

COMSATSAT NEWS

COMMUNICATIONS SATELLITE CORPORATION

Vol. 3, No. 8

June, 1969



Shareholders Elect 12 Directors At COMSAT 6th Annual Meeting

Twelve COMSAT Directors were elected at the sixth Annual Meeting of Shareholders May 13 in the L'Enfant Theatre.

About 400 persons attended the meeting, at which Chairman James McCormack presided. (Excerpts from statements delivered at the meeting by Mr. McCormack and by Joseph V. Charyk, President, are printed on pages 18-19.)

The meeting, the first held at L'Enfant Plaza, lasted 3 hours and 40 minutes. It was followed by a reception and buffet for approximately 100 employees who helped with arrangements or served as ushers, guides, attendants, messengers and in various other capacities.

Meeting arrangements were under the general supervision of the Office of the Secretary.

Series I (Public) Directors

The Directors elected were:

Philip W. Buchen, lawyer, and adviser to the U.S. delegation to the recent INTELSAT international conference, Grand Rapids, Mich.

Joseph V. Charyk, President of COMSAT, Washington, D.C.

George L. Killion, Vice Chairman of Metro-Goldwyn-Mayer, Inc., New York, N.Y.

Joseph H. McConnell, President of Reynolds Metals Co., Richmond, Va.

James McCormack, Chairman

and Chief Executive Officer, COMSAT, Washington, D.C.

Rudolph A. Peterson, President, Bank of America, San Francisco, Calif.

Bruce G. Sundlun, Partner, Amram, Hahn & Sundlum, Attorneys, Washington, D.C., and Providence, R.I.

Leo D. Welch, former Chairman and Chief Executive Officer, COMSAT, New York, N.Y.

Series II (Carrier) Directors

Harold M. Botkin, Assistant Vice President, American Telephone and Telegraph Co., New York, N.Y.

James E. Dingman, former Vice Chairman of the Board, American Telephone and Telegraph Co., New York, N.Y.

Douglas S. Guild, President Hawaiian Telephone Co., Honolulu, Hawaii.

Horace P. Moulton, Vice President and General Counsel, American Telephone and Telegraph Co., New York, N.Y.

Nine of the 12 Directors were incumbents, elected at earlier shareholder meetings. Mr. Peter-

(See Shareholders, Page 17)

Latest Launch Means Global Service Near

Pacific communications traffic was successfully transferred from the INTELSAT III F-3 to the new Pacific satellite on June 2, and the F-3 began its three-week move to a new station over the Indian Ocean.

The new satellite, the INTEL-SAT III F-4 was launched from Cape Kennedy on May 21 and emplaced in near synchronous orbit two days later after a highly successful apogee motor burn.

With communications traffic in the Pacific now being provided by the F-4, the F-3 is drifting toward its intended station over the Indian Ocean at 62.5 degrees east longitude. It is expected to be on station toward the end of this month, available then for the initiation of commercial satellite service in that region.

3 Stations Initially

The three initial earth stations to work with the Indian Ocean satellite are Yamaguchi, Japan; Goonhilly Downs, England, and in Bahrain.

Later this year, stations in Indonesia, Kuwait, Australia, India, West Germany, Italy and Thailand are due to be completed and begin operations with the satellite.

The availability of satellite service over the Indian Ocean will complete the initial global coverage contemplated by COMSAT and INTELSAT since their inception.

A series of maneuvers conducted by COMSAT on June 2 transferred the Pacific traffic to the F-4 and initiated the F-3 drift toward the Indian Ocean. All the maneuvers were performed by the Paumalu earth station on command from the Spacecraft Technical Control Center in the COMSAT Building

(See Latest Launch, Page 17)

News and Notes From Etam

By Deloris Goodwin and Dolores Buckley

On April 5 last year the Etam earth station office was closed at 1835 K Street, Washington and moved to the site. At that time the building was not completed, the driveway and parking lots were still mud and the Station Manager established his office in the house trailer being used as the construction office. One year has produced quite a change.

Mr. Marcus Rennix, the landscape contractor, is expected to visit the site in the near future. He is to apply fertilizer and ascertain that the grass and shrubs around the station are growing properly. The native dogwood trees made a showy sight.

Nippon Electric Company representatives have returned to Etam. Six workers, headed by Mr. Rikitake, have installed additional MUX equipment.

Scatter Experiment

Wally Mercer from COMSAT, installed equipment for the scatter experience. The purpose of this experiment is to measure the weather effects at 6 GHz. We are transmitting a signal from the earth station outside the receiving band of the spacecraft to support the experiment. A receiving station is located on top of the Kingwood High School.

This system is so set up that it requires no continuous manning. The physics instructor of Kingwood High School, Joseph Sherren, who is also the mayor of Kingwood, is monitoring the receiving station and seeing that everything is functioning properly.

Promotions

Crawford Booth has been promoted from Facilities Mechanic to Facilities Supervisor. Mr. Booth has been acting as the Team Chief for the facilities crew since the resignation of the Facilities Engineer, Mr. O. E. Naylor, in November. Congratulations for a job well done, Crawford!

Promotions have also been announced for Spencer Everly to Technician, John Formella to Senior Technician, Carl Gleason to Senior Technician, Lynn Rector to Technician and Gerald Reeves to Senior Technician. These promotions are the result of the emphasis placed on technician training and upgrade programs at Etam. You can be sure there will

the technicians at Etam.

Overseas visitors recently have included Messrs. Shan of India and Ronto, Keki and Atassi of Hungary and Syria. O. A. Siffredi, Station Manager of the Argentina earth station, visited our station also in March. He discussed actual and potential problems of earth station management with Mr. Carroll. Mr. Siffredi has spent the last five months at the Italian and German earth stations and with Telespazio, who has the overall contract for building the Argentina Earth Station.

Miss Sherry Moran of the Wheeling newspaper visited the site to gather material for a story in that paper. She interviewed Mr. Carroll, the station manager, then Mr. Carroll accompanied her on a tour of the station.

Incentive Awards

Etam Safety Committee incentive awards were presented to Charles Faris and Paul Helfgott for safety suggestions made. Congratulations to "Rhee" and Paul. It was decided by the safety committee that the "hands on" demonstration of the station resuscitator should be conducted approximately once every three months for each employee. The first refresher course has been completed with Mr. Randolph as the instructor.

The Etam COMSAT Wives held a Spring luncheon meeting at Cornish Manor in Oakland, Md. Mrs. Roger Parsons, Mrs. Edmund Wawzinski and Mrs. Crawford Booth each acted as co-hostess for the occasion. The ladies held no meeting from November to March because of the winter weather and hazardous traveling conditions. The next meeting was scheduled for the Arthurdale Inn.

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John Puente

Lab Head Speaks To NSIA Group

John G. Puente, Manager of the Communications Processing Laboratory, recently briefed the Ad Hoc Committee on Tactical Command & Control of the National Security Industrial Association at the Pentagon.

Following general remarks on COMSAT's and INTELSAT's research and development programs, Mr. Puente described current projects of his laboratory, including multiple access systems, voice compression and echo suppression techniques.

Attending the briefing were representatives from the military services, Hughes Aircraft, Ling-Temco-Vought, MITRE Corp., Bendix, North American Rockwell, Bell Labs and RCA.

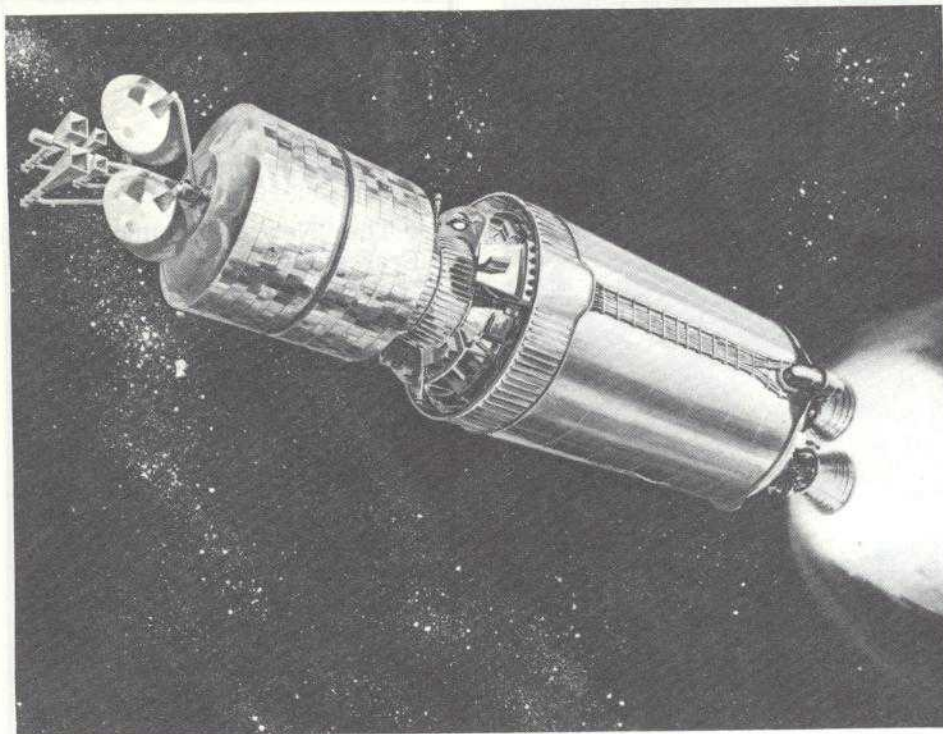
Conduct Training At 3 Earth Stations

COMSAT's Operations Training Department provided courses for personnel at the Andover, Brewster and Paumalu Earth Stations during April and May on modifications and new equipment involved in the earth station improvement program.

The instruction was conducted by Joe Giafaglione of the Training Department, Tim Kolb of Paumalu, Darold Browning of Brewster and Ray Knight of Andover.

The program began at Andover on April 21, at Brewster on May 5 and at Paumalu on May 29.

A program of instruction will be provided at Andover in the area of tracking receiver and servo equip-



An artist's concept of how the INTELSAT IV communications satellite will look in space, propelled by an Atlas Centaur.

Select Atlas Centaur Rocket To Launch INTELSAT IVs

The Atlas Centaur, a large, reliable launch vehicle manufactured by the Convair Division of General Dynamics, has been selected as the launch vehicle for the INTELSAT IV series of satellites.

During April the selection was approved by the ICSC, authorizing COMSAT as Manager for INTELSAT to enter into a launch services agreement with NASA. The agreement is expected to be negotiated during the next several weeks.

Two Atlas Centaurs will be purchased initially, with an option for two additional ones. The first INTELSAT IV launch is planned for early in 1971, with a backup satellite and launch vehicle to be available in case they are needed. Subsequent Series IV launches are tentatively planned for 1973 and 1974.

The Atlas Centaur is expected to cost approximately \$14 million per launch exclusive of range support costs. The launches will take place from Cape Kennedy, where there are existing launch facilities for the Atlas Centaur.

In 11 operational launches since May 1966, the Atlas Centaur has had only one failure. That was dur-

ing an ATS-D launch in August 1968 when the second stage failed to restart, probably because of a cryogenic leak resulting in a frozen hydrogen peroxide line. This, in turn, prevented operation of the propellant boost pumps.

The 10 successful Atlas Centaur shots have comprised seven Surveyor, two Mariner, and one OAO mission.

Extending 130 feet in length, the Atlas Centaur has a diameter of 10 feet. It employs liquid propellants: liquid oxygen and Kerosene in the Atlas stage, and liquid oxygen and liquid hydrogen in the Centaur stage.

It can boost 3,650 pounds into synchronous transfer orbit, well beyond the 2,450 pounds specified as the weight of the INTELSAT IV series satellites.

All INTELSAT launches thus far have used Delta vehicles manufactured by the McDonnell-Douglas Corporation. The long tank Delta being used in the current, INTELSAT III satellite program has a payload capability of approximately 700 pounds into synchronous transfer orbit, approximately one fifth that of the Atlas Centaur.

First Quarter Earnings Net 15c a Share

COMSAT reported net income of \$1,525,000 or 15 cents a share for the three months ended March 31, 1969, compared to \$1,798,000 or 18 cents a share for the first quarter of 1968.

