

USAF SAM 1A

27 April 1951

SUBJECT: Proposed Study: Physiological Aspects of the Long Range Mission

TO: Colonel Calvin B. Peeler,
Commanding Officer
3511th Combat Crew Training Group
Randolph Air Force Base, Texas

1. As a result of exploratory conversations with Lieutenant Colonel Julian A. Harvey, Director of Training, 3511th Group, Wing A-3, there has emerged the possibility of conducting physiologic studies relative to long range missions. The study would proceed in a manner consistent with the demands of the operational training. Data would be collected before and after the conclusion of scheduled missions, would be fully shared with Lieutenant Colonel Harvey, and would be classified as confidential.

2. The proposed study would make use of B-29 student pilots. Blood would be drawn from such personnel prior to a long range mission and, again, at the conclusion of the mission; the total amount of blood drawn would be approximately ten (10) milliliters. Eosinophil counts and lactate determinations would be performed on the blood drawn. In addition, coordination tests lasting approximately one (1) hour would be administered before and at the conclusion of the mission.

3. Student pilots would be paired off in two (2) groups, an experimental group and a control group. The experimental group would be composed of student pilots on whom data would be obtained before and after an actual mission. One (1) member from each group, taken together, would constitute an experimental unit; the control being kept on the ground while the experimental member is flying. Each pair would be employed only once. The frequency of such discrete experiments would be dependent upon the operational situation and would probably not exceed ten (10) experiments per week, due to laboratory limitations. It is anticipated that a minimum of twenty-five (25) discrete experiments should be performed.

4. It is the conscious purpose of the proposed study to define the nature of pilot fatigue resultant from an actual mission.

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File 700 - Jan. 51
342-51-C-6035-2/2
29 NOV 95

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experience, the ultimate objective being a contribution to the operational needs of our Air Force. Some of the more recent studies of the adrenal glands suggest that some relatively simple blood studies might give new evidence of the early onset of fatigue due to stress. Following these leads, an attempt is being made to obtain early and simple indices of fatigue.

5. The cooperation of your organization will be deeply appreciated. The intensity and value of your mission is thoroughly understood, and it is our intent to aid and not interfere in the B-29 training program.

FOR THE COMMANDANT:

PAUL A. CAMPBELL
Colonel, USAF (MC)
Director of Research

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342-51-C-6035-2/2
29 NOV 95