OCTOBER 1991

Ruling out astronaut candidates with psychiatric diagnoses (Department of Psychiatry and Behavioral Sciences, University of Texas Medical Branch, Galveston, TX; and the Biobehavioral Laboratory, NASA-Johnson Space Center, Houston, TX): "Between 1959 and 1987, the psychiatric evaluation of astronaut candidates evolved from a 30-h intensive examination evaluating applicants for psychopathology, and studying their performance under stress, to a 2-h clinical interview whose structure and contents were determined by the individual examiner. Evaluations done during these years applied both psychiatric (or, 'select-out') criteria and psychological (or, 'select-in') criteria. In an attempt to more rigorously define the psychiatric, 'select-out' component, a standardized, semi-structured clinical interview was developed to identify the presence or history of psychiatric disorders listed in the Diagnostic and Statistical Manual of Mental Disorders, 3rd Ed. ('DSM-III'). A total of 117 astronaut applicants underwent this clinical interview as part of a comprehensive medical evaluation during a recent astronaut selection. Of the 117 applicants, 9 (7.7%) met DSM-III criteria for a variety of Axis I and Axis II diagnoses, including V-code diagnoses…

"As NASA approaches the era of Space Station Freedom and more extended-duration space missions, such as a Mission to Mars or a Lunar Base, it will become increasingly more important that reliable, valid, and fair 'select-out' and 'select-in' screening procedures be developed and implemented. This paper presents the clinical results of the first application of DSM-III criteria for 'select-out' medical screening."[3]

OCTOBER 1966

Automobile-based thinking induces significant risk when piloting aircraft (Regional Flight Surgeon, Southwest Region, Federal Aviation Agency, Fort Worth, TX): "A nationwide study of 1963 fatal general aviation accidents with a 30 per cent sampling revealed 35.4 per cent of the cases studied to have alcohol involvement.

"Medical investigation of fatal general aviation accidents in the Federal Aviation Agency's Southwest Region during 1964 and 1965 revealed measurable blood alcohol in 30.8 per cent of the cases studied. This represents a 72 per cent sampling of 162 fatal accidents. On 28 per cent of the fatal accidents studied, blood alcohol was over 50 mg per 100 ml. In two cases, otherwise unremarkable levels of hypoxia plus carbon monoxide were thought to have been potentiated by alcohol.

"The combined effects of drugs, fatigue, alcohol, hypoxia, and other factors generally not recognized by an automobile-orientated public are considered to be a significant hazard in air transportation."[1]

OCTOBER 1941

Determining physiological and psychological fitness to fly (Air Surgeon, Army Air Force): "This is a very wide field of study, and the exploration of possibilities for the development of objective methods should be pushed with vigor. Everything that can be done in this field which has significance to the later performance of the aviator should be carried out with great promptness.

"A comprehensive research project including a study of the psychological and physiological characteristics which are related to the effectiveness of flying personnel is now being conducted by the Research Section of the Medical Division of the Office of the Chief of the Air Corps. The first step in this program has been to make a careful job-analysis of the duties of flying personnel under present-day military conditions. This has been supplemented by a study of the reasons why aviation cadets are either advanced rapidly in their training or are washed out by their instructors.

"The second step in the program is to develop methods of classifying individuals with respect to the traits found to be important. Many of these tests will make use of various types of apparatus and equipment, some of which have been previously developed and some of which are being especially designed to measure abilities which the analysis of the performance of flying personnel indicates are essential. However, in so far as possible, an attempt is being made to develop tests which can be easily administered to large groups.

"The final and most important step is to administer the tests to aviation cadets prior to the time they begin their flying training, and correlate their performance on these tests with their success in flight training. On the basis of these findings recommendations will be made concerning specific selection procedures to be employed."[2]

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