The Corporation said this decline in earnings, as expected, followed the recent expansion of the satellite and earth station system. Increased operating expenses resulting from the expansion are being incurred from the date of operation of the new facilities, while revenue buildup from these facilities necessarily will be gradual.

Approximately \$117,000 of the reduction in net income, or one cent a share, resulted from the 10 percent Federal income tax surcharge.

As of March 31, 1969, COMSAT was leasing to its customers 1,209 fulltime circuits, an increase of 455 over the 754 that were being leased a year earlier.

Operating revenues reached a new high of \$10,222,000 for the first quarter of 1969, compared with \$6,938,000 in the first quarter of last year.

Net operating income for the first quarter amounted to \$137,000, compared to \$372,000 for the first quarter a year ago.

Other income, consisting primarily of interest on cash investments, totaled \$1,388,000 for the first quarter, compared to \$1,426,000 for the first quarter last year.

Ike's First Message From Space Recalled

Former President Eisenhower, who died in March, played a significant role in the initiation of the communications satellite era.

On December 19, 1958, SCORE, an early experimental satellite, broadcast a recorded Christmas message from the President to the world. It was the first voice communication transmitted from outer space.



The basic parts of the "New Communications Era" unit are a record, filmstrip, brochure and teacher's guide.

New Communications Era Study Units Going To High Schools Nationwide

COMSAT has made available 3,000 more sets of the "New Communications Era" study unit for distribution to secondary schools throughout the country.

This is the second phase of a program started last September when 1,500 units were distributed to school systems during the first half of the 1968-69 school year.

The first units were produced to serve metropolitan Washington secondary school systems' requirements, or nearly 400 units. The remaining 1,100 were distributed to systems responding to an announcement of the study guide's availability.

National Distribution

There are approximately 29,000 high schools and about 6,800 secondary school systems in the U.S. By late this year, study units will be in use in more than half the systems.

In addition to the large scale use in the metropolitan Washington area, growing use is being made of the study guide by school systems where the earth stations are located.

For example, 20 units are in use, today, at five earth station locations. Also, ways to best use the unit in Spanish-speaking Puerto Rico are being investigated.

The study unit was developed under the guidance of 16 super-

Public Schools to assure that the material would meet the highest possible educational standards and be accepted by schools throughout the country.

Utilization Survey

A questionnaire was included with the 1,100 study units distributed nationally to determine educator reaction to it, and to obtain relevant information about its planned use by the systems.

Of the 1,100 school administrators who requested the study unit, 310, or 30 percent (a very high response) took the time to fill out the questionnaires from which the following information was taken:

- An average of 30 students will see the filmstrip each time it is shown.

- Schools plan to use the filmstrip in classroom instruction an average of 16 times per year.

- It is expected that an average of 500 students in each school system will see the filmstrip each year.

- Over the average life of each

How To Refer Teachers To Units

The "New Communications Era" study unit consists of a 51-frame filmstrip, a recorded narration, a teacher's booklet which reproduces the frames and text, and a teacher's guide to instruction in science, mathematics, business, history and government courses.

Nearly 400 units have been made available to media distribution centers in the District of Columbia, Montgomery County, Fairfax County, Alexandria and Arlington County School systems.

Since the study units were distributed, many employees have asked for sets to give to their children's teachers. The Office of Information requests that employees have their children refer their teachers to the media centers listed below rather than offering units through the Information Office.

Information is gradually expanding its education cooperation effort, but through school administrators. Study units may be obtained from the following media centers:

D.C. Public Schools—Harry S. Burke, Assistant Director, Educational Media Center, 3rd & H St., N.W., ph. 629-2686.

Montgomery County Schools—Lou D'ovidio, Media Specialist, 850 N. Washington St., Rockville, ph. 762-5000.

Fairfax County Schools—Robert Summers, Media Coordinator, James Lee Media Center, Falls Church, ph. 534-1275.

Arlington County Schools—Dr. Phoebe Knibling, Science Supervisor, 4751 N. 25th St., ph. 558-2887.

City of Alexandria Public Schools—William Dunkump, Coordinator for Math & Science, 418 S. Washington St., ph. 391-6272.

Committee Actions

The Interim Communications Satellite Committee, governing body of INTELSAT, held its thirty eighth meeting in Washington, D.C. from April 16 to April 30.

At the time of the meeting, 68 nations were members of the consortium.

The Committee took the following actions:

- Elected Mr. Carlos Nunez, the Representative of Mexico, as the new Committee chairman.

- Authorized COMSAT, as manager, to execute on behalf of INTELSAT a contract with TRW Systems, Inc. in an amount not to exceed \$531,000 for the modification of the remaining unlaunched INTELSAT III satellites by installing redundant tunnel diode amplifier systems.

- Adopted the following revised launch schedule for the remaining INTELSAT III satellites:

The INTELSAT III satellite (F-4) to be located over the Pacific Ocean with a subsequent relocation of the INTELSAT III (F3) over the Indian Ocean at 62.5 degrees east longitude.

The INTELSAT III (F-5) to be located over the Atlantic Ocean as a second Atlantic INTELSAT III with a planned launch date of July 1969.

The INTELSAT III (F-6) to be launched in November 1969 and employed initially either as a replacement for F-3, or as a spare in orbit.

- Authorized COMSAT, as manager, to conclude negotiations with NASA for the delivery and launch of two Atlas Centaur vehicles for use in the INTELSAT IV program.

- Approved access of the Raisting No. 2, Fucino No. 3, and Colombia standard earth stations for access to the INTELSAT satellites.

- Scheduled the thirty-ninth meeting of the Committee to begin on June 17 in Washington, D.C., and the fortieth meeting to begin in Rio de Janeiro on August 13.



Carlos Nunez

Mexico Delegate To Head ICSC

Carlos Nunez, Mexican delegate to the Interim Communications Satellite Committee (ICSC), has been elected Chairman for one year, beginning June 1.

Vice-Chairman of the ICSC for the past year, Mr. Nunez will succeed John A. Johnson of COMSAT as Chairman. Mr. Johnson was elected Vice Chairman for the coming year.

Mr. Nunez has been a delegate to the ICSC since 1966. He has worked for the Mexican Department of Communications and Transportation since 1948, and is a professor of engineering at the National Polytechnic Institute of Mexico.

Project SOC

COMSAT Trains 23 Young Women

Twenty three young women from the Washington Metropolitan area will begin a 26-week training program at COMSAT on June 16 under Project Secretarial Opportunities Consortium (SOC).

Project SOC is a specialized clerical training program for disadvantaged young women between the ages of 16 and 24 to develop marketable job skills leading to fulltime employment.

It is partly funded by the Department of Health, Education and Welfare under the Manpower Development Training Act. COMSAT has agreed to participate in the program in cooperation with the National Alliance for Businessmen.

The trainees will be placed in 15 different job locations throughout the Corporation. For four hours of the normal working day, they will work at COMSAT under supervision of selected worksite instructors. For the remainder of the day they will continue classroom training which began about 20 weeks ago at New York Avenue Presbyterian Church.

Coordinators for COMSAT's participation in the program are Paul Gaffney, William Lockett and Gene McCarthy of the Office of Personnel.



Inter-American Broadcasting Association members visit the INTELSAT lounge while here to see the SPADE demonstration.



Among employees taking an active part in the new COMSAT Amateur Radio Club, include, from left, seated: Tom Gallagher, Vice President and Perry Klein, President; standing: Jim Casey, Henry Mussey, P. L. Shome, Lyn Heiges and Tom Calvit.

COMSAT Amateur Radio Club Seeks Piggyback Ride for Amateur Satellite

Amateur radio operators in the Washington area, including members of the COMSAT Amateur Radio Club, hope to have a small satellite piggybacked into orbit for use by radio amateurs around the world.

The 35-pound satellite, called Australis-OSCAR V, was built by the Melbourne University Astronautical Society and an affiliated Australian amateur radio club, with the assistance of Project Oscar, Inc. During April, the satellite was delivered to the COMSAT Amateur Radio Club at L'Enfant Plaza, then taken to the Goddard Space Flight Center for qualification tests.

Perry Klein, a member of the COMSAT Technical Staff who is president of the club here, said a nonprofit Washington corporation, the Radio Amateur Satellite Corporation (AMSAT), has been formed and is arranging to launch the satellite on behalf of the Australian builders.

The new corporation hopes to arrange a free ride for the satellite into a low polar orbit, in reserve space sometimes found in U.S. launches when the payload is below maximum for the particular launch vehicle.

Australis-OSCAR V is designed to transmit telemetry data on its orientation, temperatures and battery voltage for two to three months until it is de-orbited.

expire. Anyone with a suitable short wave radio anywhere in the world would be able to receive portions of the continuous telemetry. The satellite would transmit in the two- and ten-meter amateur radio bands.

The satellite is one of several current projects in which members of the COMSAT club are involved. The club now has two amateur radio stations—WA3LOS at the Labs and WA3IGQ which is being set up at L'Enfant Plaza. Cal Cotner is manager of the Labs station.

During the lunch hour each Thursday, Carl Schmitt conducts classes in International Morse Code and radio theory for club members who are seeking to qualify for FCC amateur radio licenses. About two-thirds of the 34 members of the club already have licenses.

Tom Gallagher is vice president of the club, and Lawrence Gray is

Health Unit Discusses Head, Skull Injuries

Head injuries of a minor degree are very common says the COMSAT Health Unit. The ability to distinguish a minor injury from a major one is important.

When an accident occurs and there are clearly visible evidences of injury to the face or skull, there is a possible chance of brain injury. Any severe laceration or similar marks should be seen by a physician. However, the most common clue to potential bad injury is severe headache. There also may be some unconsciousness and there may be unusual behavior.

If a serious injury is suspected, the following procedures should be followed:

1) Lay the patient on his back, raise the head and shoulders. However, if the victim's face is very pale, keep his body entirely flat.

2) Do not disturb him in any way since this may cause elevation of his blood pressure. Do not try of his blood pressure.

3. Give no foods or stimulants of any variety. Do not try to arouse the victim from unconsciousness. If he is asleep, do not shake him or use any other means to eliminate his unconsciousness.

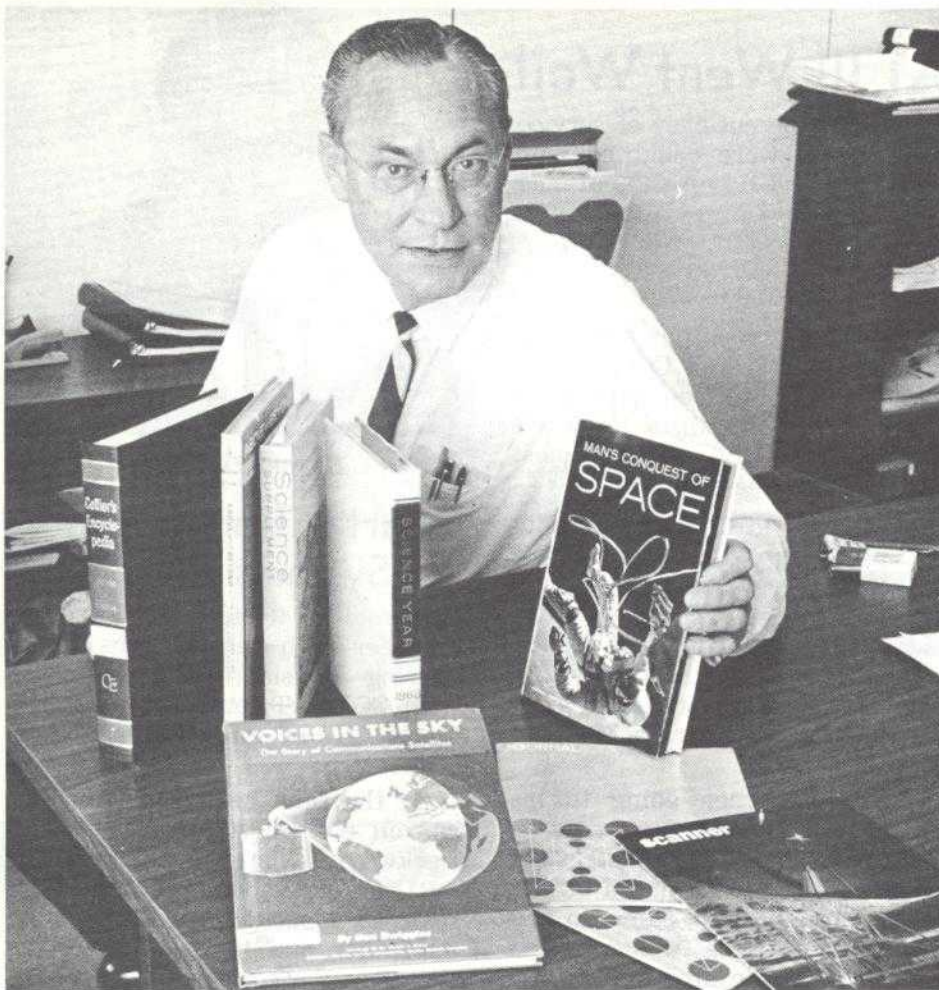
4) Get medical attention. In evidently serious cases, summon a physician to the scene. If transportation is provided make sure the ride will be comfortable with gentle starts and stops. Victims tend to be sick to their stomach and a rough ride can cause vomiting and a rise in blood pressure.

