animals before accepting the slight decrease in the amount of the phosphates as a constant feature.

As a general conclusion from a study of the graphs it would appear that there is a continued slight decrease in the amount of the inorganic phosphates for 10-20 minutes after inflation; but that in the 6-8 hour period they have risen to normal or a little over, with a slight decrease below normal in the 10-18 and 24-36 hour periods. The acid soluble phosphorus shows a somewhat similar rise and fall for the same periods except that in the 10-20 minute period the amount was about the same as in the preinflation tests and the fluctuations in the subsequent periods were all a little above the normal.

Whether the diminished amount of the phosphates is correlated with the decreased amount of calcium in the blood of the milk fever cases or whether the decrease of each is independent of the other, or whether the calcium or the phosphates may be the more important factor in the phenomena associated with the disease, cannot be stated at the present time.

In our experience the blood calcium requires a considerably longer period than the phosphates to reach its normal standard. It is perhaps significant that the recovery of the cow seems to be coincident with the return of the blood phosphates to their normal standard.

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Anterior Lobe, the Thyroid Stimulator, V. Basal Metabolism.

S. S. SCHWARTZBACH AND EDUARD UHLENHUTH.

*From the Anatomical Laboratory, University of Maryland Medical School.**

If anterior lobe of the hypophysis is the activator of the thyroid gland, it should raise the basal metabolism. We made 96 Winkler-tests to determine the oxygen consumption of larvae of *Ambystoma tigrinum*, 37 tests of normal control larvae, 33 tests of larvae injected with an extract of bovine anterior lobe powder, which was prepared in our own laboratory, 16 tests of larvae which had been fed this powder, 7 tests of larvae which were fed Armour's anterior lobe powder and 3 tests of larvae fed posterior lobe powder prepared in our own laboratory.

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Larvae of the Utah axolotl were tested without anesthesia. The average oxygen consumption of the injected animals was found 30% higher than that of the controls.

Larvae of the eastern race of *Ambystoma tigrinum*† were tested without anesthesia. The average oxygen consumption of the injected animals was 51% higher than that of the controls.

Larvae of the eastern race of *A. tigrinum* were tested in chloretone anesthesia. The average oxygen consumption of the injected animals was 114% higher than that of the controls.

Feeding of the anterior or posterior lobe powders did not change the oxygen consumption.

We expressed oxygen consumption in cc. of oxygen per hour and gram animal weight. But metabolism changes parallel with surface and not with weight. Of 2 species having actually the same oxygen consumption, but different size, the larger one may incorrectly appear to have the lower oxygen consumption, if oxygen consumption is calculated per gram weight. In our experiments all animals were of the same species and, in 2 experiments, of the same brood. The differences in oxygen consumption between the controls and the injected experimentals were considerable and present even if controls and experimentals were of the same size and weight as was often the case. One pair tested on the same day and with the same solutions will illustrate this statement:

Control:	Weight 3.07 gm.	0.199 cc.	oxygen.
Experimental:	" 3.06 "	0.294 "	"

Conclusion: Anterior lobe manufactures a substance which increases metabolism; it is not species-specific and is effective only when injected intraperitoneally, but ineffective when administered *per os*. This finding is in accord with our previous findings according to which anterior lobe forces the thyroid into excessive activity and thereby causes precocious metamorphosis, but is completely ineffective in the absence of the animal's own thyroid gland.

† We owe the spawn from which these animals were raised to the kindness of Dr. S. C. Bishop, of the University of Rochester, who collected it on Long Island, spring 1928.