

Space Medicine Branch Report

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Student-Shuttle Project is Big Success

Last year, the National Aeronautics and Space Administration established a program aimed at improving the quality of science education in our secondary schools. They reasoned that a competition to select experiments to fly on the Shuttle would stimulate the interest of students and their teachers. They called this program the Space Shuttle Student Involvement Project (SSIP). About a year ago, in the summer of 1980, NASA enlisted the help of the National Science Teachers Association (NSTA) and sent out about 100,000 announcement posters. In short order, they received 70,000 requests for entry material. Next, the country was divided into 10 regions, and regional competitions were conducted, resulting in 191 winners. The regional winning proposals were judged by a panel of scientists from the National Science Foundation, National Institutes of Health, the American Association for the Advancement of Science, the University of Maryland, NASA, and other experts. This panel selected 10 National Winners.

Next, NASA went to industry and asked for sponsors for these bright young people; that's when I became involved with this wonderful program. My company, McDonnell Douglas Astronautics Co., agreed to sponsor a student, and they appointed me to be the project officer. The sponsoring company agrees to assign a company scientist to assist the student in transforming his/her winning proposal into a real experiment. They will also fund the development of the experiment, including the necessary transportation, such as to the Kennedy Space Center (KSC) for the launch of the flight on which the student's experiment flies, or to another NASA Center or Laboratory as required for the development of the experiment. They also agree to help in analyzing the data and in preparation of the report. They are asked to consider the development of a continuing relationship with the student, such as summer employment or financial assistance in attending college if necessary. NASA agrees to provide NASA scientists and engineers to interact with the students; to provide a specific flight assignment and to integrate the experiment into that flight; to fly and conduct the experiment in space at no cost to the student or to the industrial sponsor; and to provide NASA facilities for various educational conferences to be held from time to time. The NSTA, acting under the terms of their NASA contract, has conducted the competition. They also held a conference at KSC in August of this year. They will receive and coordinate the reports from the student experiments and submit them to NASA.

Now you might ask how this fits into aerospace medicine? You will be pleased and surprised to learn that seven out of the 10 winners chose experiments in the life sciences. Let me list those seven titles for you: "Biofeedback," "Growth of Porifera in Zero Gravity," "The Effect of Prolonged Space Travel on Levels of Trivalent Chromium in the Body," "The Effect of Exercise, Diet, and Zero Gravity on Lipoprotein Profiles," "Effects of Space Travel on Cytokinesis and Karyokinesis," "Insect In-Flight Motion Study," and "The Effects of Weightlessness on Arthritis." Bear in mind that all of these were developed by high school students, most of them not yet seniors. The experiments in the physical sciences were just as impressive as those I have listed. These are really bright youngsters.

McDonnell Douglas has agreed to sponsor the author of the experiment that will investigate the effect of exercise, diet, and zero gravity on lipoprotein profiles. She is a delightful and attractive 15-year-old lady from Hill Junior High School in Long Beach, CA. Her name is Amy Kusske. In her experiment, Amy proposes to evaluate the diet and exercise of Shuttle crew members before, during, and after a flight. She will relate these factors to lipoprotein levels determined at those same times.

It has been my great pleasure to accompany Amy to NASA's Ames Research Center to interact with her NASA Science Advisor, Dr. Harold P. Klein, Director of the Office of Life Sciences there. I was also privileged to accompany her and her science teacher, Linda Sanders, to a National Symposium at KSC Aug. 27-29. At that symposium, I got to meet the nine other winners, their science teachers, and many of the NSTA regional directors, as well as representatives from NASA and NSTA Washington Headquarters. This was one of the most stimulating experiences I have had in many years. We have all been depressed at times to hear about the decline in intellectual attainment and moral fiber of our high school students. I found out that there are still active, intelligent—yes, brilliant—students in our schools. They are poised, courteous, and self-assured. They are also young, full of fun and life, and still growing up. I did not see any 15-year-old adults. I saw clean-cut American youngsters. The experience could not have been more refreshing or more reassuring. If these people represent the next generation, our country will be in good hands.

I also came in contact with the cream of the crop of American teachers. What wonderful, dedicated people they are. They are extremely proud of their students. They typ-

ify the meaning of the word "professional."

Each of the students made an oral presentation of his or her experiment. The audience consisted of the rest of the national winners, their teachers, NSTA regional directors, and industry sponsors. A two-way telephone hook-up was established with various NASA centers so that each student's NASA consultant could hear the presentation and ask questions or make appropriate comments. Through all of this, the students remained poised and confident. Questions were answered appropriately and correctly, and some of the questions were really difficult. The students demonstrated a remarkable depth of knowledge about the science of their experiment.

Dr. Glen P. Wilson, Acting Director, Academic Affairs Division at NASA headquarters, and developer of the SSIP, told me that the program will be repeated next year. In fact, the announcement posters have already gone out. I urge each of you who has a son or daughter in high school to contact their science teacher and suggest that they involve themselves in this remarkable program. Participation benefits the student, the teacher, the school, and science education in America. If you want additional information on this subject you can obtain it by writing to: Shuttle Student Involvement Project, National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, DC 20009

William K. Douglas, M.D.
President
Space Medicine Branch

National Library of Medicine sees 25th anniversary

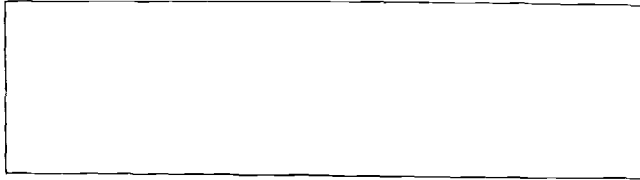
On Aug. 3 the National Library of Medicine celebrated its 25th anniversary. Until that date in 1956 when President Eisenhower signed Public Law 941, the only organized federal collection of medical publications was the Armed Forces Medical Library. The new law transferred that library collection to the new National Library of Medicine.