Most minor injuries to the head are best treated by applying ice and anticipating, by taking aspirin, the mild headache that will develop.

COMSAT-INTELSAT And Apollo 10 TV

COMSAT's earth station and INTELSAT's satellites play key roles in the television coverage of the Apollo 10 splashdown, seen in Europe, the Pacific area, Japan, North and South America.

Two TV critics, Lawrence Laurent, Washington Post, and Jack Gould, New York Times, discussed COMSAT's and INTELSAT's roles in the



Many of the reference books in which facts about communications satellites now appear are displayed by Senior Information Officer Steve Smoke.

Communication Satellites Facts Being Included In References, Texts

Updating the nation's encyclopedias and texts on communications is one of the tedious, less dramatic, yet more important activities of the Office of Information because what students and scholars learn about COMSAT, and the evolving global system, is derived largely from books.

Three years ago, COMSAT seldom received more than mere mention in such publications. But today up to the minute reports on the progress of COMSAT, INTEL-SAT and the vast network of earth stations around the world are found in nearly all of the more popular reference sources.

Among major publications containing prominent coverage of COMSAT and its role in the evolving global system are:

- Collier's Encyclopedia, vol. 7, pages 81-83.

- Cowles Comprehensive Encyclopedia, pages 1162-64

- Britannica Yearbook, Encyclopedia Britannica, pages 713-15.

- Croler's Encyclopedia, Science Supplement, pages 313-17.

- Encyclopedia of Aviation and Space Sciences, New Horizons Publishing Company, vol. 3, pages 531-43.

- Science Year, Field Enterprises Publishing Company, pages 296-299.

- Man's Conquest of Space, National Geographic, pages 92-100.

- Voices in the Sky, Golden Gate Junior Books, 80 pages.

In addition to those materials, other educational relations activities include:

Speakers Bureau presentations before school groups, providing special information in response to requests from students and the "New Communications Era" study unit, being widely distributed to school systems throughout the U.S.

From Page 4

New Era

filmstrip, about 6 years, more than 3,000 students in each school system will have had at least one hour of instruction in satellite communications.

Educator Reaction

The 310 educators, who returned the questionnaires included with the first 1,100 units distributed, were highly laudatory of its quality and usefulness.

The Director of Visual Education for a large Indianapolis High School said:

"We will use this filmstrip in Science, Industrial Arts and certain business subjects. It has already been used 9 times. We find it very educational and helpful. The head of the Science Department has all kinds of use for it." This school plans to use the filmstrip 24 times during the 1968-69 school term.

Coast To Coast

The Audio Visual director of Father Judge High School in Philadelphia has this to say:

"Easy to understand. Very informative about technical data. Good audience response." Plans are to show the filmstrip 25 times during this school term to classes averaging 45 students.

A Los Angeles educator said:

"If you have any more material available, please let me know. This film is used in science, history and communications classes."

Similar favorable comments came in from all over the country, including schools in Port Huron, Mich.; Bridge City, Tex.; Ely, Nev.; Pittsburgh, Pa.; Basset, Va.; Griggs, Okla.; Carthage, Tex.; Nenah, Wis.; Colgate, N.Y.; Proctor, Vt.; Allentown, Pa.; North Little Rock, Ark.; King Mills, Ohio; Altamont, Ill.; Eastport, Me.; and Akron, Ohio.

Employee Ads

RIDE wanted: Between Plaza and Chestnut Ridge Apartments, Riverdale Road, Lanham. Sherry Braham, 554-6058.

BEACH house: for rent, by week, Rehoboth Beach, Del. Ideal for one or two families; 5 bedrooms, 3 baths; air-conditioned, fireplace, dishwasher, disposal. Jane Shields, 554-6422.

Cut-over to INTELSAT III Went Well

Jamesburg has been preoccupied recently with the cut-over of service to the new Pacific INTELSAT III satellites. We were delighted with the successful launch of the F-3 Pacific satellite and began the cut-over on schedule, after review of detailed plans with Larry Adams who stopped by on his way to Paumalu to serve as TOCC for the cut-over.

Also, we are especially enjoying the transmission and reception of TV without the requirement for surrender of telephone services for Hawaii and NASCOM services. All operations teams worked on the detailed line up tests required for initiation of INTELSAT III services. This detailed testing kept teams very busy and has given us valuable information concerning the quality of our satellite communications.

Various Visitors

Jamesburg is now working with traffic transfer to the new INTELSAT III F-4. Jamesburg continues to be the interest point for various groups of "official" visitors. Last month Western Union executives and senior officials paid us a visit. This month a group of 17 public relations managers and directors from Pacific Telephone and Telegraph Company and AT&T offices in San Francisco, San Jose, and Sacramento chartered a bus and drove to the site.

Aside from getting lost on the devious Carmel Valley roads, everyone enjoyed the ride. Upon their arrival they were conducted on a tour through the station. Various COMSAT personnel explained the functions of the equipment.

Hershel Dalton, Operation Supervisor, assisted by his able crew, Cecil Jeter, Earl Jones, William Rogers, and Don Tucker, were stationed at various points to explain how an earth station operates.

All of the sub-system prime contractor representatives have left the site. Some of them were here so long it seemed like they should belong to COMSAT. We will all miss Chandler Eato from Raytheon and Hank Watkins from REL.

NEC has a new contingent on station. Mr. A. Shimizu, the coordinator for NEC, is here from Japan with a crew installing new MUX equipment. They will be with us for approximately 10 weeks.

Radio Licenses

Dave Humphreys has added his name to the roster of FCC License holders. All but 6 of our people are now licensed, and all of them are studying diligently and are almost ready to take the exam.

Our First Aid Center came into good use recently when one of the local wild boar hunters had an accident. While hunting in the Los Padres National Forest not too far from the site, a local Monterey Peninsula youth accidentally shot himself in the leg with a Magnum .44 cal. pistol.

One of the men going to his rescue was Harold Steinmetz, a former employee of ours. Harold remembered that we had a basket stretcher on site and came up and borrowed it. This was a good thought, as the injured man was in a remote area and had to be transported off the mountain by hand, by boat across a lake, and then by jeep to where the ambulance was waiting. The evacuation took some three hours and persons in the rescue party said the COMSAT stretcher was a life saver.

British To Study Satellite Propulsion

COMSAT, on behalf of INTELSAT, has awarded a contract for study of improved spacecraft on-board propulsion systems to the British Space Development Company, London.

The fixed-price contract, to be completed in about six months, is \$22,000.

The study will concentrate on ways to heat catalytic beds in hydrazine thrusters. Hydrazine, a liquid, decomposes into gases upon exposure to catalytic surfaces.

The useful life of a communications satellite is limited by the amount of propellant it can carry. More efficient catalytic action would extend a spacecraft's usefulness.



Harold Hoffman

Heart Attack Fatal To Systems Engineer

Harold W. Hoffman, a systems engineer with the Systems Engineering Division, who had been with COMSAT for 3½ years, died March 27, of an apparent heart attack.

At the time he was driving his car on the Baltimore-Washington Parkway while returning from ARINC in Annapolis. Mr. Hoffman, 45, a bachelor, is survived by a brother and two sisters, all in the New York area.

He was a native New Yorker and served two hitches in the U.S. Navy during World War II and later in the Korean conflict. He received his degree in chemistry at Yale University in 1948.

For 13 years before joining COMSAT in late 1965, he was with Vitro Laboratories in West Orange, N.J. There he was involved with a variety of systems programs, including the Indirect Bomb Damage Assessment and Nuclear Detection Systems.

At COMSAT he helped develop a successful program for initiating satellite communications services for aviation, earning the respect of men in aviation in the U.S. and abroad.

His friends at COMSAT were saddened by his untimely death and will remember him for his genuine interest in his fellow workers.

Nippon Contract

COMSAT on behalf of INTELSAT has awarded a contract to Nippon Electric Company, Ltd., of Tokyo, Japan, for three prototype models of a high-speed phase-shift-keyed modulator-demodulator (PSK modem).



William Brauer (back to camera) explains operations of the Spacecraft Technical Control Center to visiting Fellows from the Washington Journalism Center.

News and Notes From Andover

By Joanne Witas

Under the direction of Carl Sederquist, Administrator, seven copies of the "New Communications Era" film strip have been delivered to local high schools, including Gould Academy, Bethel, Maine.

The Science Club and science classes of Jay High School, Jay, Maine, had a tour of the site on April 11. There were 50 students and one teacher in attendance. Their questions concerning communications were answered by Mr. Sederquist.

David L. Durand arrived at Andover on April 14 to assume his new duties as Chief Engineer.

Mr. Durand will report to the Station Manager and will be responsible for the engineering and operations of the communications facility, filling the vacant position of Electronic Engineer and Assistant Station Manager.

Mr. Durand comes to Andover from the Technical Staff, Design Department at COMSAT Headquarters in Washington. Some of the work that he was involved with there included the conversion of the Andover Station from the "Telstar" configuration to "Early Bird," installation and operation of the Brewster transportable and later its move to the Philippines.

Mr. Durand came to COMSAT

after graduating from Indiana Institute of Technology with a BSEE. He was employed from 1960 to 1962 by the National Radio Astronomy Observation, Greenbank, W. Va. He also worked at Cape Kennedy, for RCA from 1958 to 1960.

Judy Buotte, Secretary, and Gerry Michaud, Junior Technician, were married March 29.

John Shannon left Andover on April 6 and Ken Dixon on April 12. John and Ken are going to Thailand to assist in communications via INTELSAT III for the Thailand Government.

A farewell party was held for John on the evening of April 4 at the home of Charles Lepage. All staff personnel as well as Ron Zimmerman from Headquarters were in attendance. Farewell gifts were presented to John and his wife.

On April 11, the "boys" from Andover had a party for Ken at one of the local hotels. Best of luck to both John and Ken in their new assignments.

Andover welcomes Bobby Richardson, his wife Judy and their three children to the area. Bobby comes to COMSAT from the Bath Iron Works. Bobby joined COMSAT on April 7 as a Facilities Mechanic.

News Fellows Visit COMSAT

A group of Fellows from the Washington Journalism Center visited COMSAT's headquarters April 8, to inspect facilities and receive information on the operation of the satellite system.

It marked the first time that center fellowship holders visited COMSAT, and it may become a regular stop for future classes.

Siegfried Reiger, Vice President-Technical, spoke to the group in the Visitors Center and answered a wide range of questions. The group also toured the Technical Center and portions of INTELSTAT on the 3rd floor.

Information Director Matthew Gordon and Senior Information Officer Hale Montgomery conducted the tour of facilities.

Members of the group are active newsmen selected from newspapers and broadcast media around the country. The fellowships permit them to spend about a four-month period in Washington, where they can visit and interview many top government officials, and participate in various seminars on the operation of the legislative, judicial and executive branches of government.

