complexes could be abolished with crystalline vitamin B_1 in animals kept in a fasting state indicates that the cardiac changes are directly related to B_1 deficiency rather than to malnutrition. The latter factor may nevertheless play a secondary rôle. Fig. 1 represents the result of an experiment on the effect of vitamin B_1 deficiency and of the administration of crystalline B_1.

Two rats, used as controls, were kept on an identical diet with the single exception that the yeast was not autoclaved. These animals gained weight and exhibited no cardiac slowing, changes in the electrocardiographic complexes nor nervous manifestations. Further experiments are in progress to elicit the relationship between the cardiac changes here described and vitamin B_1 deficiency.

The results of the experiments here reported and the character of the electrocardiographic changes described are in harmony with the electrocardiographic changes observed in human deficiency states (pellagra, polyneuritis, beriberi). The essential difference is that in man tachycardia rather than bradycardia is present in deficiency states attributed to vitamin B. Transient bradycardia has been observed during recovery from severe "beriberi heart".[9]

8931 C

A Comparative Assay of Black Widow Anti-Sera.

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This paper reports the results of a comparative assay of the recently perfected super-immune serum from sheep* and a sample of convalescent human serum supplied through the courtesy of Dr. Emil Bogen of Olive View, California. Some success has been reported in the treatment of arachnidism (of which there were 615 reported cases with 38 deaths in 1935) with human serum and it seemed desirable to compare its potency with that of a carefully assayed super-immune animal serum.

The assay was carried out as follows: A solution of venom was prepared by dissecting the venom-glands from spiders, macerating and dissolving in saline. The average lethal dose (A.L.D.), that is, the dose required to kill 50% of the test animals, was determined. Varying amounts of the sera were added to solutions of the venom,

* Anti-Black Widow Spider Serum—Squibbs.

allowed to stand in the refrigerator over night and injected. The results are shown in Table I.

TABLE I.

No. of Rats	Material Injected per Rat	No. Killed	% Killed
	Sheep Super-Immune Serum		
10	10 A.L.D. plus 0.1 cc. serum	7	70
10	10 " " 0.2 " "	5	50
10	10 " " 0.4 " "	0	0
	Human Convalescent Serum		
7	1 A.L.D. plus 0.25 cc. serum	4	57
6	1 " " 0.5 " "	4	66
4	2 " " 1.0 " "	4	100
	Normal Sheep Serum		
10	2 A.L.D. plus 1.0 cc. serum	10	100

Conclusions. The results indicate a much higher potency for the sheep serum, one cc. of this serum completely neutralizes 25 average lethal doses of the venom whereas one cc. of the human convalescent serum shows no neutralizing power whatever against 2 average lethal doses of venom.

8932 C

Physical Chemistry of Lipoids. IV. Influence of Narcotics on the Salt-binding Capacity of Lecithin.

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Direct reactions between lipoids and narcotics were missed in previous studies of viscosimetry[1] and interferometry.[2] In view of the biological importance of lipoids, one must therefore assume that narcotics influence reactions of lipoids with other substances. Nervous excitation is explained by Nernst[3] by changes of ion concentrations occurring at the surface of membranes. Experimental proof of the important rôle of lipoids in artificial polarizable membranes has recently been given.[4] The importance of lipoids in narcosis[5] has been widely assumed. Nevertheless, no data are available that

1 Handovsky, H., and Wagner, R., *Biochem. Z.*, 1911, **31**, 32.

2 Spiegel-Adolf, M., *Biochem. J.*, 1932, **26**, 2183.

3 Nernst, W., *Pflüger's Arch.*, 1908, **122**, 275; **123**, 454.

4 Spiegel-Adolf, M., *J. Biol. Chem.*, 1936, **114**, xcix.

5 Henderson, V. E., *Physiol. Rev.*, 1930, **10**, 171.