

or weeks of life if the baby is to be saved.

Since the operation has never been done before, what the future holds for the children remains to be seen. They may later develop heart failure or sub-

acute bacterial endocarditis, the doctors point out. They maintain, however, that fear of these conditions in the future, is "no justification" for letting the patient die of oxygen want in the present.

Science News Letter, May 26, 1945

ANTHROPOLOGY

Normal Face Measured

► HEADS of over 3,000 soldiers were measured to find the most comfortable gas-mask size. Ten different head types were established, and it was found that men from the South, where there is more of a native unmixed Anglo-Saxon strain, have the largest heads, while those who hail from New England have the smallest.

The tests were made under the direction of Dr. Earnest A. Hooton of Harvard University by a group of anthropologists, including John C. Kelly and Paul Reiter, in cooperation with the Chemical Warfare Service and the Massachusetts Institute of Technology. It is the first big study of its kind to be made by the Government.

A new measuring instrument, the "faceometer," was used in the tests conducted at Camp Sibert, Ala. This device measures the face in three principal dimensions—length, depth, and breadth—and 62 other facial landmarks. After considerable practice, operators can take all measurements in less than two minutes. The information gathered has helped the Chemical Warfare Service to find three types of gas masks which will fit every soldier in the Army.

As a result of the tests, the average head among men in the Army was found to have a face length, from tip of chin to nose depression between the eyes, of 124 millimeters (about five inches); face breadth, from temple to temple, of 141 millimeters (not quite six inches); and face depth, from tip of nose to ear passages, of 123 millimeters. These figures were supplied by Capt. R. A. Chadbourne of the Chemical Warfare Service in Boston.

Men from the ranks who were used as subjects represented every state in the Union, as well as Alaska, China and the Philippines. They were examples of a dozen racial extractions. Five normal and five unusual head sizes were established by correlating principal measurements representing breadth, depth, and length of face. The normal type includes an average head, two large, and two small

sizes. The unusual types are those in which two of the principal measurements are normal, while the third is not.

It was found that 65% of the soldiers measured normal medium; 19% medium small, and 11% medium large. About 4% of the heads were small, while only 3% were large. In the unusual size, 7% had "short, fat faces," the largest single category in that group.

In addition to helping the Chemical Warfare Service design standard gas masks, these authoritative data have aided the Quartermaster Corps in determining hat sizes; the Army Air Forces, for goggles and head fittings; Ordnance, for placing of artillery gunsights and for headspace in tanks and other vehicles; and the Signal Corps for communication apparatus head fittings.

They also have a direct postwar bearing on fitting eyeglasses, manufacture of hats, dental and medical service; shape of telephone headsets; use of goggles and eyeshields in industry; spacing of seats and headroom in planes, trains, and buses.

Science News Letter, May 26, 1945

ENGINEERING

Delicate Instruments Remain Days Under Water

► DELICATE electrical instruments may remain for days under water without injury if sealed by a method developed and used by the General Electric Company that also protects them against humidity, dust, fungi, discolorization and other adverse conditions. Instruments so protected have been suddenly transferred from temperatures of 67 degrees below zero Fahrenheit to 165 degrees above without inflicting any change in their performance.

The method is the result of extensive research by scientists of the company to find a way to offset difficulties in the tropics, deserts and high altitudes, where electric instruments failed because of moisture, climatic and other conditions. It is claimed to be the first successful

means of hermetically sealing an instrument with moving parts.

To obtain a hermetically sealed enclosure, a thick, special, stain-free glass window is fused to a metal ring in a glass-to-metal seal. This assembly is then fused to a steel case by a soldering joint. Hermetic sealing of the two terminal studs is obtained by glass-to-metal seals between each metal stud and the metal eyelet.

The final assembly is evacuated, filled with an inert gas through a tube located in the base, and is sealed off at a pressure slightly above atmospheric.

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