ABC Orders Time For 1972 Olympic TV Transmissions

The American Broadcasting Company has ordered satellite service for the Twentieth Olympic Games in Munich, Germany, more than three years ahead of the event.

The Games are to be held August 26 through September 10, 1972. ABC plans to transmit 4 to 5 hours of programming each day from Munich, via the Raisting earth station and an Atlantic satellite, to New York.

Not knowing what the carrier-of-the-week rotation situation may be in 1972, ABC said, the order for satellite service was sent to AT&T, RCA, ITT, WUI and COMSAT.

ABC has purchased the rights for U.S. TV coverage of the Munich Games. The three years lead time was the longest yet by a broadcaster in ordering satellite service.

Paumalu Dedication

Hawaii's strategic location plus its unique political and social features were hailed as key elements in the islands' role as a communication satellite transmission center at dedication ceremonies April 21 for a new 97-foot Paumalu earth station antenna.

Speaking to more than 400 invited guests and general public attending the ceremony, both Hawaii Governor John A. Burns and COMSAT President Joseph V. Charyk emphasized the islands' assets.

Sen. Daniel Inouye of Hawaii also spoke briefly.

Gov. Burns said "we have long recognized the uniqueness of our geography.

"We are proud, too, of the uniqueness of our political and social structure, a condition most favorable to a variety of progressive activities in science and technology."

Speaking about Hawaii's location today, Dr. Charyk called it "the communication hub of the Pacific."

Dr. Charyk continued: "Although satellite communications are just reaching maturity, they are opening the door to new opportunities for the people of all nations to bridge the gaps of time, distance and understanding among themselves and with other nations."

FCC Chairman Hails Progress

In a congratulatory telegram from the Federal Communications Commission, Chairman Rosel Hyde hailed the "marvelous progress" made in communications satellites. "This means of communication will soon become global," he said.

Even Hawaiian tradition was favorable to the colorful ceremonies, heavily covered by newspapers and television.

Although a brief rain shower darkened an otherwise cloudless sky, tradition says that the rain meant good luck to all on whom it fell.

Sen. Inouye praised satellite communications as an instrument of world understanding. He said: "I would like to see satellite communications become a form of deeper global communion."

(See Paumalu, Page 12)



An outdoor ceremony in beautiful Hawaii.



The famed Royal Hawaiians entertain.



Top communications industry and government officials.

Jamesburg Dedication

A century of communications progress was the unifying theme of the Jamesburg earth station dedication April 25—attended by more than 350 persons amid colorful trimmings of bunting, balloons, a band and brilliant sunshine.

High point of the ceremony was the transmission via satellite of a telegraph signal sent roundtrip across the Pacific.

The signal triggered a mechanism to snap a giant blue-and-white ribbon and drop streamers from the antenna structure looming high above the audience.

One newspaper account termed it a "scissorless spaceage" dedication. The event, which received widespread newspaper and radio-TV coverage, was followed by a luncheon for more than 125 persons at the Carmel Valley Golf and Country Club.

FCC Chairman Sends Wire

The Federal Communications Commission, in a telegram sent by Chairman Rosel Hyde, said the new station makes California "an important gateway for international communications serving the people of many countries."

The principle dedication address was delivered by U.S. Rep. Burt L. Talcott.

He said: "We are always proud to welcome this caliber of new enterprise into our great and growing state. We take special pride in this new facility, because it again projects California into the forefront of modern world communications."

Dr. Joseph V. Charyk introduced Cong. Talcott. Station Manager John Scroggs opened the ceremony with greetings, and joined Rep. Talcott in pressing a telegraph key to trigger the ribbon-breaking finale.

At one point, the audience "eavesdropped" via the public address system on a two-way satellite telephone call between Dr. Charyk and Hawaii Governor John Burns, who spoke from Honolulu via the INTELSAT III Pacific satellite.

First Telegraph Message Recalled

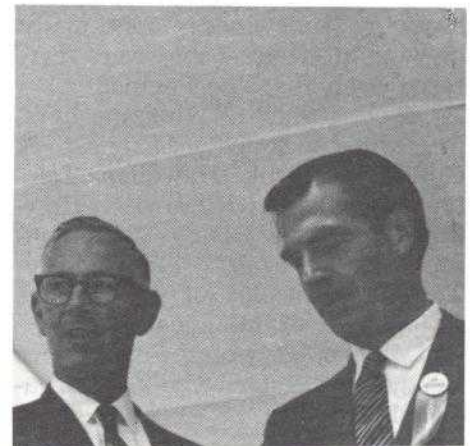
Dr. Charyk set the theme for the Jamesburg ceremony, held at the base of the antenna on the site, (See Jamesburg, Page 12)



A bright, sunny dedication day in California.



Local high school band plays on, before and after the dedication.



John Scroggs, left, and Cong. Burt Talcott push key to break ribbon, which appears to cut them in two.

From Page 10

Paumalu

The earth station is located on 248 acres on the northern tip of Oahu Island, overlooking the Pacific Ocean, about 40 miles north of Honolulu.

World's Largest Facility

The addition of the new antenna makes Paumalu the largest facility of its kind in the world for commercial satellite communications.

The Rev. Abraham Akaka, Pastor of Honolulu's Hawaiihao Church gave the invocation.

In welcoming remarks Glenn M. Vinquist, station manager, said:

"We are proud of the contribution this station makes to new and expanded communications between the people of Hawaii and the Mainland, and the communities of countries that bound the vast Pacific.

"Nearly 50 percent of our employees are native Hawaiians which gives them special pride in this unique facility."

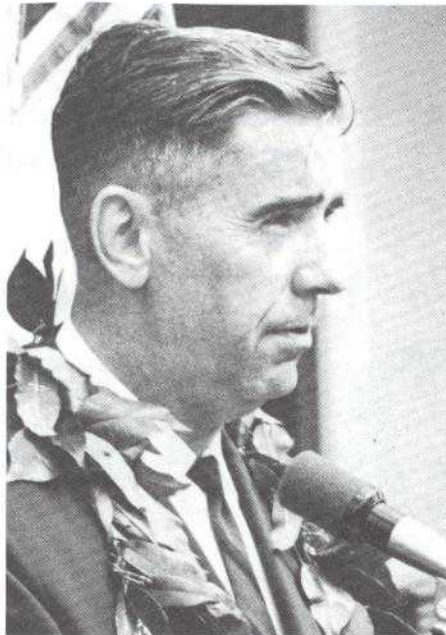
A Bright Signal

In a colorful finale termed "a visual signal" by Dr. Charyk, 300 red balloons were released from the new antenna. Caught up by the strong tradewinds continually blowing in the area, they were scattered oveh the blue Pacific.

Other guests on the speakers' platform included: Douglas S. Guild, President, Hawaiian Telephone Company; Howard R. Hawkins, President, RCA Global Communications, Inc.; Bertram B. Tower, Chairman of the Board, ITT World Communications, Inc.; and Robert E. Conn, Senior Vice President, Western Union International, Inc.



Bandsman talks to Hawaii.



Paumalu Manager Glenn Vinquist.

From Page 11

Jamesburg

which is located in Cachagua Valley high in the Santa Lucia Mountain range. He drew a vivid contrast between the spaceage facility and the first transcontinental telegraph message sent from California in 1861. The message, sent to President Abraham Lincoln, pledged California's loyalty to the union.

"That event in which a nation was joined from one coast to another, from West to East by a wire, was heralded then as a communications revolution," Dr. Charyk noted.

"We think it is historically significant that just a little over 100 years later, an earth station in California can link the United States with many other nations bordering the Pacific through this newest means of communications—satellite communications."

To Australia And Back

Using an authentic telegraph key mounted on the speakers' platform, the signal was sent through the antenna to the station in Moree, Australia, and returned, a roundtrip of about 90,000 miles in six-tenths of a second.

The signal's tone was heard on the P.A. system. Upon its return, it activated a relay to send an electrical impulse that melted a fuse wire holding the ribbon, and also drop 100-foot streamers from the top of the elevated equipment room on the back of the antenna. Station Electronic Engineer Jack Inman devised and tested the circuitry. The climax evoked a burst of applause from the on-lookers.



More than 350 persons toured the Jamesburg facility on Dedication Day.

COMSAT Renews Bid for Authority To Begin Initial Domestic Service

COMSAT has again urged the Federal Communications Commission to act promptly on the Corporation's application for authority to initiate a domestic U.S. satellite service.

COMSAT pointed out that an initial, partial scale domestic satellite service would provide a sound base for testing the types of record services that the General Electric Company had outlined in a filing to the FCC earlier this year. Requirements for such services, COMSAT stated, could be satisfied through its concept of an expanding domestic satellite system.

The Corporation also noted its continuing belief that a multi-purpose system—providing commercial and non-commercial television transmissions, data transmissions, long-line voice transmissions, and the record services outlined by GE—offers the soundest economic base upon which to initiate domestic satellite service.

Willing To Be Interim Owner

COMSAT reiterated its willingness to act as the interim owner of domestic satellite facilities, pending permanent resolution of ownership questions.

In addition, COMSAT indicated its willingness to take the leadership in the development of an overall long-range plan for the U.S. domestic satellite system, giving due account to the developments that have occurred in the two years since COMSAT's pilot program was first proposed.

COMSAT's comments were made in response to a request from the FCC regarding recommendations made by the General Electric Co.

Rosel H. Hyde, Chairman of the FCC, told the Senate Commerce Committee on March 4 that the GE filing was of sufficient importance to invite public comment. He said the FCC intended to reach a decision in its domestic service inquiry following the April 14 deadline for comments on the GE proposals.

'Telemail' Forecast

Among other things, GE postulated a domestic satellite system which by 1980 would consist of five satellites, 175 earth stations and one routing center, serving a market which it estimated would comprise about 20 billion "Telemail" message a year, about 1 billion TWX, Telex and private line teletype messages a year and a remote access computer service

amounting to about \$350 million annually.

Because of the "imponderables" pertaining to Government decisions on ownership and operating authority, GE said, it "could not in the exercise of a prudent business judgment propose to undertake commitments of an investment or operational nature."



Dr. Geoffrey Hyde

Lab Engineer Shares In IEEE Best Paper Award

A series of three papers co-authored by Dr. Geoffrey Hyde of the RF Transmission Lab has been selected for the Best Paper Award for 1968 by the Institute of Electrical & Electronic Engineers' Transactions on Antennas and Propagation.

The title of the papers is "Studies of the Focal Region of a Spherical Reflector."

Dr. Hyde will receive the award at an IEEE symposium on antennas and propagation to be held in December at the University of Texas.

Research on which the papers are based was performed while Dr. Hyde was with RCA's Missile & Surface Radar Division, Moorestown, N.J. Dr. Hyde joined COMSAT's Laboratories in July of last year.

News of People At Headquarters

By Judy Tomlin

Jeff Binckes is a new father. Jennifer Laura, the Binckes' first child, weighed 9 pounds 1½ ounces and was 22 inches long.

Congratulations to De De Run-fola (Procurement) who recently became engaged to Billy Schmidt of West Palm Beach, Fla. A definite date for the wedding has not been set.

Judy Martin was given a surprise party on her last day at COMSAT by all the people in Personnel. Besides a small party with refreshments, Judy was surprised with some beautiful pink luggage as a going away gift.

We're happy to have Joyce James (Information) back after being hospitalized for surgery. Joyce was also at home for two additional weeks recuperating.

Some of our more energetic employees, such as Jean Sephton and Toni Loomis, are getting in shape for the summer. They go to the East Potomac Park golf driving range during lunch.

Despite a broken leg, Larry DeVore was married—in the hospital.

Jan Foster who used to work in Information visited the office recently with her baby girl.

Sandy Smith (Information) went to Daytona Beach for the Easter weekend. She came back blistered and peeling.