At first, the new Library was on the Mall in Washington. Six years later it moved to its new building in Bethesda, MD. A new building was added to the site last year—the Lister Hill Center—which will house the Library's research and development component, the Lister Hill National Center for Biomedical Communications.

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The Scientific Program Committee for the AsMA 1982 Annual Scientific Meeting in Bal Harbour, FL, May 10-13, is seeking candidate motion pictures and 3/4 inch TV tapes in cassettes for the meeting's A/V program. Recently released A/V products regarding teaching aviation medicine, physiology, psychology, nursing, bioengineering, and other topics are solicited. Candidate films and tapes for free loan to the Aerospace Medical Association should be mailed for review as soon as possible to:

Col. Donald C. Choisser, USAF, BSC
P.O. Box 214
Randolph AFB, TX 78148-0214

Films and TV tapes will be returned immediately following review. Individuals who know of films of interest to professionals in the fields of aerospace medicine, physiology, psychology, nursing or bioengineering, please telephone Col. Choisser, autovan 487-5271; commercial (512) 652-5271.

Energy management available for business aircraft

The Garrett Corp.'s AiResearch Manufacturing Co. has developed an energy management system for business aircraft—an item previously available only to airlines.

Designed to provide significant savings in overall flight costs, flight times, and fuel usage, the new system, called GEMS, takes

air data inputs, Nav system inputs, and engine-related data, and selects the best altitude and speed and power settings for climb, cruise, and descent.

Gates Learjet, which took part in the development for the last 2 years, will offer the system as an option on its series 30 aircraft.

Editor's Note

Leverett reports on trip to Greece, Israel

Your Editor was very pleased to be invited to serve as an AGARD (NATO) Consultant to the Hellenic Air Force, Athens, Greece, early this summer. My mission was to give lectures to members of the medical staff of the Hellenic Air Force and aircrew members, particularly those flying high-performance fighter aircraft, who may eventually be involved in flying a new proposed air superiority fighter being obtained by the Greek Air Force. I was joined in these lectures by Wg. Cdr. David Glaister, RAF Institute of Aviation Medicine, Farnborough, England, and was quite pleased to have him present to share the load. Our lecture material covered acceleration physiology, high-G maneuvering, G protection, G pathology, and high-G training. Our host for this lecture series was Brig. Gen. I.C.E. Giannopoulos, Surgeon General, Hellenic Air Force General Staff, and Maj. Gen. Achtidas, National Delegate to AGARD (NATO) for Greece. In addition, Col. Gillis, Gen. Giannopoulos' eventual replacement as surgeon general, served as our co-host during the lecture series. Both Dr. Glaister and I were quite pleased to be able to serve NATO in this capacity and it was very encouraging to observe the interest shown these problems by both the operational and the medical staff of the Greek Air Force. Gen. Giannopoulos had been a student at the USAF School of Aerospace Medicine both during his primary course in aerospace medicine at Randolph AFB and during his 6-month ten-

ure at Brooks AFB while taking the advance course in aviation medicine for Allied Medical Officers. It was then in about 1963 that I met Gen. Giannopoulos at Brooks AFB.

As a wonderful climax to our visit, in Athens, Gen. Giannopoulos and his staff invited my wife, Gladys, and me together with Wg. Cdr. Glaister, to a Greek supper on top of M. Likavittos that overlooks all of Athens. This is absolutely a marvelous and beautiful sight at night with all of the lights of Athens twinkling below and the lighted Acropolis staring at you in the distance. It was certainly a night to be remembered and one for which we will always be indebted to Gen. Giannopoulos.

Other parts of our Middle-East tour—this time on vacation—took us on a cruise ship to a number of the Greek Islands, to Cairo for a 3-day visit to the Pyramids, and finally to Tel Aviv for a visit with our friends, Dr. and Mrs. Israel Glazer. He serves as chief medical advisor for the El Al Air Lines and is currently also President of the Israel Society of Aerospace Medicine. We saw many of the wonderful biblical and religious sights available in Nazareth, Bethlehem, Jerusalem, and the area around the Sea of Galilee. Our last night in Tel Aviv prior to returning to San Antonio was highlighted by a reception for us by Dr. and Mrs. Glazer. He invited many of the staff of El Al Israel Airlines to welcome us to their beautiful country. I would like to list their names and associations below because they

certainly enabled us to gain some more insight into their wonderful country.

Dr. & Mrs. Sidney Cohen, Medical Advisor, Aircrew, EL AL; Mr. & Mrs. Rehavia Ben-Shach, Vice President and Israel Branch Manager, EL AL; Mr. & Mrs. Eli Ben-Israel, Vice President and General Secretary, EL AL; Mr. & Mrs. Uri Yashiv, Director Passenger Marketing Division, EL AL; Mr. & Mrs. Arnold Sherman, Director Media & Public Relations, EL AL; Mr. & Mrs. Benjamin Davidai, Chairman of the Board, Arkia Inland Airlines; Dr. & Mrs. Milton Gordon, Civil Air Surgeon; Dr. Amnon Ben-David, Corporate Occupational Physician, Israel Aircraft Industries, and Secretary-Treasurer, Israel Society of Aerospace Medicine.

We were certainly impressed with the industriousness shown by the Jews in Israel and certainly commend them for the tremendous strides they have taken since their freedom as an independent country was achieved in 1948. I know all of those present at the reception spoke with great pride of Israel and it is a universal feeling on the part of all of the Jews we were in contact with during our brief visit in Israel. I would encourage any member of the Association to make that trip at least once in order to see this emerging country and meet their delightful people.

Your editor
Sidney D. Leverett, Jr.