AUGUST 1992

Space jibberish (Applied Communications Corporation, San Mateo, CA; Veterans Affairs Medical Center and University of California, San Francisco, CA): "A total of 54 astronauts and cosmonauts returned questionnaires which addressed various aspects of crewmember communication in space. All respondents believed that crewmembers should be fluent in one shared common language, but American and Soviet space travelers were less tolerant of dialect differences than their international counterparts. Sensory activities (Watching and Listening) were rated as significantly increasing in space, whereas more complex communicative activities (Reading, Gesturing, and Writing) were judged to significantly decrease. Cosmonauts scored higher than astronauts in all verbal and nonverbal activities, possibly reflecting more responsiveness to the space environment. Several factors were rated as significantly helping intracrew communication: Shared Experience, Excitement of Space Flight, Close Quarters, and Isolation from Earth. Other factors were judged to significantly hinder communication: Facial Swelling, Spacecraft Ambient Noise, and Space Sickness."[3]

AUGUST 1967

Flying after diving (Naval Medical Research Institute, Bethesda, MD): "The current practice by both military and civilian divers of using air transportation after compressed air diving suggests the need for specific instructions regarding the decompression required before flying after diving… [A]n experiment was designed in which large dogs were exposed to compressed air for 7 hours at their 'no-bends' pressure threshold as determined after the method of Reeves and Beckman. After pressurization, the animals were decompressed within 2–3 minutes to sea level. A sea level decompression interval of 1, 3, 6, or 12 hours was given prior to further decompression to a simulated altitude of 10,000 feet. The incidence of decompression sickness at altitude was 92.9 per cent for the 1 hour surface decompression interval, 30 per cent for the 3 hour interval, 27.8 per cent for the 6 hour interval and 0 per cent for the 12 hour interval. From these large animal studies it may be postdated that a surface decompression interval of at least 12 hours should be allowed before flying after compressed air diving of a depth and duration to require the use of diving tables."[2]

AUGUST 1942

Testing oxygen use in the chamber (U.S. Navy, Pensacola, FL): "Considering tabulated results of the first thousand runs in a low pressure chamber installed at Naval Air Station, Pensacola, Florida, the following items are of interest [**Fig. 1**]:

"1. There are notable differences in individual tolerances for partial pressure anoxia, which offer some possibility of serving as a basis for classification of the individual pilot as to the type of future flying he may be best qualified for.
"2. Incidence of symptoms of bends at 28,000 feet is unusual. Certainly, we feel that those few who do develop bends at this altitude would develop much more acute symptoms at higher altitudes and lower pressures, and should not be assigned to types of planes whose performance ceiling is 30,000 feet or better.
"3. This method of indoctrination gives the future military aviator valuable knowledge as to normal physiologic response to low barometric pressures and pressure anoxia, the inherent limitations of any or all oxygen supply systems, the dangers of even slight mask leakage, how to delay the onset of severe pain due to aeroembolism or emphysema, and finally, and most salutary – that proper oxygen supply systems in modern military aircraft are more important than any of the multiple devices which have been added to planes and engines for the purpose of improving performance and ceiling."[1]

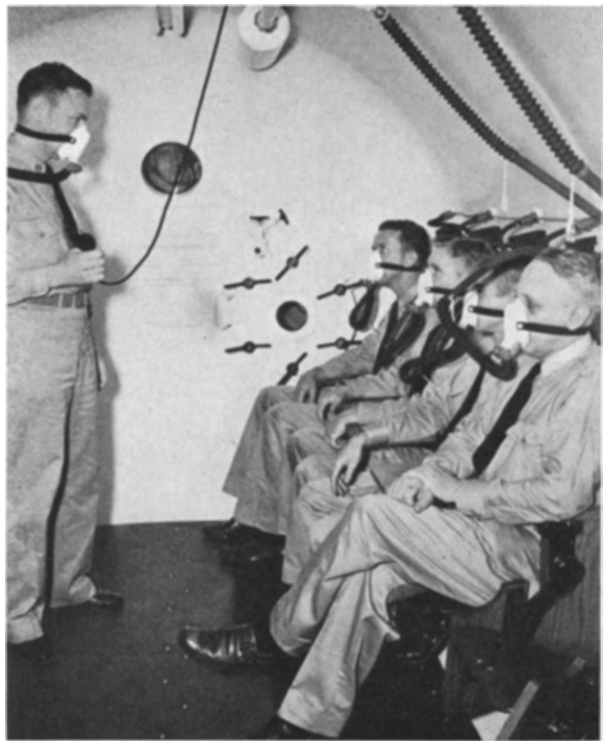

Fig. 1. A group of subjects seated in the main chamber wearing oxygen-breathing equipment. The medical officer in control of the personnel undergoing the test is shown standing.

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