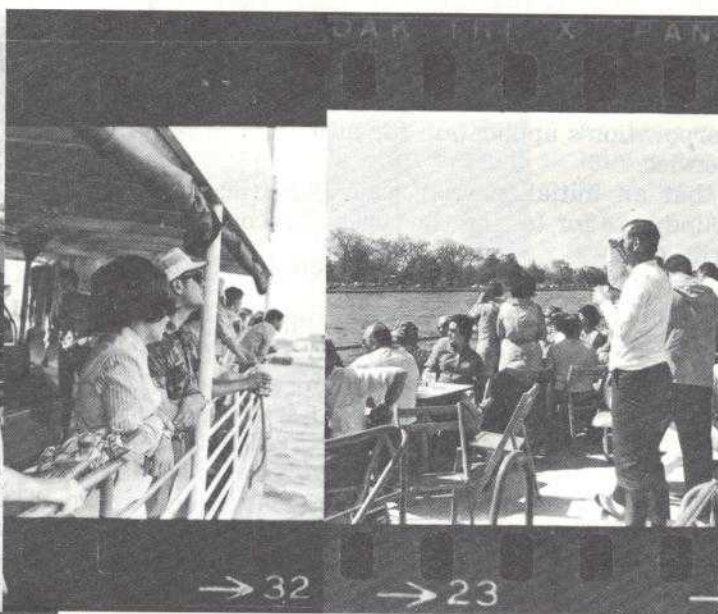
Debby Harris (TCLC) was married April 12 to Leland Johnson. He works for the Government Printing Office.

Bill Billerbeck is a father again. The Billerbeck's ninth child, Robert Patrick, was born March 8, weighed 5 pounds, 9 ounces.

Wagner Named to AMA Unit

Donald E. Wagner, Director, Administrative Planning Division, has been appointed to the membership of the Administrative Management Advisory Committee, American Management Association.

The Committee advises the American Management Association (AMA) on the state of the art of administrative management as well as trends in the immediate and predictable future.

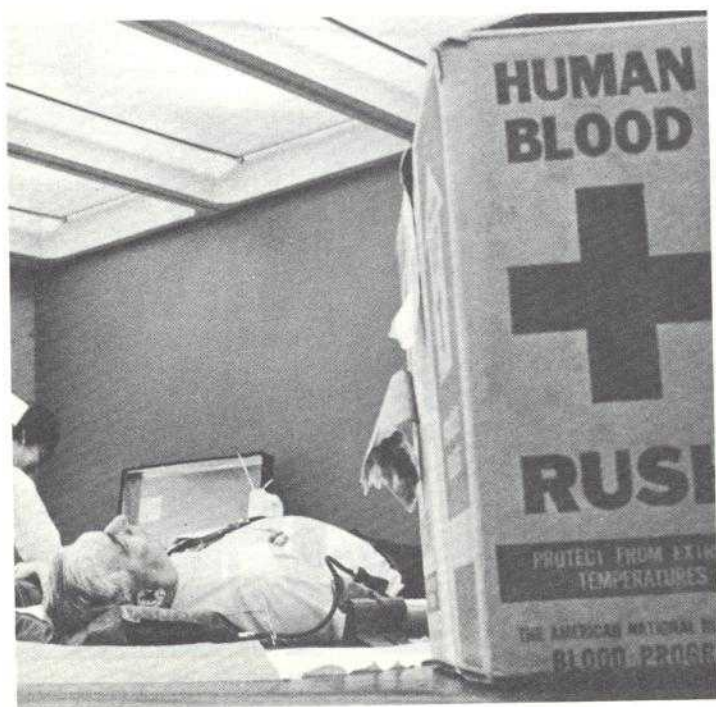


*Cruising
Down
The River
With
The CEA
To An
Amusement
Park*

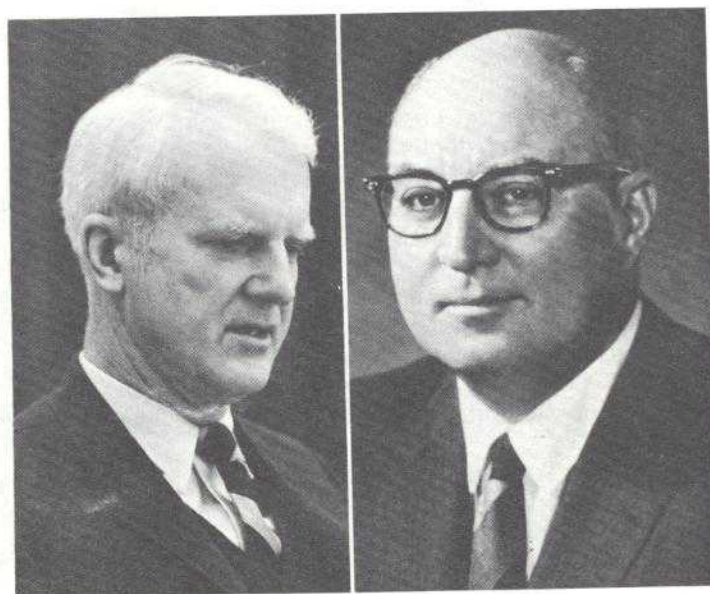




Representatives from 21 countries and INTELSAT, the manager, attended an Operations Conference held earlier this spring in Tokyo. Several officials from COMSAT and INTELSAT, in Washington, participated.



The COMSAT Employees Blood Bank has met its Red Cross quota, thanks to 123 employees who gave blood at the recent Headquarters Donation Day.



Two new COMSAT directors, elected at the Shareholders meeting, are Philip W. Buchen, left, a lawyer, from Grand Rapids, Mich., and Joseph H. McConnell, President of Reynolds Metal Company. Selected as candidates in April, they complete the slate of eight Series I Directors now authorized by the Communication Satellite Act.



Officials of COMSAT's Federal Credit Union have reason to be looking up. The new Board has announced a regular 5% dividend plus a bonus of 1/2% (total 5 1/2%) for the period ending June 30. Sharon Wood holds the notice. New officers are, from left: Larry Kopp, secretary; Jim Kilcoyne, vice president; Dale Knowles, chairman of the Supervisory Committee; Bob Swensen, president, and Bill Kaht, treasurer and general manager.

FCC Approves Alaska Station

COMSAT received authorization from the Federal Communications Commission May 14 to construct a new earth station in Alaska.

The station will be built near the village of Talkeetna, about 90 miles north of Anchorage. The FCC's authorization directed that the facility be completed by September 30, 1970, at a cost not to exceed \$4.5 million.

When in operation, the station will be capable of handling all forms of commercial communications—telephone, data, and television—between Alaska and the continental U.S., Hawaii, Australia, Japan and other Pacific points.

The Alaskan facility will be the seventh U.S. earth station. Still another application by COMSAT for a station on Guam is pending before the FCC.

On May 21 COMSAT issued revised requests for proposals to industry for construction of the station on an accelerated schedule.

ICSC Aide Authors Book On Education

A new book, "If Teachers Were Free," by an ICSC staff assistant raises some interesting questions for the education field and even for American society as a whole.

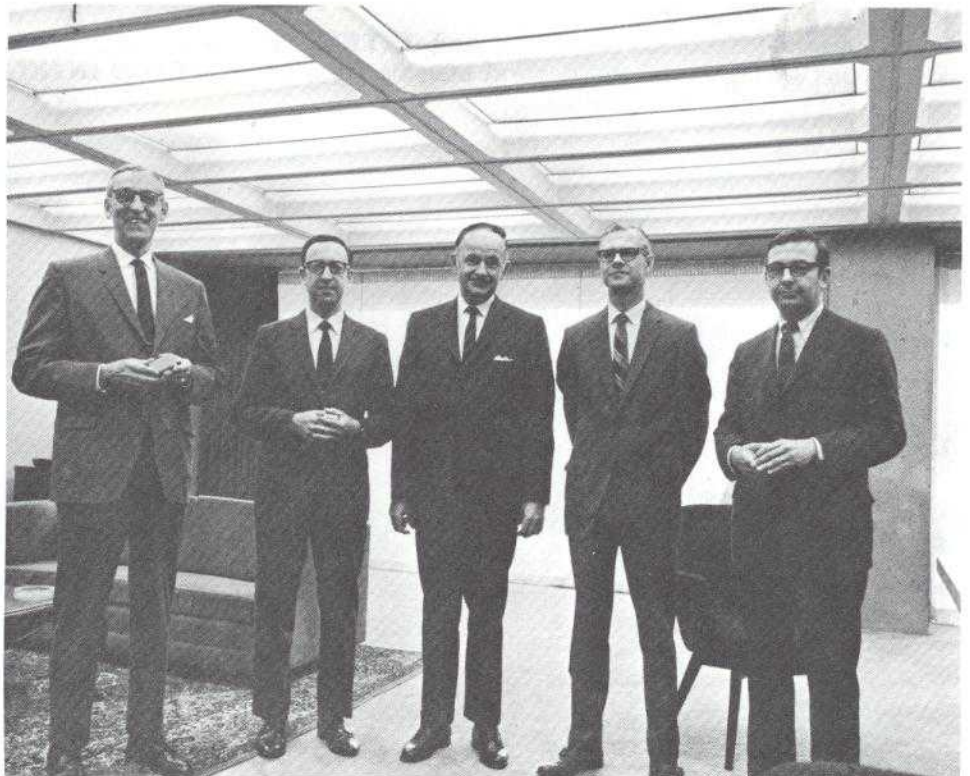
In his 158-page book released April 15 by Acropolis Books, a Washington publisher, Dr. Richard J. Renfield of the ICSC Affairs Department, raises such questions as:

Is curriculum obsolete? What would a school be like if it really tried to individualize instruction? Would it be utter chaos? Would it place impossible demands on the teachers?

A former Associate Secretary of the Educational Policies Commission of the National Education Association and the American Association of School Administrators, Dr. Renfield joined COMSAT in December, 1967.

A multi-linguist, he is a Phi Beta Kappa graduate of Harvard, received his M.A. from Maryland University and his Ph.D. from American University.

Their First Five Years



Four more employees recently received five-year service pins. From left: Donald Graul, Howard Prescott, President Joseph V. Charyk who made the presentations, Paul Troutman and William Berman. The four are the 11th group to receive the awards since COMSAT marked its fifth anniversary of incorporation in February of last year.

From Page 1

Shareholders Meeting Held at Plaza

son was elected in February on an interim basis by Series I Directors to fill the vacancy created by the resignation of David M. Kennedy upon his appointment as Secretary of the Treasury.

Two of the Directors, Mr. Buchen and Mr. McConnell, were selected as candidates during April to complete the slate of eight Series I candidates.

Under Amendment

This was the first year in which eight Series I Directors and four Series II Directors were elected, as authorized by the 1969 amendment to the Communications Satellite Act providing for the annual election of Series I and Series II Directors in numbers reflecting the approximate proportion of the two series of shares to total shares outstanding.

In addition to the 12 elected Directors, the COMSAT Board has three Presidentially appointed members. They are:

Presidential Appointees

Frederic G. Donner, New York, Director and former Chairman of the General Motors Corp; William W. Hagerty, Philadelphia, President of Drexel Institute of Technology, and George Meany, Washington, President of the AFL-CIO.

Mr. Meany is the only one whose term expired at the 1969 Annual Meeting. On April 23 President Nixon announced that he was nominating Mr. Meany for another three-year term, and the nomination was confirmed by the Senate on May 12.

At the Annual Meeting, the shareholders also appointed the firm of Haskins and Sells as the Corporation's independent public accountants, to serve until the 1970 Annual Meeting. Haskins & Sells has served each year since 1963.

Reject Proposal

The shareholders rejected a proposal by certain shareholders for a fixed dollar ceiling on Corporation retirement benefits, which are now based on salary and years of service. The proposal did receive approximately 7 percent of the votes cast and, therefore, qualifies for a place on the ballot at the

next annual meeting if the proponents desire.

Amend Articles

The shareholders also adopted certain amendments to the Corporation's Articles of Incorporation. These amendments will:

(1) Permit shares of the Corporation's common stock to be included in central certificate systems, (2) remove certain restrictions on the voting of shares of the Corporation's common stock, (3) conform the Articles of Incorporation to the Communications Satellite Act of 1962 as amended, and (4) provide for the filling of vacancies on the Board of Directors under certain circumstances by the shareholders.

Numerous questions and comments were addressed to COMSAT management by Series I shareholders.

Many Questions

Numerous questions and comments were addressed to COMSAT management by Series I shareholders. To one question based on an erroneous magazine item, Mr. McCormack replied "I have no idea how the rumor got started; I have no intention of resigning."



