt was substituted for all of the milk. The protein intake of each diet was kept approximately constant during the salt and milk periods. The salts used were calcium lactate, carbonate, gluconate, and the di- and tri-phosphates. The latter was given either as the salt or in the form of a purified bone meal. No difference was observed in the relative retentions from the two sources. The results are summarized in Table I.

In general, the calcium and phosphorus retentions when the calcium phosphates were fed, were approximately equal to those from

TABLE I.
Utilization of Calcium Salts by Children.

Age Range yr.	No. of Exp.	Source of Ca	Aver. daily intake Ca gm.	Aver. daily intake P gm.	—Aver. daily retention— Ca gm.	P gm.	N gm.
1-4	34	milk 1 qt.	1.3	1.0	.021	.013	.040
	3	'' 1 pt. $CaHPO_4$	1.45	1.2	.024	.016	.120
	1	$CaHPO_4$	1.66	1.7	.026	.028	.150
	4	milk 1 pt. Ca lactate	1.45	.8	.018	.011	.090
	1	$CaCO_3$	1.6	.32	.055	.014	.157
	3	milk 1 pt. Ca lactate	2.1	.8	.034	.010	.099
	2	$CaHPO_4$	3.0	2.8	.043	.051	.236
4-7	19	milk	.7	.9	.007	.010	.073
	3	$CaHPO_4$	.75	.95	.008	.007	.036
	5	$CaHPO_4$*	.75	.90	.025	.018	.024
	6	$Ca_3(PO_4)_2$†	.45	.55	.004	.003	.038
	5	$Ca_3(PO_4)_2$†	.75	.75	.010	.008	.059
	3	Ca gluconate	.75	.47	—.003	—.009	.024
	23	milk	1.45	1.4	.014	.011	.042
	2	$CAHPO_4$	1.45	1.45	.010	.011	.054
	5	$CaHPO_4$*	1.45	1.40	.047*	.038*	.034
	1	$Ca_3(PO_4)_2$	1.1	.96	.013	.006	.029
	1	$Ca_3(PO_4)_2$*	2.1	1.4	.045*	.025*	.028
7-12	13	milk	.8	1.05	.007	.008	.108
	3	$CaHPO_4$	.8	.7	.008	.011	.128
	3	Ca gluconate	.87	.7	.007	.006	.094

*After periods of low Ca intake.
†$Ca_3(PO_4)_2$ as salt or purified bone meal.

equivalent quantities of milk. The very high retentions observed when these salts were fed after periods of low calcium intake indicate that all forms used are well absorbed by the average child of these ages. The retentions with the other calcium salts, the gluconate, lactate and the one study with calcium carbonate, are not so consistent as those obtained with the calcium phosphates. A greater individual variation was observed in the quantity of calcium and phosphorus retained by the different children. In general, it appeared that when the intake levels of calcium and phosphorus were approximately equal, the retentions of both these elements were good in relation to the intake, but that the greater the difference between the intake levels of calcium and phosphorus, the less satisfactory were the relative retentions of these elements. Calcium was well retained by all except two 6-year-old children given calcium gluconate. Phosphorus was well retained only when the intake was nearly equal to that of calcium.

In view of these findings, it is suggested that when calcium salts are given to children for purposes of retention, care must be observed to keep the calcium and phosphorus intakes approximately equal. For this reason, the calcium phosphates seem more dependable as sources of calcium for the growing child than the other calcium salts studied.

7711 P

Effect of Cobalt Sulfate on Erythrocyte Count of the Splenectomized Albino Rat.*

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Prior to 1929 little was known of the biological behavior of cobalt. Waltner and Waltner[1] showed that inorganic salts of cobalt when fed or injected into normal albino rats produced a remarkable polycythemia. Orten, Underhill, Mugrage and Lewis[2] obtained similar results. The literature of cobalt polycythemia has now become quite extensive.

Our experiments were undertaken to determine if polycythemia can be produced by cobalt in splenectomized albino rats.

Orten, Underhill, Mugrage and Lewis[2] ashed the organs, finding the largest amounts of cobalt in the liver, pancreas and spleen and minute quantities in the bone marrow.

Since it is not possible to remove the liver or pancreas in recovery experiments, cobalt was tried on splenectomized rats, in view of the long disputed question of the hematopoietic spleen function.

Fourteen healthy, adult, white rats, mostly of the Wistar strain were used, 8 being splenectomized under sodium pentobarbital (40 mg./kg.) and morphine sulfate (10 mg./kg.) anesthesia. An incision 2.5 cm. long was made just below the left costal margin. The lieno-renal, gastrosplenic and splenic vessels were tied and the spleen removed aseptically; the animals then placed for an hour in oxygen 90%, carbon dioxide, 10%.

After 3 weeks, cobalt injections were started. Duplicate erythrocyte counts were made routinely before and after injections; at first, weekly; later, fortnightly, using Max Levy counting chambers and Yankee Certified mixing pipettes, and Hayem's diluting fluid. Two control splenectomized rats were used. The remaining 6 operated

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1 Waltner, K., and Waltner, K., *Klin. Wochneschr.*, 1929, **8**, 313.

2 Orten, J. M., Underhill, F. A., Mugrage, E. R., and Lewis, R. C., PROC. SOC. EXP. BIOL. AND MED., 1931, **29**, 174.