

furnace operators may calculate the quality, economy, and rate of production of pig iron from the properties of the coke used. For these calculations pre-

liminary data, defined in the paper, must be collected on each specific blast furnace operation.

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**GEOLOGY**

**Walls of Salt May Serve As Shelter for Detroit**

**P**ILLARS of salt may serve to protect the entire population of Detroit from aerial attack in case of war. Officials have recently been studying the great man-made caves of old salt mines under the far southwestern part of the city.

Eleven hundred feet deep, these caves were left where millions of tons of salt have been removed. Great salt pillars, left by the miners, support the ceilings. The caves cover 160 acres, of which about 112 are available floor space. With more than 25 miles of passageways 22 feet high and 50 feet wide, there is believed to be enough room to accommodate, if needed, all the 1,618,549 people which the 1940 census showed to be Detroit's population.

The mine is dry and healthful. It is completely air-conditioned by pumps which force fresh air from the surface. The temperature is constant at 58 degrees. So deep is it that those seeking air raid shelter there could not hear an intense bombing raid going on overhead. The heaviest bombs penetrate no more than 50 feet in ordinary soil.

In addition to serving as a shelter, Army officials say the mines might be used for essential industries, as a hospital, or as an ammunition dump.

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**HAIR ON END**

*Hair samples prepared by a method which quickly sets them in order for measuring. Shown here are magnified cross-sections of (left to right) Dutch, Maya, Navajo and Negro hair.*

**ANTHROPOLOGY**

**Wool Measuring Device Now Used To Study Human Hair**

**Cross Sectioning Shows Differences Between Races; Negro's Most Elliptical, Dutch Smallest and Light**

**A** GOVERNMENT scientist's device for measuring sheep's wool has given anthropologists a new idea for measuring tiny breadth of human hairs with such speed that in ten minutes they can gain facts about hair size that used to require two days' tedious work.

Speeding study of racial traits with the new technique, Dr. Morris Steggerda and Mrs. Ruth Eckhardt of the Carnegie Institution of Washington have already set tentative standards of hair sizes for races, they have reported.

Even varied sizes of hair on an individual's head can be charted to show his own limits of hair size in microns, or thousandths of a millimeter. Hair size variation in individuals and races is found to be very great.

First studies, made with hair of America's Mayan and Navajo Indians, Negroes, and Dutch, because adequate hair samples were available, have just been announced.

"It is evident," says Dr. Steggerda, "that the Maya have the largest hair in cross-section, and the Dutch the smallest, with the Navajo and the Negro approaching the Maya very closely."

For the first time, explains the anthropologist, it is possible to analyze also the hair shapes of different races statistically. Negro hair is the most elliptical in shape he has studied. Mayan hair is roundest.

The method adopted for investigating differences in hair was originated for wool research by Dr. J. I. Hardy of the U. S. Department of Agriculture.

Hairs are prepared for testing by washing in carbon tetrachloride and drying, and are made into tiny samples by inserting them in packs of 150 to 200 in a slot in metal, in which the hair tips can be coated with thin solution of celluloid. Once hardened, the tiny hair specimens are cut off with a razor blade, ready to be measured by aid of a microscope.

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