

## Western New York Section.

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### Diet and the Blood Lipids.

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The lipids, cholesterol and its fatty acid esters, phospholipids and fat are always found in the blood of animals. In the corpuscles, the content of cholesterol and phospholipid is about the same for all animals, in the plasma the content of these substances is variable, being in general much higher in the plasma of carnivora than in that of herbivora. It was at first thought that the plasma content of lipids was fairly constant and characteristic for each species and that it was possible to speak of normal levels and normal variations from these levels. Evidence is, however, accumulating which goes to show that these conceptions will have to be modified since there are often wide variations in individuals of the same species under similar conditions and still greater variations when the conditions are different. The greatest single factor influencing the level of the blood lipids appears to be diet and in particular the amount of fat which the food contains. Attention was called to this factor by results obtained by Glusker in this laboratory with dogs on a diet containing very little fat. Values for phospholipid were obtained far below any previously found in this laboratory or reported in the literature. Cholesterol values were also low but as markedly so as those of the phospholipids. The present report has to do with further feeding experiments on 4 of these dogs and on 4 rabbits. The dogs were alternated between the dog biscuit diet which contained 2.56% fat, 17.91% protein and 61.8% carbohydrates and a diet containing the same biscuit but with about 1/3 the caloric value replaced by lard. Variations of from about 140 mgm. % on the low fat to 190 mgm. % for phospholipid on the high fat diet and from about 65 mgm. % to 90 mgm. % for cholesterol were obtained. The very low phos-

pholipid values found in these dogs at the beginning of the present series of experiments (60 mgm. %) were not reached.

The rabbits were alternated between a nearly fat-free diet of hay, alfalfa and cabbage and a diet of sun-flower seeds, the meats of which contained about 40% of fat. On these diets the phospholipid values in the plasma differed very widely, the cholesterol less widely but definitely. Table I will illustrate the average results obtained on the first of the rabbits. Results on the others were similar.

TABLE I.

|               | Phospholipid<br>mgm. % | Cholesterol<br>mgm. % | Fat<br>mgm. % | Total Lipid<br>mgm. % |
|---------------|------------------------|-----------------------|---------------|-----------------------|
| Low Fat Diet  | 25                     | 18                    | 100           | 130                   |
| High Fat Diet | 175                    | 70                    | 150           | 370                   |

The feeding periods were about one month long and both dogs and rabbits remained in good health and spirits, gaining weight slowly. The differences noted above were repeated 3 or more times on the same animals.

The results show that in the rabbits the level of the plasma lipids was closely dependent on the amount of fat in the food. The results with the dogs showed that the level of the plasma lipids was influenced by the fat in the diet but the effect was much less marked than in the rabbits and indicated that other factors were influential.

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### Increased Resistance to Cold Produced by Cortin After Adrenalectomy.\*

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It is well known that adrenalectomized animals resist cold poorly. This appears to be due to cortical rather than medullary deficiency, because cortical transplants enable adrenalectomized rats to resist cold well.<sup>1</sup> In the present study we have been able to show that an extract of the adrenal cortex protects adrenalectomized rats so that they resist cold very well.

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<sup>1</sup> Wyman, L. C., and Tum Suden, C., *Am. J. Physiol.*, 1929, **89**, 362.