

## FIELD MUSEUM AIDS ARMY AIR FORCES IN A PROJECT TO PROMOTE FLIERS' SAFETY

BY ORR GOODSON  
ACTING DIRECTOR

With the permission of the War Department, Field Museum now is able to reveal a unique activity in which it has been engaged for some months past—an activity that contributes to the safety of members of the U. S. Army Air Forces.

The Museum is now a producer of an important war accessory. This is the result of the combined application of the scientifically accurate measuring methods (anthropometry) used by physical anthropologists to gauge distinctive characteristics of groups of men and women; the researches of medical officers attached to the Army Air Forces; the art of the sculptor in depicting human types; and the driving force of experts in military efficiency and in manufacturing methods to obtain production and action with speed and precision.

For flying at high altitudes, the pilots, bombardiers, gunners, radio operators and other men of the skies, require oxygen masks, and these must be accurately fitted to each man's head. In an anthropometric survey of 2,000 fliers, conducted by officers of the Army's Aero-Medical Research Laboratory at Wright Field, Dayton, Ohio, it was found that the shapes and sizes of aviators' heads could be reduced to seven basic composite types from among which the fliers could be properly fitted with masks. One of these head types—labeled as No. 1, "the mean" (in the sense of average) type—corresponds to the fitting requirements of the majority of the fliers; the other six head types represent the extremes of contours and out-sizes in all directions.

The head models guide the manufacturers of masks and headgear in their production of the variations required, and the quantities of each size needed, as well as assisting them in the designing of new and improved products. An important improvement, for example, is the production by the General

Plastics Corporation, with which Field Museum is co-operating, of oxygen masks from plastic materials, eliminating the necessity for precious and difficult-to-obtain rubber, formerly used, and leaving such rubber available for other essential purposes.

The U. S. Navy and the Royal Canadian Air Force are reported to be adopting the use of the same heads, and will receive their supplies from the Army.

Sculpturing of the original master set of head models, based on the measurements furnished by aero-medical officers, was done by Mr. G. W. Borkland, of Chicago, President of the General Plastics Corporation. After the master set had been approved by Army authorities, the problem arose of producing sets of these models in quantity, as the heads, to meet the medical and air-safety standards, have to be micrometer-accurate.

Because of the scientific nature of this project, Mr. Borkland and the Army authorities, being familiar with the work of the Department of Anthropology at Field Museum, decided to enlist the services of the Museum laboratories and technicians. Production of accurate molds, and from them of accurate plaster casts of the sets of aviators' head types in accordance with the specifications of the Aero-medical officers, is consequently now well under way at the Museum.

Chicago's center of natural history information has thus been brought into war production, in the status of "sub-contractor" to the mask manufacturer. It should be emphasized that Field Museum is making this contribution to the war effort without profit—the sets of model heads are being furnished to the government at actual cost of production.

The work of making the molds and casts has been placed in the hands of Messrs. John Pletinckx and Joe B. Krstolich, sculptors on the Museum staff. Twenty-eight sets, or 196 individual heads, have

already been ordered, of which part have been completed, and others are in process. Further production on a larger scale is anticipated to meet the needs of the Army Air Forces.

### MRS. RAYMOND GIVES \$6,000 FOR WORK WITH SCHOOLS

Mrs. James Nelson Raymond, well-known Chicago philanthropist, has again contributed \$6,000 to Field Museum, it is announced by Acting Director Orr Goodson.

"Despite the war, Mrs. Raymond believes that opportunities should not cease for Chicago's children to obtain full advantage from the city's cultural and educational institutions, in order to supplement their school studies," said Mr. Goodson.

As a memorial to her husband, the late James Nelson Raymond, Mrs. Raymond in 1925 established in the Museum, with a liberal endowment, the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. Ever since that time, she has made generous annual contributions.

The Raymond Foundation provides lessons and entertainment in the natural history field for approximately 250,000 school children each year, according to Miss Miriam Wood, chief lecturer on the Foundation's staff, and supervisor of its activities. It accomplishes its purpose in various ways—by sending extension lecturers with lantern slides into school classrooms and assemblies by arrangement with the Board of Education; by providing conducted lecture tours of the exhibition halls for groups of children brought to the Museum by teachers and others; by presenting series of free motion picture programs in the James Simpson Theatre of the Museum each spring, summer, and autumn; by the publication of natural history leaflets for children; and by special courses to train teachers and recreation leaders in the natural sciences.



THE "SEVEN BASIC TYPES" OF AMERICAN ARMY AVIATORS

Heads cast at Field Museum in accordance with a master set sculptured by G. W. Borkland. They represent composites resulting from anthropometric studies of 2,000 aviators' heads by officers at the Aero-Medical Research Laboratory at Wright Field, Dayton, Ohio. Almost any flier will classify as one of these types, and can be properly fitted with an oxygen mask which follows the contours of the type in which he falls. By far the great majority—nearly 80 per cent—classify as Type I in the center of picture.





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