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## Fractionation of Irradiated Cholesterol: Antirachitic Potency of the Fractions.

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There have been a number of attempts to separate an antirachitically potent fraction from cholesterol irradiated in air. Hess, Weinstock and Sherman,[1] and Rosenheim and Webster[2] tried without success. The latter authors claim to have isolated an active fraction from cholesterol irradiated in nitrogen, but their experimental data do not seem to warrant such a claim. Nitzescu and Popoviciu[3] reported the separation of irradiated cholesterol (presumably irradiated in air) into an active and an inactive fraction.

The preceding paper[4] is a report of the separation of a yellow oil formed from cholesterol as a result of irradiation in air. The antirachitic potency of this "U. V. oil of cholesterol" was tested by means of curative experiments on rachitic rats, in which the material tested was incorporated in the diet. At the May, 1926, meeting of the American Pediatric Society, one of us, in discussing a paper by Schlutz and Ziegler, reported[5] that this material cures rickets in rats. During this same discussion, Julius H. Hess[6] stated that Koch had obtained an active extract from irradiated cholesterol.

The present communication is a brief report of the results so far obtained. The new points brought out by this investigation, in which more than 100 rats were used, are as follows:

1. Crude "U. V. oil of cholesterol" cures experimentally produced rickets in rats.
2. Cholesterol-free "U. V. oil of cholesterol" cures experimentally produced rickets in rats.
3. The antirachitic effect of the U. V. oil is not due to material extracted by ether from the reagent employed for the removal of the cholesterol.
4. Cholesterol-free "U. V. oil of cholesterol," protected by cottonseed oil, and incorporated in the diet, retains its antirachitic potency after two months' storage.

The table gives a summarized statement of some of the experiments.

TABLE I.

| Date of autopsy | No. of rats | Test material added to diet | Histological Findings |
|---|---|---|---|
| 5/27/26 | 4 | 2% crude U. V. oil and 3% cottonseed oil | Advanced healing |
| " | 2 | 3% cottonseed oil (controls) | No healing |
| 7/2/26 | 6 | 0.1% cholesterol-free U. V. oil | Moderate healing |
| " | 6 | 0.2% recrystallized irradiated cholesterol | No healing |
| " | 5 | controls | No healing |
| 7/19/26 | 5 | 0.3% crude U. V. oil and 3% cottonseed oil | Advanced healing |
| " | 5 | 0.3% cholesterol-free U. V. oil and 3% cottonseed oil | Advanced healing |
| 7/23/26 | 6 | controls | No healing |
| 8/2/26 | 5 | 3% cottonseed oil (controls) | No healing |
| 9/26/26 | 4 | ether extract of digitalin | No healing |
| " | 2 | 0.3% cholesterol-free U. V. oil and 3% cottonseed oil (stored 2 months) | Advanced healing |
| " | 2 | controls | No healing |

[1] Hess, A. F., Weinstock, M., and Sherman, E., *J. Biol. Chem.*, 1925, lxvi, 145; *ibid*, 1926, lxvii, 413.

[2] Rosenheim, O., and Webster, T. A., *Biochem. J.*, 1926, xx, 537.

[3] Nitzescu, I. I., and Popoviciu, G., *Compt. rend. Soc. biol.*, 1926, xciv, 1301.

[4] Shear, M. J., and Kramer, Benjamin, PROC. SOC. EXP. BIOL. AND MED., 1926, xxiv, 51.

[5] Kramer, Benjamin, *Am. J. Dis. Child.*, 1926, xxxii, 466. (Society Transactions).

[6] Hess, J. H., *ibid.*

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## Antirachitic Properties of Cod Liver Oil Concentrate.

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Cod liver oil causes retention of lime salts and also cures and prevents rickets when administered orally. The assumption, therefore, was made that the beneficial effects of this agent result from its acting directly on the mucosa of the gastro-intestinal