The analysis of a crude product once purified by hot water crystallization and dried in a vacuum desiccator gave:

	As, %	N, %
Product	34.20	6.02
Product	34.50	6.13
Theory for primary	34.60	6.45
Theory for secondary	25.65	9.65

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Vitamines in green leaves.

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In view of the very scanty data recorded respecting the relative content of vitamine in green foods compared with other plant and animal products which have been studied more in detail, we have fed albino rats on diets containing, as the source of water-soluble vitamine, spinach, cabbage, clover, timothy and alfalfa, dried in their immature state. Far less dried spinach supplies sufficient water-soluble vitamine to promote normal growth than do whole wheat, soy beans, dried egg, meat, milk or potatoes. Spinach leaves are much richer in the fat-soluble vitamine than are most of the products used in our ordinary rations. Thus rats fed for over 160 days, during which they consumed only 25 to 34 grams of spinach, have grown from 60 to 250 grams at a nearly normal rate and have as yet shown no evidence of deficient nutrition. Such quantities are not much larger than have heretofore been considered to be necessary when butter fat supplied the fat-soluble vitamine. A somewhat larger quantity of cabbage than of spinach leaves is needed to promote normal growth. It probably also contains the fat-soluble vitamine. Timothy, clover and alfalfa contain both vitamines, but further experiments are needed to establish the relative amounts of these. Tests of a large variety of tubers, stems, leaves and fruits are now in progress.

If one may draw conclusions from the limited data at present available, it seems that the green vegetables and fodders are richer

in vitamines than most of the staples like meats, potatoes, cereals, fats and sugar products, in the diet of man. Therefore they unquestionably contribute largely to the dietary need of the average person.

10 (1385)

Preliminary report on the behavior of certain local anesthetics.

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The fatal intravenous dose of each of the several substitutes for cocain varies enormously with differences in the rates of injection. Five or more times the fatal dose for sudden injection can be given in a period of one to two hours without causing death. The subcutaneous doses show even wider variations among the different drugs than the intravenous doses.

All of the local anesthetics tested, including cocain, are mutually and quantitatively synergistic. They are all synergistic with epinephrin in its effect upon the blood pressure in a manner analogous to cocain.

The systemic toxic actions of all of the members of the group are very closely alike and all cause death in cats by combined paralysis of the heart and respiratory center.

Three of the members of the group—procain, stovain and apothesine—have been shown to be destroyed rapidly by the liver. All of the others are rapidly destroyed in the animal body, excepting cocain, and it seems probable that this destruction also takes place in the liver.

Artificial respiration alone, or combined with cardiac massage, does not suffice to permit recovery from the sudden intravenous injection of 125 per cent. of the fatal dose of any of the local anesthetics. Artificial respiration and cardiac massage, combined with the intravenous injection of epinephrin, permit recovery in most cases from 125 to 150 per cent. or more of the fatal vein dose of all of the local anesthetics. The previous administration of ouabain permits recovery from 150 per cent. of the fatal dose of