

have a number of embryonic glands at our disposal and from the study of these we hope to throw further light on this problem.

Summary. In the cetacean and armadillo hypophysis, the melanophore-dispersing hormone is found in greatest concentration in the antero-ventral region. The postero-dorsal (juxta-neural) region contains the lowest concentration. These findings accord well with those of DeLawder, Tarr and Geiling and of Kleinholz and Rahn in the chicken hypophysis, in which the highest concentration of melanophore-dispersing activity was found in the anterior region of the gland.

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Whealing Response of Human Skin to Ultraviolet Light and the Histamine Theory of Allergic Reactions.*

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Although a whealing response to ultraviolet light has been reported previously, there is apparently no record of the spectral region of hypersensitiveness in the individuals who comprise the group hypersensitive to ultraviolet light. For the past 3 years a case of this type (*Urticaria solare*) has been studied and the following data may now be reported.

(1) The region of spectral hypersensitiveness (in this woman of 32 years) as manifested by whealing begins very close to 3700 Å and extends to lower wave lengths with increasing sensitiveness in the region where absorption occurs. This zone corresponds to the zone of response of the skin to pigmentation reported by Luckiesh and Taylor.¹ The syndrome, therefore, might be connected with the pigmentation process, although pigmentation may be induced in the usual way. The case studied by Blum, *et al.*,² is probably another entity for his case responded in the visible region. The statement by Laurens that *Urticaria solare* is produced by luminous violet and blue rays from 3900 to 5300 Å must evidently be modified.³

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¹ Luckiesh, M., and Taylor, A. H., *J. A. M. A.*, 1939, **112**, 2510.

² Blum, H. F., Allington, H., and West, R., *J. Clin. Invest.*, 1935, **14**, 435.

³ Laurens, H., *J. A. M. A.*, 1938, **111**, 2385.

(2) Observations of the development of over 500 wheals to various sources of light have shown that pseudopods never form. The borders of the wheal always initially coincide exactly with the area irradiated and the wheals last several hours if the stimulus is sufficient. Spread of the wheal is slight but uniform and is probably due to an increase in intradermal pressure by an excess of extravascular liquid. Even when wheal formation is retarded because of a low dosage of radiation, the pattern of the wheal matches that of the zone irradiated. The non-development of pseudopods is not in accord with the theory that a readily diffusible H-substance like histamine is liberated in the tissues subsequent to irradiation.

(3) An irradiated zone of the skin which had many needle punctures was treated with wet cotton and the negative pole to electrically transfer histamine from the skin during the whealing process by reversed electrophoresis of histamine. A whealing substance was not isolated from the skin by this technic although histamine itself may under certain conditions be recovered in this way.⁴

(4) A large area of the back was irradiated, producing a wheal

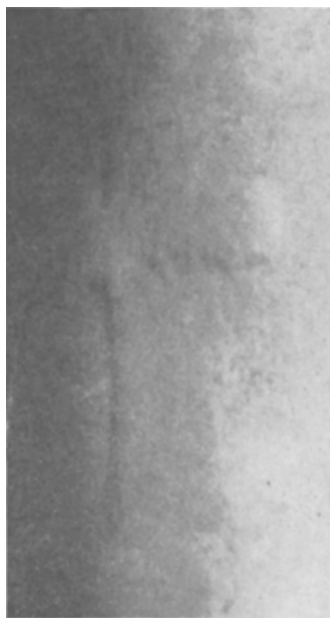


FIG. 1.

The vertical part of the cross is a sharp-edged wheal produced by ultraviolet light. The horizontal part is a superimposed histamine wheal produced by electrophoresis of histamine.

⁴ Abramson, H. A., and Gorin, M. H., *J. Physical Chem.*, 1939, **43**, 335.

of approximately 200 in². without any symptoms of histamine poisoning. Evidently, a diffusible substance like histamine was not liberated in any quantity sufficient to account for the massive wheal.

(5) A histamine wheal may be readily formed (electrophoresis or injection) over an irradiated area of the skin which has responded by whealing. (Fig. 1.) In other words, the whealing response to light does not prevent histamine whealing in the same area. Similarly, a light wheal may be superimposed on a wheal formed by electrophoresis of 1:10,000 histamine.

Summary. (1) The spectral response to light in a case of *Urticaria solare* may be connected with the pigmentation mechanism. (2) A process which produces a relatively non-diffusible whealing substance is probably responsible for the whealing in the case in question.

The preceding observations, which will be reported in detail elsewhere, do not support the point of view that histamine or a readily diffusible H-substance of low molecular weight is responsible for the skin response to ultraviolet irradiation.

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Toxin Production by *C. diphtheriae* Types: Mitis, Gravis and Intermedius.

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The differentiation of *C. diphtheriae* into 3 groups, gravis, intermedius and mitis, and the observation that the case death rate was highest and the incidence of paralysis greatest with gravis type infections, less with intermedius and least with mitis infections,^{1,2} coupled with reports of the inability of gravis strains to produce

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¹ Anderson, Happold, McLeod and Thomson, *J. Path. and Bact.*, 1931, **31**, 667.

² Cooper, Happold, McLeod and Woodcock, *Proc. Roy. Soc. Med.*, 1933, **29**, 5.