pletely parathyroidectomized dogs, in equimolecular doses, as is calcium lactate. 2. In comparing the experience of investigators using calcium lactate for the control of tetany with ours, it *seems* warranted to state that calcium gluconate in the doses administered appears to have a more marked tendency to produce a severe diarrhea in parathyroidectomized dogs than does calcium lactate. This effect may offset the advantage of tastelessness as compared with bitter calcium lactate. 3. We are able to confirm the finding of Rothlin, and others that calcium gluconate is practically non-irritating when administered subcutaneously and intramuscularly, whereas calcium lactate in equivalent equimolecular doses similarly administered to the very same animal causes severe inflammation and necrosis.

4508

Cutaneous Maximous Reflex in Experimental Hypothyroidism.

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In the normal rabbit, light tactile stimuli applied to the dorsum, causes a marked reflex contraction of the cutaneous maximous muscle. This response is especially marked if the stimulus is applied near the tail. In the cretin this reflex completely disappears but can again be elicited if the rabbit is treated with thyroid substance. The disappearance of this reflex is a reliable sign of cretinic degeneration.

4509

Changes of Structure and Lipin Content of Central Nervous System in Ether Anesthesia.

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The present investigation is part of a study of the reaction of the myelin sheaths of the nerve fibers under different pathological conditions. In order to avoid the criticism brought forward against

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histological changes described in earlier publications,[1] material from normal animals and those which had been under ether narcosis was fixed, embedded and cut jointly, and sections of both were mounted and stained on the same slide. Changes in the arrangement of the Nissl bodies of anterior horn cells of the spinal cord could be noticed after 2 hours of narcosis The bodies seemed to be broken into finer particles and compared with normal cells the design was more diffuse. The myelin sheaths in sections through the spinal cord and its roots (light-green-fuchsin and hematoxylin-iron stains) were distended and thinned out as by compression. The axis cylinders seemed to be compressed by the same fluid which distended the myelin sheaths.

For the study of the lipins a suggestion of Maclean[2] was transferred into practical application. The method gave workable results. It could be demonstrated that the acetone soluble substances increase considerably during narcosis, relatively more in the white matter than in the gray. This would be in accordance with the finding of lipemia in the blood during narcosis (Reicher[3]). At the same time the alcohol soluble part was diminished, most in the gray, less in the white matter and in the spinal cord. The substances which can be precipitated from the alcohol extract by acetone (raw lipins) were diminished most in the gray, less in the white, and no changes occurred in the spinal cord. Similar changes were also found in cor-

TABLE I.

Distribution of the different extracts in % of the dry substance.
N = normal animals. E = after ether narcosis from 3 to 5 hours.

		5 normal and 5 ether dogs						8 normal, 4 ether cats			
		Gray		White		Spin. Cord		Brain		Spin. Cord	
		N	E	N	E	N	E	N	E	N	E
	Water	78.9	78.8	70.4	69.4	67.4	68.0	75.2	77.9	67.8	69.7
I	Acetone extract	13.3	15.3	13.3	18.2	16.6	18.1	10.0	12.9	17.3	20.2
II	Alcohol extract	37.1	32.8	53.4	48.6	57.8	55.8	45.5	39.9	55.3	53.2
	Total extract	50.4	48.1	66.7	66.8	74.4	73.9	55.5	52.8	72.6	73.4
	Precipitate	15.9	12.9	28.2	24.2	31.3	30.5	18.0	17.4	28.0	25.7
III	Alcohol soluble	4.1	3.5	6.7	7.7	6.9	9.4	11.9	11.3	17.6	16.7
IV	Ether soluble	7.4	6.2	10.2	8.8	11.5	11.3				
V	Pyridine insoluble	2.9	2.1	4.6	3.2	5.3	3.6	6.1	6.1	10.4	9.0
VI	Pyridine soluble	1.5	1.1	6.7	4.5	7.6	6.2				
	Rest of extracts	49.6	51.9	33.3	33.2	25.4	26.1	44.5	47.2	27.4	26.6

According to H. and I. Maclean[2] the distribution of the different soluble substances is the following: I = cholesterol and neutral fats. II = rest of cholesterol and neutral fats with total lipins. The acetone precipitate of the alcohol extract contains the raw lipins. III = lecithin mainly. IV = kephalin. V = sphingomyelin mainly. VI = galactolipins mainly.

[1] Winterstein, H., *Die Narkose*, 2nd edition, Berlin, 1926.

[2] Maclean, Hugh and Ida, *Lecithin and allied substances*, 2nd edition, New York, 1927, pp. 12-13.

[3] Reicher, K., *Z. f. klin. Med.*, 1908, lxv, 233.

responding phosphorus analyses. The deviations from the normal values increased with the time of the anesthesia.

Experimental evidence has been established that metabolic changes are 2 to 3 times as intensive in the gray substance as they are in the white. The pathological changes in the composition of the lipins during ether narcosis run parallel to this difference in intensity between gray and white under normal conditions.

4510

Ultraviolet Transparency of the Various Layers of Human Skin.

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Frozen skin sections obtained from the sole of the foot of fresh bodies were placed over the slit of a quartz spectrograph; the surface of the skin was at right angles to the length of the slit. The spectrum of the Kromayer lamp through the visible and the whole ultraviolet was obtained on a photographic plate with the widest variation of exposure, with and without the skin sections interposed. Every spectral line showed the transmission of the various skin layers from the stratum corneum to the corium, in closest comparison for the same thickness of every layer, from 10 to 70 μ, with various sections on different plates. The absorption coefficients were calculated from these observations for every layer. These were found to vary slightly with the thickness of the section, for which observation an explanation can be found by reflection and scattering.[1] The absorption curves showed marked differences for the various layers. The corneum and the granulosum exhibited a maximum of absorption at 280 $\mu\mu$, coinciding with the maximum of the antirachitic effect as observed by Sonne.[2] This suggests that the antirachitic effect takes place in one or both of these layers. The corium and stratum germinativum do not show an increased absorption at this wave length, but exhibits a gradual increase of absorption. The production of an erythema occurs in these layers in the shadow of the upper layers. This explains the decrease in sensitivity as was observed by Hausser and Vahle at 280 $\mu\mu$.[3]

[1] Bachem, A., and Kunz, J., *Arch. Phys. Ther.* 1929, x, 50.

[2] Sonne, C., and Reckling, E., *Strahlenther,* 1927, xxv, 552.

[3] Hausser, K. W., und Vahle, W., *Strahlenther,* 1921, xiii, 41.