

CHEMISTRY-ANTHROPOLOGY

## Chemistry Makes Dry Bones Reveal Ancients' Blood Types

**B**Y AID of delicate chemical tests that sound like magic, dry bones of Egyptians who lived 3,300 years ago can be made to give up important secrets regarding types of blood that once flowed in their veins.

The experiment, pronounced successful, is expected to open up a "vast new field of research" enabling science to probe long-lost chapters of man's racial history.

Announcement of the tests was made before the American Association for the Advancement of Science by Dr. P. B. Candela, Brooklyn physician. In his tests, Dr. Candela used skeletons of Egyptian women who lived in the days of Egypt's eighteenth dynasty, 1500 B.C., now in collections of the Brooklyn Central Museum.

The four types of human blood, which have become familiar to the public through their use as evidence in court cases to test paternity, have value in scientific study of races, less widely known to the public.

It has been possible, said Dr. Candela, to prepare blood group maps of the world showing that various races in different parts of the world are mainly of one blood type or another. American Indians, Celts, and Basques belong predominantly to type two. Groups as dissimilar as Hindus, Pata-

gonians, and Amazon tribes are classed by blood mainly as type three.

That this evidence points backward toward some significance in the early history and origin of human races was realized. But to trace that significance required evidence about blood types of ancient men dead thousands of years, and this information seemed lost beyond recall.

Recent tests, however, have shown that mummified flesh of Egyptians and Indians can be made to reveal blood types. Dr. Candela's research extends the technique to dry bones, thus opening up the way for science to learn the blood traits of early men even in the Old Stone Age.

The method of using bone to reveal blood type involves pulverizing a portion of bone and mixing some of it with diluted serum of each of two blood types. The filtered fluid is later tested against red blood cells of the opposite blood type, and by observing whether the red cells clump together or not, the blood type can be detected.

The majority of the Egyptian women whose bones were thus tested belonged to blood type three. Dr. Candela said that investigators who tested the dried flesh of Egyptian mummies had also identified these ancient people as of blood type three.

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OCEANOGRAPHY

## Three Vast Submarine Canyons Found Off Atlantic Coast

**D**ISCOVERY of three vast submarine canyons, hitherto unknown to science, is reported by Prof. Francis P. Shepard, who has just returned from a cruise on the U. S. Coast Survey ship *Oceanographer*. Prof. Shepard's participation in the survey was assisted by a grant from the Geological Society of America.

The canyons are cut deep into the sea bottom off the Middle Atlantic region of the United States. They lie to the southwest of the great submarine Hudson Canyon, which continues the Hud-

son valley far under the ocean from the mouth of the present Hudson river.

The greatest depth of the floors of the three new-found canyons is 7,000 feet below sea level. Their walls rise above this level 1,000, 1,500, and 2,000 feet respectively.

The deepest of the three is the southernmost. This canyon is located approximately off Toms River, N. J., and cuts back into the continental shelf for about three miles. The other two terminate headward below the shelf margin.

All these canyons extend directly

down the continental shelf slope in the direction which would be expected of streams if the sea level were lowered, and their shapes are decidedly those of stream-cut canyons.

Prof. Shepard has plotted the 4,700 soundings of the recent Hudson Canyon survey on a large scale. He states: "This is the most complete deepwater survey ever made and probably the most successful of the surveys to date. The canyon is much straighter than previously supposed, being practically identical in character with the canyons off Georges Bank in having a maximum wall height of 4,000 feet; but the hundred-fathom curve is bent shoreward sixteen miles as compared to thirteen for the largest of the Georges Canyons. The walls are not quite as deep in the case of the Hudson Canyon. The bottom declivity is fairly uniform but shows an increase between 3,500 and 4,500 feet, which is probably due to the outcrop of a harder layer along the canyon course.

"Inside the canyon, as was known previously, a valley only about sixty feet deep extends almost into New York. This shallow valley is only a few feet deep where it joins the head of the canyon. It was probably caused by a small lowering of sea level rather than by the great emergence which is implied by the deep canyon, which cuts the continental slope of the world.

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AERONAUTICS

## Stratospherists Honored By Mackay Trophy Award

**T**HE MACKAY Trophy, one of the most prized of all awards that airmen can win, was given to Capt. Albert W. Stevens and Capt. Orvil A. Anderson, U. S. Army Air Corps, commander and pilot respectively of Explorer II, balloon of the National Geographic Society-Army Air Corps Stratosphere Expedition. The award was made in recognition of their record-breaking ascent of last Nov. 11, to a height of approximately fourteen miles.

The Mackay Trophy is a great silver bowl on a pedestal, with names of former prizewinners engraved on plaques on the base. The award was established in 1912, and has been won by such Army aces of the air as Rickenbacker, Maitland, Macready and Doolittle. Award is limited to officers in the Army Air Corps.

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Opossums hunt food mainly by their sense of smell.