Many shareholders took advantage of guided tours and briefings at the Visitors and Spacecraft Technical Control Centers.

From Page 1

Latest Launch

at L'Enfant Plaza.

From May 23 after the F-4 apogee motor was fired, emplacing the new satellite in synchronous orbit, the satellite was allowed to drift eastward across the Pacific until it converged on the F-3 on June 2. Then the commercial traffic was transferred from the older satellite to the newer one. The F-4 satellite's orbit then was stabilized at its intended station between 172 and 186 degrees east longitude.

With this accomplished, a drift rate of 5 degrees a day was imparted to the F-3 by activating the hydrazine control jets aboard the satellite. When the satellite reaches its intended station at 62.5 degrees east longitude over the Indian Ocean, its drift will be halted, again by using the hydrazine jets.

The F-4 is now providing full-time commercial service between earth stations at Jamesburg, Pualu, Ibaraki, the Philippines, Thailand and Australia.

The F-3, despite the earlier failure of a tunnel diode amplifier, provided full service until the traffic transfer. In Indian Ocean service, it will provide full capability for traffic.

The Chairman's Statement

(Excerpts from the remarks of James McCormack, Chairman and Chief Executive Office, before the Annual Meeting of Shareholders.)

The idea of satellite communications has from the beginning been a magnet. With successful execution of the technology, with satellites and earth stations that really work, the idea has become a powerful, practical force in the development of world communications. The remaining key to the success of the Consortium has been organized effort.

Promotion of INTELSAT membership and of the building of earth stations where they make economic sense has been a major program on COMSAT's part. At all times since INTELSAT was formed we have had assigned to the task three or four first-rate staff officers, whose travel schedules have no doubt raised questions with their families as to whether Mother might just as well have married a traveling salesman or a salior.

... I want to note especially the great cooperation we have had from the State Department, without which our endeavor could not have succeeded. The group at State, headed by Mr. Frank Loy, and the U.S. ambassadors and embassy staffs around the world, have been consistently generous in their support of our activity. This teamwork affords an example of what can be accomplished when the interests and abilities of the government are put together harmoniously with those of private enterprise.

A great deal was accomplished at the first session of this Conference (to negotiate definitive arrangements for INTELSAT). I would say that the principal accomplishments were three.

First, there was considerable mutual education on what satellite communications encompass.

Second, a lot of the underbrush of the business aspects of the system was cut away.

Third, the major policy issues, few in number but extremely important, were brought out on the

table so that we all know much better than before how various countries look upon them.

From COMSAT's point of view, these major issues (before the conference) can be boiled down to three:

First is the question of how best to structure some sort of general assembly or senate to provide an appropriate voice for all of the member nations of the consortium.

Second is the question of how best to structure a board of governors to conduct the business of the consortium. In this regard, a central issue to almost all countries is the weight to be given to the U.S. vote.

Third is the question of the manager, in which many countries feel that there must be at least some reduction in COMSAT's manager role.

The paramount objective of the United States in this matter is the preservation of an INTELSAT which will be able in the future, as in the past, to provide high quality, reliable, efficient, and inexpensive satellite facilities for communications on a commercial basis.

COMSAT's primary objective in this respect, as I stated to this meeting a year ago, is to retain the authority to do a good job of completing a proper, orderly global system. This latter of course involves more than just global coverage by the satellites. It involves working into the system a large number of earth stations still to be built around the world. As to the satellites, it involves having in orbit high capacity satellites, flexible in design, with enough reserve capability to accommodate new uses and to meet extraordinary demands.

As for potential new corporate business, we continue to focus on two areas, one of which will be especially familiar to you. That is satellites for U.S. domestic communications.

We continue to hope that the Federal Communications Commission will at a reasonably early date act to permit COMSAT to resume



James McCormack

the forward motion of two years ago.

Circumstances have of course changed considerably in the meantime. Technology continues to advance. Potential customers continue to look at their own futures, and market potentials continue to be revised accordingly. Parties at interest continue to develop their own ideas of what their interests are. For these reasons, we could expect the FCC guidelines to be different from those of two years ago but we are optimistic that they will still provide the basis for a workable and economically viable system.

Our other favorite prospect, also familiar to you, is toward the establishment of satellite communications for airliners, especially on long flights over areas where terrestrial communications are sparse. Here, the complexities are international as well as domestic, and they include political as well as economic and operational factors.

Our principal recent effort in this respect has been primarily jointly with the U.S. international air carriers, represented by their communications service organization, ARINC. Certain foreign carriers are also interested. As of now, I think it fair to say that the prospects look good for an agreement with the airline interests which will be satisfactory to them from the point of view of service available and the cost thereof, and which will be technically feasible and economically viable from COMSAT's point of view.

The President's Statement

(Excerpts from the remarks of Joseph V. Charyk, President, before the Annual Meeting of Shareholders.)

The key goal of establishing a global communications satellite system, as set forth in the Communications Satellite Act of 1962, is now within our immediate view.

The completion of five new earth stations in England, Kuwait, Bahrain, Indonesia and Japan this summer requires the emplacement of a satellite over the Indian Ocean by that time in order to interconnect these stations and to establish truly global fulltime commercial communication satellite service for the first time. Six more stations that will use the Indian Ocean satellite are scheduled to go into operation before yearend.

... Today, there are 25 earth stations operating in 15 different countries of the world, with many more nearing completion. It is expected that a total of 43 stations will be in service by the end of this year and that 26 different countries will have direct access to all forms of high quality communications that the global system of satellites makes economically available to them.

It is interesting, for example, that since the Brazilian station came on the air in February of this year, the traffic between Brazil and the United States has increased by a factor of two over a comparable period in 1968. In the case of Thailand, the number of calls increased from 9200 calls in a six-month period before satellite availability, to 22,400 in a comparable period after the Thai earth station became operational. Significantly, the length of calls also increased from 55,000 minutes to 172,000 minutes. This is typical, I believe, of the pent-up demand around the world for high quality communications which satellites provide.

As the U.S. representative in the 68-nation International Telecommunications Satellite Consortium (INTELSAT), and as manager for the consortium which owns the

satellites in the evolving global system, COMSAT continued to expand both its technical and management capabilities. I believe that COMSAT's achievements as manager for INTELSAT in the design, development, operation and maintenance of the satellite system have been outstanding.

... Pioneering a new and dynamic technology carries with it many risks; it demands quality judgments, rapid response and technical expertise of superior stature. In this respect, COMSAT is indeed fortunate to have been able to assemble technical and operational staffs of superb quality.

Our Atlantic INTELSAT-III satellite exhibits certain signs of thermal sensitivity so we must insure proper orientation with respect to the sun to prevent a loss of antenna lock. Subsequent models contain appropriate internal heating elements.

Our Pacific INTELSAT-III antenna has lost lock on three occasions for brief periods. Although it would be inappropriate to go into the engineering details here, I think it worthwhile to emphasize that we are dealing in a new technology—our scientific and engineering talents must be first rate to analyze and diagnose these anomalies and to introduce corrective measures in the most effective possible fashion. This we have done and will continue to do.

Our Pacific INTELSAT-III satellite also experienced a failure of a component which, although it had no effect on total system communications performance, does require higher output power from the earth stations and reduces our power margin significantly. Subsequent models have been modified to carry redundant components of this type.

To insure the continued healthy growth of communication satellite technology, we are conducting



Dr. Joseph Charyk

studies and laying plans relative to a very important international conference scheduled for June 1971. This is the World Administrative Radio Conference of the International Telecommunication Union which will be convened to consider the broad question of radio frequency allocations on a global scale. . . . We hope that the conference will result in opening up new bands for communication satellite traffic on a shared basis and also on an exclusive basis.

On an even broader base, of course, the ability of COMSAT to provide leadership in the design, development and operation of communication satellite systems depends on its research and engineering expertise. To this end we have attached great importance to the development of our research activities. Our new laboratories, which have been under construction near Clarksburg, Maryland, will be available for occupancy this summer.

At this, our sixth annual meeting, we can, therefore, look backward at immense progress in a very short time; we can look at the present with the satisfaction that comes from accomplishment of an initial mission; and we can look with confidence to the profound impact that this new technology will have on communications of the future, and its potential for expanding social, economic and cultural relations among nations of the world.



COMSAT shareholders and some employees got their first look at the COMSAT Operations Center before and after the Sixth Annual Shareholders Meeting. Larry Covert, Manager of the Center, explains the display board and console. Visitors also toured the COMSAT Visitors Center and Spacecraft Technical Control Center.



Karen Jordan, assistant for shareholder relations, offers assistance and service.



More than 100 employees were on duty for the meeting, including this group of secretaries who served as registration assistants. Others served as ushers, guides, attendants and in various capacities.

COMSAT NEWS

COMMUNICATIONS SATELLITE CORPORATION
August 1969



Hundreds of Millions Watched Astronauts Walk on Moon Via Satellite (Details inside)

Launch Fails But Atlantic III Is Restored to Service

Although the launch on July 25 of a second INTELSAT III series satellite for Atlantic service was a failure, the first Atlantic III was restored to service on August 1.

Preliminary indications were that the launch failure resulted from a malfunction in the third stage of the Delta vehicle, NASA said. A failure review investigation is under way.

The first Atlantic III had ceased communications service on June 29, after about six months of regular service, apparently as a result

of a thermal problem in the despun antenna.

COMSAT engineers continued to monitor and test the satellite. On July 29 they found, during a test, that the despun antenna was able to be moved, allowing it to be pointed towards the earth, its normal position for communications service.

On August 1, service was re-established on the satellite with 132 voice circuits between Andover and Cayey and 132 voice circuits between Andover and Raisting.

In addition NASCOM service be-

tween Andover and Ascension and Grand Canary Islands was shifted from the Atlantic INTELSAT II to the III.

The first TV via the restored satellite was coverage of President Nixon's visit to Rumania on August 2.

After several days of monitoring this service, additional service was shifted from Early Bird to the III.

The satellite had shown a thermal problem with the despun antenna shortly after its launch last December. This did not affect communications performance at that

(Continued on Page 2)

From Page 1

Atlantic Service Resumed by III That Went Out

time, but steps were taken to modify subsequent satellites in the series to correct the thermal problem.

Some COMSAT engineers believe it is possible that the thermal problem may have been aggravated by the fact that the satellite's position is farthest from the sun in early July. After the peak of this period passed, thermal conditions changed, helping the antenna to operate again.

Studies Under Way

Studies are under way to see whether in-orbit adjustments on the satellite are possible to prevent a recurrence.

