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Cell Transplants Hold Hope In 'White Skin' Epidemic

MELANOPENIA is one of the most serious genetic diseases to afflict the population of the United States and Europe. In the United States it affects almost 90 per cent of the population and, being aggravated by the social and political climate of that country, it has an unparalleled virulence. In fact, it may destroy that Nation.

Because of its most obvious manifestations, melanopenia is popularly known as "white skin." One of its more subtle effects is that its victims, far from recognizing that they suffer from a genetic defect, often look down on their fellows who have a more complete enzyme system in their skin.

LIKE MANY other diseases, the primary lesion in melanopenia is not inherently very serious, and it is the interaction of a mild disability with a particular environment that generates the full-blown epidemics. The biochemistry of melanopenia is not well understood, but some investigations suggest that it is a defect in the enzyme, tyrosinase, which blocks the synthesis of melanin pigment.

Two or three major genes control the level of tyrosinase activity in the melanocytes (pigment-making cells) of the skin. However, the enzymes from the different genetic types have not yet been isolated for detailed comparison. Studies on domestic animals suggest that deficiencies in skin pigment should confer only a minor disadvantage, especially if protection from ultraviolet light in sunshine can be afforded by protec-

tive housing and clothing. The biological significance of melanin in man is still controversial, but it seems likely that it can help protect the deeper layers of the skin, and some physicians report that, as a consequence, Negroes retain more youthful facial skin into more advanced age. One form of reduced pigmentation is associated with the disease phenylketonuria (PKU). The mental retardation of PKU can, however, be mitigated by a careful control of the infant's diet.

THE RAVAGES of melanopenia in contemporary life are, then, all out of propor-

tion to its biological significance. Biology is, however, a very recent science, and most of our social institutions and attitudes were crystallized before we had any scientific understanding of human diversity. Precisely because skin color is so superficial a character, it has become an indelible label for group identification, one which reinforces the universal trend in human affairs for the exaltation of in-groups at the expense of outcasts.

With our new knowledge of genetics and biochemistry, we should soon be in a position to make a direct attack on melanopenia—to enable every individual to be just as black as he wishes. This is still a futuristic dream, whose accomplishment needs further concentration of research on human biology. However, it should not be any more difficult than the control of diabetes or hemophilia.

Even now, we can speculate on the possibility of transplanting competent melanocytes, if necessary at an

early age, to compensate for the genetically defective ones in patients with melanopenia. Thus, research on transplantation of hearts and other major organs may serve an unexpectedly broad social purpose.

MEANWHILE, some melanotic individuals may find some use in procedures which temporarily lighten their skins. This may be for relatively frivolous cosmetic purposes, like trying out blond hair, or as a generous gesture of social solidarity and compassion for biologically inferior melanopenics.

It would be naive to assume that America's racial problems are amenable to such a quick fix from biological technology. Human prejudice is too ingenious for that. Only a few individuals might care to modify their complexions. But some of the special virulence of racial conflict might be alleviated if the adoption of skin color were indeed to become a matter of personal convenience and preference.

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