

dermatoglyphics can now tell, for instance, the difference between the hand or foot prints of the Japanese race, the white, the Negro, the Eskimo or the Indian.

Certain criteria for distinguishing races already exist, among them finger prints. Other physical traits used in the comparative study of human groups are stature, facial features, and most important of all, measurements and proportions of the skull. Now, in scientific palmistry, anthropologists hope to gain a new criterion for comparing the races of man.

Palm Prints Show Race

Men all over the world are helping Dr. Cummins to collect palm and sole prints, so that he can extend his studies to include various races. Thus far besides the white race, both European-Americans and Jews, he has studied Negroes, Mayas, Eskimos, North American Indians, Jews, Siamese and Syrians. Archaeologists and other explorers, and former medical students send him the prints which form the material for his study in his New Orleans laboratory.

When Henry B. Collins of the Smithsonian Institution was at St. Lawrence Island, Alaska, on an archaeological expedition one summer, he lined up a number of Eskimos, children, adolescents and some adults, too, to be "printed." With much giggling and amusement the Eskimos submitted to having an inked roller run over the sole of the foot, a tickling process, as well as a novel one, and to having an inked glass pressed against the hand. The impression was stamped on paper. The Eskimo prints were then studied by Dr. Cummins and his associate at Tulane University, Dr. Charles Midlo. They found a distinct racial trend in the combinations of patterns and configurations of the Eskimo palm and sole prints.

Another archaeologist took prints of Maya palms and soles when on an expedition into the Maya country of Yucatan, and sent them back to Dr. Cummins. A medical man now in Bangkok has taken prints of the Siamese and another is doing the same thing in Syria. Frederick Starr took them of Negroes in Liberia, which Dr. Cummins was then able to compare with those of Negroes in New Orleans.

One important advantage of dermatoglyphics over other bodily features which may be compared in various races is that these patterns and markings are established in their final form long before birth and never change during an individual's lifetime.

The measurements and shape of the skull have been considered the best method scientists had for distinguishing racial differences. However Dr. Franz Boas of Columbia University has found from a study of the descendants of immigrants in America that after several generations of life in this country the characteristic head forms of different races began to change. Whether these changes are due to changes in diet or environment is not known, but apparently it is not possible to tell so infallibly to what race a person belongs by measuring his skull. But there is no question of environment or experience altering the palm markings.

Dr. Cummins recently reported the first scientific study of the palm and sole patterns of North American Indians. The first tribe to have palm and sole prints taken for scientific purposes is the Shoshoni-Arapaho of the Shoshoni Indian agency in Wyoming. Studying the finely sculptured patterns, Dr. Cummins found a "definite racial trend." And when he compared the Indian tribe's prints with those of white subjects, he found the distinctiveness of the Indian prints emphasized by the contrast.

"For example, in the European-Americans a true patterned arrangement, usually a looped figure, is found frequently on the muscular eminence of the little-finger side of the palm," he explained; "in the Indians its occurrence is very rare. In European-Americans there is a far more pronounced tendency of the skin ridges to run transversely across the palm, contrasting with the Indian character of more nearly longitudinal course. Such contrasts might be multiplied."

Eskimo Palms Like Chinese

When the Indian prints were compared with prints of Eskimos and Chinese, the three groups showed many points of similarity. This is another point suggesting the Asiatic origin of the old native inhabitants of America.

From Dr. Cummins' explanation of the differences in prints of Indian and white palms, you can see that the markings which he and his associates study are quite different from the ones the gypsy fortune teller traces on your palm. No "marriage lines" or "life lines" appear in the language of scientific palmistry.

"Main lines," however, are traced on the palm print with the aid of a hand magnifying glass. On a typical hand there are four "main lines," also four "digital triradii." The latter are triangular spots, one at the base of each finger, marking the common meeting point of tiny ridges which run in three chief directions. "Main lines" are traced from their start at these "digital triradii."

If you look at your palm through a hand lens, you will see how difficult it is to find either the triangular spots at the base of the fingers or the main lines, and these two features are merely the starting points for determining individual palm patterns. After the patterns have been formulated for a number of individuals belonging to a racial group, the same general trend will be noticed in them. When a number of palms are found with different general trend in their configurations, the owners of these palms may be identified as belonging to another racial group.

That, roughly, is the way in which Dr. Cummins and his associates go about distinguishing races and individuals by means of palm prints. And it explains why only those skilled in dermatoglyphics can make such identification, and why Dr. Cummins said that it is impossible to determine the race of a single individual by dermatoglyphics.

This article was edited from manuscript prepared by Science Service for use in illustrated newspaper magazines. Copyright, 1932, by EveryWeek Magazine and Science Service.

Science News Letter, August 20, 1932

CHEMISTRY

Iodine Test May Show Vitamin C in Orange Juice

A SIMPLE test with iodine may some day be used to determine the amount of vitamin C in preserved orange juice, its appears from experiments by M. A. Joslyn and G. L. Marsh of the Fruit Products Laboratory of the University of California.

These investigators found that titrating orange juice against a standard iodine solution gave a good indication of the degree of deterioration.

In reporting their experiments in the scientific journal, *Science*, they point out that work of other investigators, Szent-Gyorgi, G. C. King, and W. A. Waugh, has shown that vitamin C is the same as hexuronic acid, chief constituent of the reducing substance in orange juice which reacts with the iodine in their test for deterioration.

Science News Letter, August 20, 1932

So little was known of deafness in the Golden Age of Greece, that Aristotle taught that "the deaf have no souls and are little better than animals."