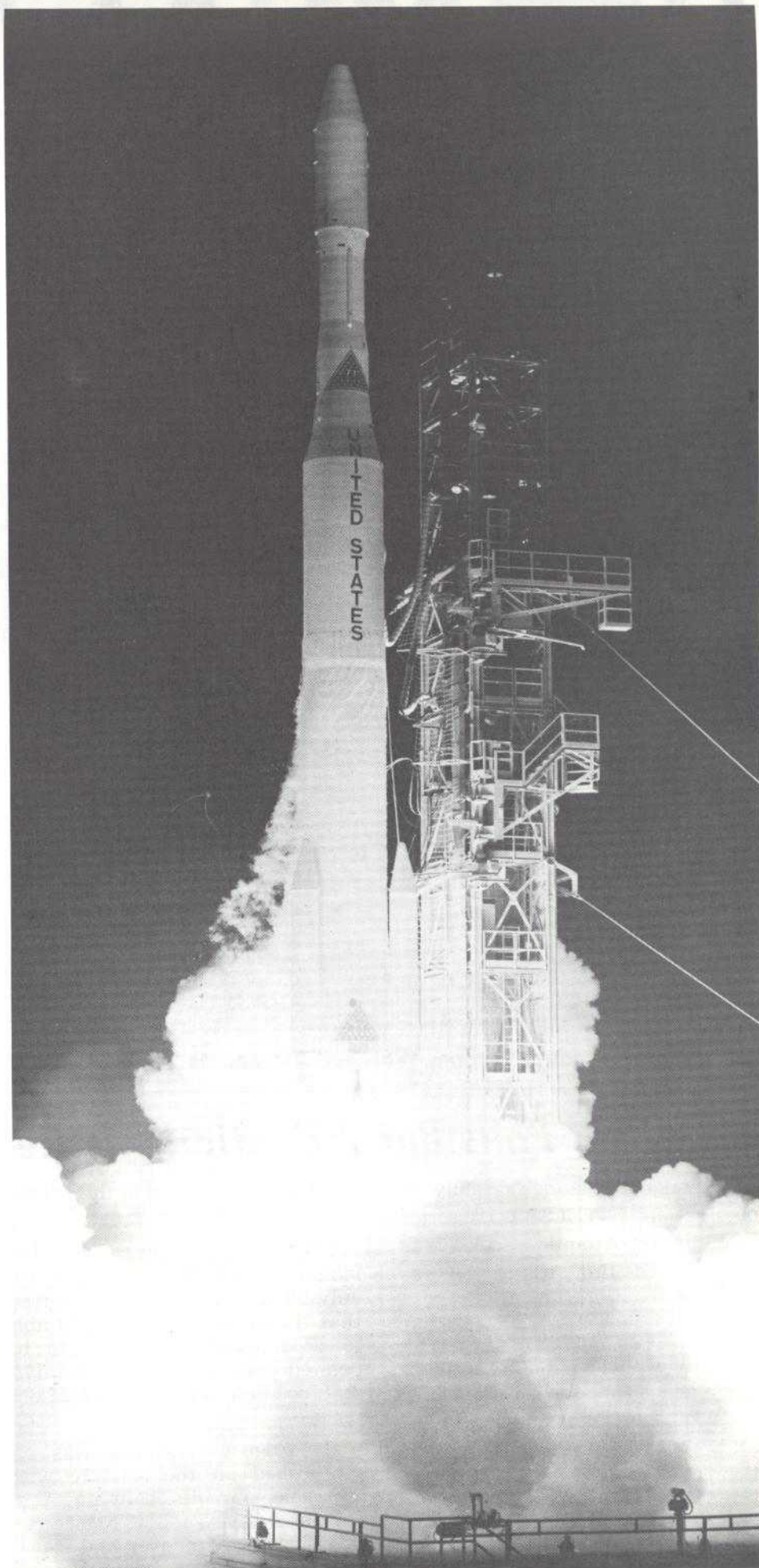
When the III ceased operation June 29, Early Bird was brought back in service from orbital retirement. Early Bird, working with the Series II satellite over the Atlantic, restored the major portion of the service which had been handled by the III.

The next launch in the III series, tentatively planned for this fall, necessarily must await the completion of an investigation into the July 25 launch failure.

Orbit Too Low

The satellite was intended for a transfer orbit with an apogee of about 22,700 miles and a perigee of about 165 miles. However, it achieved an orbit of merely 3,000 miles at apogee and 148 miles at perigee. Therefore, the satellite is not in position for transfer to synchronous orbit and is not usable.

During final preparations for the launch several technical problems were detected in the vehicle. Although NASA took corrective actions to assure that the vehicle was flightworthy, the launch did not succeed.

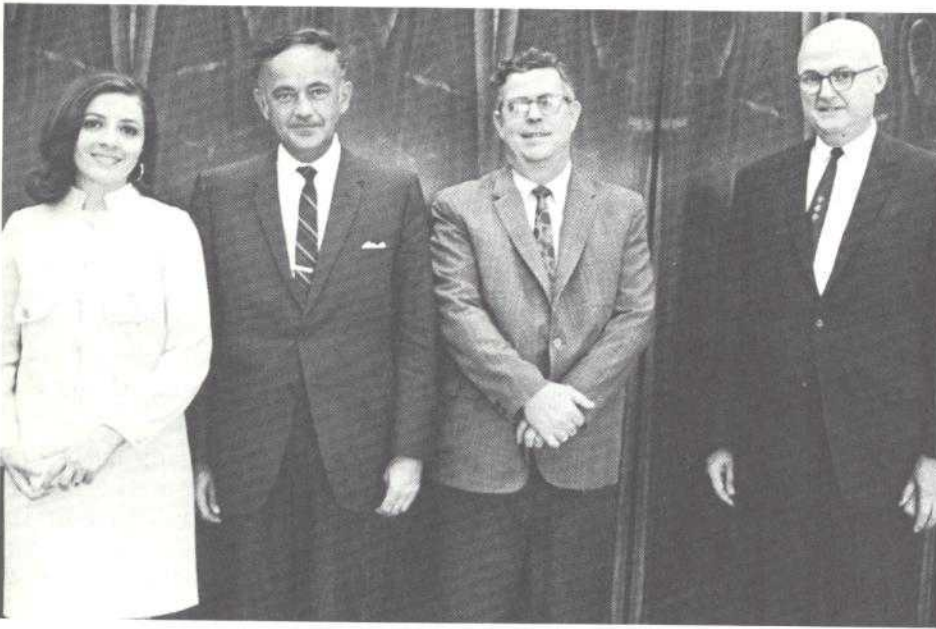


Delta No. 71 Lifted off on schedule on July 25 but the mission failed a few minutes later.

August 1969—Vol. 4, No. 1
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Matthew Gordon
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Their First Five Years



The list of five-year employees continues to grow. Receiving pins from President Joseph V. Charyk in July, were, from left: Miss Juanita Cellini, Office of Information; Dr. Charyk; Robert Tuohy, Operations, and Carl Reber, Financial Projects Division.

Apollo II TV Via Satellite Seen on Five Continents

Television coverage of the historic Apollo 11 mission was transmitted via satellite to more than 40 countries on five continents.

By the time the astronauts left the moon to return to earth, 132 programs—totaling 195 hours of satellite transmit time—were relayed via satellite over the Atlantic, Pacific and Indian Oceans.

Subsequent events in the mission, including the splashdown, accounted for more than 35 hours more.

Reports from around the world confirmed that the TV signals received via satellite were of high quality.

An estimated 500 million persons viewed the unparalleled spectacle of astronauts walking on the moon. Live coverage of this event to five continents was accomplished via the following paths:

How Camera Used

The TV camera used by the astronauts was connected by cable to the Lunar Module which transmitted the signal to NASA's big dish at Goldstone, California. Portions of the TV signal came down at the Parkes, Australia, antenna and were relayed via the Pacific INTELSAT III to Jamesburg.

From Goldstone and Jamesburg the signal was relayed via ter-

restrial facilities to Mission Control Center at Houston. From there the TV signal went to TV networks in New York who distributed it by land lines throughout the United States and parts of Canada and Mexico and also to the Jamesburg and Etam earth stations.

The Etam station transmitted to the INTELSAT II over the Atlantic for relay to Puerto Rico, Argentina, Brazil, Chile, Panama and Peru.

The Jamesburg station transmitted the TV to the Pacific INTELSAT III for distribution across the Pacific and onward to Western Europe.

Australia, the Philippines, Hawaii, Thailand and Japan received coverage from the Pacific III via Jamesburg.

Japan—Two Roles

In Japan the coverage was received at Ibaraki and distributed nationally. It also was relayed to the new Yamaguchi station for transmission to the Indian Ocean satellite which transmitted to the second antenna at Goodhill

Offer Savings Bonds By Payroll Deduction

In cooperation with the U.S. Treasury Department, COMSAT is again offering employees a special opportunity to sign up for the purchase of U.S. Savings Bonds and Freedom Shares on the payroll deduction plan.

The bonds will be series "E" which pay 4¼ percent rate of interest. However, President Nixon proposed to Congress in early July that the interest rate be changed to five percent. The President's proposal, endorsed by the Secretary of the Treasury, David Kennedy, has the support of many members of Congress.

Those who purchase bonds under COMSAT's payroll deduction plan will also be eligible to buy Freedom Shares. They mature at a higher interest rate when held to maturity—four and one-half years after issue.

Downs, England.

Goonhilly fed the programming to the European Broadcasting Union which distributed to about two dozen nations in Europe. The Soviet Union took some of these feeds, but apparently did not re-broadcast them publicly, although most of the Communist bloc countries did broadcast portions of the coverage.

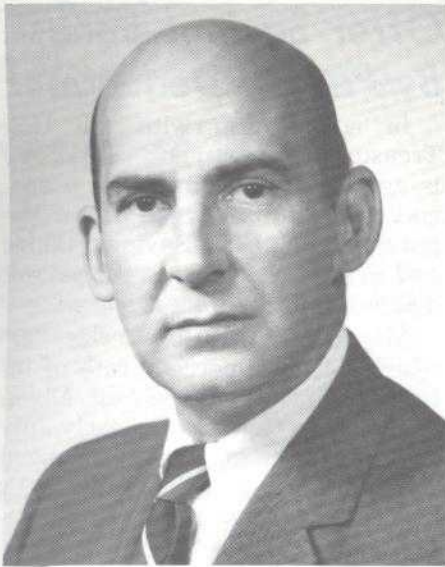
The double hop coverage to Western Europe was necessary in view of the June 29 failure of the INTELSAT III satellite over the Atlantic and the limited capacity available in the Series II satellite over the Atlantic.

Since the earth station in Venezuela cannot "see" the Atlantic INTELSAT II, that nation received live coverage via an ATS satellite over the Pacific operating with the Brewster Flat earth station.

To provide TV coverage for Alaska, the military made available an earth station in California and a Defense Department satellite which transmitted to another military earth station in Alaska.

Battery Cells

COMSAT on behalf of INTELSAT has awarded a \$43,991 contract to Whittaker Corp. of San Diego for the design and fabrication of ten rechargeable battery cells made of lithium, the lightest



Frederic M. Mead



Robert B. Schwartz

COMSAT Board of Directors Elects New Corporate Secretary, Treasurer

Frederic M. Mead was elected as Treasurer of the Corporation by COMSAT's Board of Directors.

For the past five years, Mr. Mead has served as Comptroller.

The functions and responsibilities of the Office of Treasurer will remain under Financial Vice President A. Bruce Matthews who for the past three years has also served as Treasurer.

Prior to joining COMSAT Mr. Mead was comptroller for Malinckrodt Chemical Works, St. Louis. Before that he was with the public accounting firm of Price Waterhouse & Co. Inc.

A native Midwesterner, he grew up in New Jersey. He is a graduate of New York University and a Certified Public Accountant.

He and his wife and their two children live in Falls Church, Va.

Satellite Heat Pipe Contract Is Awarded

COMSAT on behalf of INTEL-SAT has awarded a contract to the Donald W. Douglas Laboratories of McDonnell Douglas Corp. to design and construct a prototype constant temperature heat pipe and space radiator. The 8-month contract is for a fixed price of \$58,499.

Heat pipe and space radiator assemblies will be used in the future to stabilize the temperature of heat-generating electronic devices

The Board of Directors has elected Robert B. Schwartz as Secretary of COMSAT.

In conjunction with his duties as Secretary, Mr. Schwartz also will serve as Counsel for Corporate Affairs.

He succeeds Bruce S. Lane, who served as Secretary and Assistant General Counsel for Corporate and Tax Matters since last January. Mr. Lane resigned to become General Counsel of the Corporation for Housing Partnerships in Washington, D.C.

Both changes were effective July 22. Mrs. Lena B. Lockett, Secretary to Mr. Lane at COMSAT, also resigned to continue as his secretary in his new job.

Mr. Schwartz, who joined COMSAT 3½ years ago, had been Assistant Secretary for the past 2½ years.

Before joining COMSAT, he was an appellate and trial attorney with the National Labor Relations Board in Washington.

Mr. Schwartz, 32, is married to the former Pushpa Nand of New Delhi, an economist. They have two children.

He is a graduate of Harvard Law School and Tufts University, where he was Phi Beta Kappa, graduating magna cum laude. He did graduate work in international

TDMA Design Contract Goes to COMSAT Labs

The U.S. Army Satellite Communications Agency (USASCA), Fort Monmouth, N.J., has awarded a contract to COMSAT Laboratories for the conceptual design of a time-division multiple access (TDMA) system for application in the Defense Communications Satellite Program.

COMSAT has already performed pioneering research in the field of TDMA which has resulted in the MATE experimental terminal and MAT-1, a 700 channel time-division system.

