

somewhat smaller than that obtained in site 1). Site 2 is negative. In a duplicate set of prepared areas called respectively sites 4, 5 and 6, reinjection with ragweed carbohydrate solution gives a positive result in site 4 only. The size of the reaction in site 4 has hitherto always been a little less than that obtained in site 1.

The difference when carbohydrate negative serum is used for passive transfer is that no reaction is obtained in site 4 and usually the results in sites 1 and 3 are identical.

The solution of ragweed carbohydrate was made by dissolving 100 mg. in 50 cc. saline solution and diluting this 100 fold. 0.05 cc. was injected intradermally of all single solutions and 0.1 cc. of all mixtures.

It is not the intention to suggest that these observations prove that carbohydrate functions as a true antigen. That is not the interpretation. They do suggest that carbohydrate has its own type of specific immunological activity in a percentage of cases and that this can be demonstrated in those cases by the Prausnitz Küstner reaction.

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Hodgkin's Disease. I. Negative Skin Reactions to Gland Extracts.

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Because of the recent interest aroused by Frei¹ in demonstrating a diagnostic skin reaction to the whole extracts of glands in the virus disease lymphogranulomatosis (4th venereal disease) it was decided to observe the skin reactions on patients with Hodgkin's disease to the extracts of Hodgkin's diseased glands. Although the etiology of this disease remains obscure there are some² who believe it may be due to a virus. Skin reactions can be obtained with the extract of skin lesions in small pox and vaccinia, a virus disease.

The injection of filtrates of Hodgkin's glands has been used in treatment of the disease but the skin reactions to these filtrates have not been described adequately. Skin reactions to a preparation from

¹ Frei, Wm., *Klin. Wochenschr.*, 1925, **4**, 2148.

² *Annales d'Anat. Path.*, 1931, **8**, 815.

Hodgkin's diseased glands were reported as negative in 3 cases by Fox and Farley.³

Here we are further recording the negative results obtained in 11 patients with Hodgkin's disease treated by Roentgen ray in whom the diagnosis was assured by biopsy. All but one patient showed a skin reaction of only a few millimeters, similar to that seen in normal persons. In this one the control, saline and 0.3% tricresol measured 0.5 cm. and the unheated extract measured 1.0 by 1.5 cm. at 24 hours, but after 48 hours measured 1-2 mm.

Extracts were made from the lymph nodes of an untreated case of Hodgkin's in the third month of the disease and also from a case of lymphosarcoma. The clinical course of these cases has verified the histological diagnosis. The fresh nodes were extracted with saline, centrifuged and 0.3% tricresol added to the cloudy, supernatant fluid. One-half of this was heated for an hour at 60°C. on 2 successive days. The final extract was not filtered.

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Etiology of Whooping Cough.*

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Three beliefs exist in regard to the etiology of whooping cough: That the disease is caused by *H. pertussis*, that the agent is a filtrable virus, or that both play a part. *H. pertussis* is practically always present in the disease and absent in health.¹ That the organism plays a most important rôle has been shown by occasional successful transmission experiments^{2, 3, 4} and by reports of effective protection with suitable *H. pertussis* vaccine.^{1, 4, 5} The recent description of intranuclear inclusion bodies⁶ taken together with certain other considerations has led some^{3, 7} to believe that a virus plays either a

³ Fox, H., and Farley, D. L., *Am. J. Med. Sci.*, 1922, **163**, 313.

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¹ Miller, J. J., *J. Am. Med. Assn.*, 1933, **100**, 681; excellent summary.

² Sauer, L. W., and Hambrecht, L., *Am. J. Dis. Child.*, 1929, **37**, 732.

³ Rich, A. R., Long, P. H., Brown, J. H., Bliss, E. A., and Holt, L. E., *Science*, 1932, **76**, 332.