

ANTHROPOLOGY—PHYSICS

"Melanoid" Skin Pigment Discovered by New Instrument

Diffuse Form of Melanin, Characteristic of Dark Men, But New Pigment Is in Skins of Even Pale Blonds

"**M**ELANOID," a hitherto unknown kind of coloring matter, has been discovered in skins of all peoples, from pale blonds to Negroes, through the use of a new optical instrument, the recording spectrophotometer. This discovery, made in the course of researches by Dr. Edward A. Edwards of the Harvard Medical School and Dr. S. Quimby Duntley of the Massachusetts Institute of Technology, raises the number of known skin pigments to five.

The researches of Drs. Edwards and Duntley constitute the first precise study ever made of the complex factors underlying variations in the color of human skin. The investigation, which may have significant bearing on a host of important and puzzling medical problems, is in progress at the Massachusetts Institute of Technology. (*American Journal of Anatomy*)

Already the results are enabling doctors to diagnose anemia far more effectively than has been heretofore possible and to watch minutely the progress of attempts to stem its wasting tide.

Diagnostic Tool

The experiments may also afford medicine a valuable diagnostic tool and method of observing treatment in circulatory disorders and various vascular and skin diseases, and may also contribute to studies of disturbances of the endocrine, or ductless, glands which produce those all-important chemical messengers of the body, the hormones. Disorders of these glands underlie a wide variety of far-reaching bodily ills.

Key instrument in the research is the recording spectrophotometer developed at the Institute by Prof. Arthur C. Hardy. With its aid the two investigators have been able to make speedy and precise analyses of skin colors which are as objective as the temperature readings of a thermometer. Thus not only does it improve on previous methods, which have relied largely on the erratic human eye, but it also automatically analyzes the color of the skin by examining its capacity to reflect light at each separate wave-length, a task impossible for the human eye.

Melanoid is a diffuse form of melanin, long known as a skin pigment. Melanin is characteristic of brunets, and dominates the complexions of Negroes and other black races.

Carotene, Too

A third pigment, carotene, which is responsible for the hue of carrots, has never previously been recognized as a color component of the human skin.

The other two pigments involved in skin color, and the most important in producing its pinkish flesh tint, are the two forms of hemoglobin found in the blood, oxy-hemoglobin, and reduced or oxygen-free hemoglobin.

The turbidity of the deeper layers of the skin furnishes an added effect of light-scattering, which adds a bluish component to the general skin color. Without this scattering, a phenomenon probably best known for giving the sky its blue, the normal skin would be like cellophane-wrapped, raw beefsteak.

All peoples, the two scientists have found, have these five color pigments. Variations in skin color, from Nordic to Negro, are due entirely to the proportions in which they are blended. Melanin and melanoid are particularly important, for their abundance results in a dark skin and a lack of them gives a light skin. The bodily distribution of these pigments is identical for all races but the amount is purely a matter of constitutional and racial factors. White men have the least melanin, they found, and it steadily increases in the Japanese, Hindu, Mulatto and Negro, in that order.

Tanning Studied

Although they were concerned primarily with pigments normally present in the skin, Drs. Edwards and Duntley also studied the secondary or acquired type of melanin-production by the body, the familiar process known as tanning. Skin-darkening in this manner, they found, depends on the ease with which light penetrates the skin and the inherent ability of the individual to form melanin in response to this stimulus.

Skins of members of the dark races already have so much melanin that an exceptional amount of light is needed for tanning, but very blond whites, who have but little melanin, allow easy light penetration. These blond whites, however, cannot form appreciable amounts of the pigment and thus cannot take advantage of the natural protective mechanism of tanning. Thus they sunburn easily—and usually painfully. Brunet whites are midway between the dark races and very blond whites, and they normally tan.

A wide fluctuation in the amount of carotene in various individuals was also noted by the two scientists, probably a result of variations in diet. Increased amounts of this yellow pigment, they believe, together with smaller amounts of melanin and melanoid, is very likely the reason that women usually have lighter skins than men.

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Ticks are not insects; they are arachnids, a group closely related to spiders and differing from insects notably in the lack of antennae and in having eight legs usually instead of six.

The American, or Northern Bald, Eagle regularly nests in a tree or on a rocky crag, but a nest on the ground, which had contained two eaglets, was recently found and photographed in Michigan.

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