The new contract, which became effective July 1 and will extend through March 1970, will be managed by William G. Schmidt, Manager of the Switching and Multiplexing Techniques Branch of the Communications Processing Laboratory. The study will be conducted in Mr. Schmidt's branch and the Modulation Techniques Branch, managed by Andrew Werth.

The contract is for \$92,500.



William G. Schmidt

Personal Notices

HOUSE, Barcroft area of Arl., semi-detached, furnished. Rent 9-10 mos. beg. Sept. Patio overlooking woods, living room, bedroom, kitchen w/washer, guest/study room. Air cond. Single person or couple preferred. \$160 mo. including utilities. Betty Glazer, 554-6826.

1968 VW Sedan for sale. Red. 15,000 mi., heater, snow tires. excellent condition. \$1595. Avail Aug. 30. Betty Glazer, 554-6826.



John Falvey with one of the new computer components.

New IBM 360 COMSAT Computer Eight Times Faster Than Older One

COMSAT's new \$2.4 million computer has been installed at the Labs and will go into full operation shortly.

The 360/65 computer purchased from IBM is eight times faster than the IBM 7040 computer at 1835 K Street, which it will replace.

In early August the new computer will be permanently installed in the computer room at the new Labs facility. Temporarily it is installed in the drafting room there.

COMSAT makes extensive use of

INTELSAT IV Positions

The ICSC has approved the following positions for INTELSAT IV satellites: Atlantic Ocean, 335.5 degrees east longitude; Pacific Ocean, 174 degrees east longitude; Indian Ocean, 62.5 degrees east longitude. The action does not prejudice a future decision on the number of Series IV satellites to be

electronic data processing in the monitoring and control of satellites, telemetry analysis and R&D programs. The Corporation also has automated the processing of a number of finance, planning and administrative functions.

Faced with increasing demands for EDP services, COMSAT decided to relinquish its leased IBM 7040 equipment and install a new system adequate for projected needs.

Teletypes and telephone lines connect the computer facility with remote-output terminals at COMSAT headquarters at L'Enfant Plaza.

Seventeen persons are now working in the computer department. James D. Rinehart is Director of the Computer Division and Richard Smith is the department manager in charge of computer

17-Year-Old Wins First COMSAT Scholarship Aid

Communications Satellite Corporation has instituted a new scholarship program open to the sons and daughters of COMSAT employees.

The first scholarship award was won by Joseph John Charyk, the younger son of Dr. and Mrs. Joseph V. Charyk. Dr. Charyk is President of COMSAT. The 17-year-old winner recently was graduated from Landon School in Bethesda, Md., and plans to attend Northwestern University in the fall.

Qualifying exams for the scholarship are conducted by the independent National Merit Scholarship Corporation. Results of the testing are certified to COMSAT by the NMSC, and no employee or officer of COMSAT plays any part in the selection.

The COMSAT Scholarship Program will be continued on a yearly basis as part of the National Merit Scholarship Program. Any child of a COMSAT employee may become eligible for the four-year special COMSAT scholarship award, covering the undergraduate years. The amount of the award is based upon the individual winner's financial needs, and for this reason the amount is not publicly divulged.

The scholarship may be used at any accredited college or university in the United States.

1968 Annual Report Wins Merit Award

COMSAT's 1968 Annual Report to Shareholders has won a Merit Award in the Financial World magazine annual competition.

The report is now being judged in the best-of-communications-industry competition. COMSAT won a trophy for its 1968 Report on the Annual Meeting of Shareholders which was judged best in its industry.

Post-Meeting Report

The Report on the 1969 Annual Meeting of Shareholders has been mailed to the Corporation's more than 130,000 shareholders of record.



Andover employees ate steaks, hamburgers and other picnic fare and played various games at their CEA spring family picnic on June 14 at Interval Farm Camp Site, Mexico, Maine.

News and Notes From Andover

Brazilian Visitors Tour Andover Site

By Joanne Witas

On May 15 the Andover Earth Station was visited by four distinguished guests from Maine's sister state, Rio Grande Do Norte, Brazil. The visitors were Paulo Macedo, Tourism Director and newspaperman, Riold Grande Do Norte; Dr. and Mrs. Guedes and their daughter, Miss Regina Guedes, also from Rio Grande Do Norte.

The visitors were accompanied by Robert Elliot, from the Department of Economic Development in Augusta, Maine; Ernest Bracey, FAA, Augusta; and Joseph E. Gordon from the Maine Adjutant's office who acted as interpreter.

The group was received by the Station Manager, Donald Fifield, and given a conducted tour by the Chief Engineer, Dave Durand, and the Station Administrator, Carl Sederquist.

Included in the tour was the new audio/visual presentation at the visitor's center.

The visitors asked many questions and talked with Mr. T. Nagumo, coordinator for the Nippon Electric contractor team from Japan.

Blood Bank

Technicians from the Rumford Community Hospital were at the station on May 29 to do blood typing for the "Walking Blood Bank." Nineteen employees signed up for the "Walking Blood Bank."

The fishing season arrived again and the Andover guys were ready

Arness, Carl Sederquist, Ray Juhl, Ralph Summerton, and Mike O'Hara, accompanied by the red-head Miss Sharon went on an all-day fishing trip to Aziscoos Lake, which is the northern most lake of the Rangeley chain. The party left the Rumford-Andover area at 3:30 a.m. They caught seven trout and four salmon, lost five lures and "Bart" lost 100 feet of line trying to land an outboard motor. They returned, sunburned and tired, at 10 p.m. A good time was had by all and Miss Sharon was put back with the other fishing tackle until the next fishing trip!

Tracker Retired

The quad-helix command tracker used throughout the Telstar, Relay and Syncom early days of satellite communications experiments as well as the days of Early Bird, is being retired. The quad-helix has been dismantled and is awaiting shipment to the COMSAT Labs. The precision tracker, used for Telstar, has also been dismantled and will be shipped to the Labs.

The past few months brought a varied requirement for the TT&C station. The Big horn carried the NASCOM traffic during the criti-



The TT&C Supervisor, Chuck Lepage, had a surprise when he stepped into the transportable antenna feed house. One of the Senior Technicians, Phil Morales, took seriously a note left in the log book to clean the area up. Over the weekend, Phil painted the floor, doors and Par-amps in the feed area.

Chuck Lepage's sons, Michael and James, represented the Rumford Mechanics Institute extremely well in the state open gymnastics meet held in Bangor on May 3. James took third place in the side horse event and Michael took

News and Notes From Jamesburg

Supervisor Works on Recovery Ship

Cecil Jeter, Team "A" Operations Supervisor was selected as COMSAT's representative to go on the recovery ship "Hornet" for the Apollo 11 splashdown. We are certainly proud and rather envious of him.

In Mr. Jeter's absence, William Hartke, Senior Technician was appointed as acting Operations Supervisor.

Dave Humphreys who was recently promoted to Senior Technician was appointed as acting Operations Supervisor of Team "B" in the vacation absence of Mel Stauffer.

Other promotions on Station are: Larry Baley to Technician, Harold Ford to Senior Technician, and Harold McClure to Senior Facilities Mechanic.

Special Events

Nineteen COMSAT and AT&T wives met at the Rancho Del Monte Country Club on June 11 for a luncheon and general get together to plan future social activities for the ladies. Apparently the luncheon was a success as they have planned such activities as bridge, bowling, tennis, softball, volleyball and basketball, and some possible tours they might make as a group.

The July meeting is being planned and Al Eleshio's wife, Barbara is working out all the details.

Interesting people

Spring and summer is always a busy time here in our beautiful Carmel Valley. Jimmy Clark is very active in the Little League Farm Team as coach to the "Indians". It looks like they will wind up the season winning the league.

Al Eleshio is a real honest-to-goodness western "Cowboy". Al herds cattle for roundups and ropes at the Rodeo's on the week-ends.

Patricia Blatnik and husband, Hank are in the process of building a new house in the Village. Pat says they hope to move in by August 14.

Hospital

Earl Jones had a touch of bronchitis which put him in the Fort Ord Hospital. His friends wished him a quick recovery.

Vacations & Graduations

June is always a busy month for vacations and graduations. Our Station Manager, John Scroggs and family, took a motor tour through northern California. One

gon and Washington visiting family on their way. Don Tucker and family took a motor trip to the east, New York. Don also visited his brother in Washington, D.C., and planned to visit COMSAT Headquarters and the COMSAT Labs.

Warren Neu did not have much luck on his vacation. Warren and wife Thelma drove up to northern California for some golf and sunshine . . . nothing but mist and rain.

Lots of graduations—Jim Harding's daughter Holly graduated from Carmel High; Mel Stauffer's daughter Debra from junior high; Stan Nubin's daughter Cora from Seaside High, Cora will attend Monterey Peninsula College; Cecil Jeter's daughter Ruth Ellen graduated from Salinas High and will attend Hartnell College this fall. Jack Inman's daughter Marian graduated from Washington Junior High. Harold McClure's son graduated from Pacific Grove Junior High. Roy Scheiter's son Mark Steven graduated from junior high.

Visitors

We had some very interesting visitors to our station in June. A Chinese Delegation representing C.G.R.A. of Taiwan, accompanied by a Nippon Electric coordinator, made a visit. Accompanying An-Kang Cheng, Chief Engineer, were several engineers and technicians. Three of the technicians were ladies. The tour was conducted by Station Manager Scroggs.

A Sylvania Electric Technical Group of six engineers headed by Matt Van Gorder also made a visit. Mike Downey, Assistant Station Manager, conducted the tour.

Seventy members and wives of the local Mechanical Engineers toured our Station June 4. Station Manager John Scroggs and Facilities Engineer, Walter Robinson conducted the tour.

Humor

Speaking of visitors, we recently had a visitor from the East Coast who had never been to our Earth Station at Jamesburg. Well . . . as you might have heard Jamesburg

Jamesburg Smoothly Transfers Service

On June 1, Larry Cisneros' team at Jamesburg successfully transferred all COMSAT traffic from the INTELSAT III F-3 to the new Pacific satellite, the F-4.

Bill Scott at the Antenna Control Unit acquired the new satellite in less than a minute. It was a smooth and rapid transfer, and the Jamesburg staff was pleased to be operating with the new satellite.

Computer Analyst Presents R&D Paper

Dr. T. S. Chidambaram, an operations research analyst with the Computer Division, presented a technical paper to the annual meeting in June of the Joint Operations Research Society of the American Astronautical Society in Denver.

The paper gave a mathematical analysis of the situation faced by a research and development manager who has a limited budget to support many different approaches to a technical problem.

The subject was "Optimality of Full Funding Strategies in R&D Allocation Problems."

Dr. Chidambaram is working on mathematical models as an aid in helping COMSAT to decide satellite replacement strategies.

is really not a town, in fact Jamesburg has one (repeat, ONE) house which used to be a stagecoach stop in the late 1800s. Now in the summer this house does have a little soft drink stand where they will serve you a cool soft drink if you blow your horn for service. That is, maybe they will.

Our Eastern visitor turned toward Jamesburg when he was on his way to our Station early this winter . . . he drove up the road until he came to the house which said Jamesburg and like the sign said, he blew his horn. Nothing happened so he blew his horn again, still no one appeared.

Our visitor decided this definitely was not where the Station was located. He then turned his car around drove about four miles the other way and found us. We go on record as not having lost anyone yet.



Construction is nearing completion on the new COMSAT Labs at Clarksburg, Md.

COMSAT Labs Expect to Move During September

COMSAT Laboratories expects to move from its downtown locations on K and L Streets in Washington to its new building at Clarksburg, Md., in early September.

After being delayed by a series of local strikes, the new Laboratories facility in suburban Maryland is now nearly ready for its occupants.

According to W. I. Fallon, Manager of Administrative Services for the Labs, the move will be accomplished over several September weekends.

COMSAT has made arrangements with Paxton Van Lines for the move. The Paxton organization moved COMSAT's headquarters into L'Enfant Plaza last year.

Some major equipment is already being installed at Clarksburg.

Because of the presence of so much valuable equipment, the site is now guarded. Visits to the new building should be on official business and during normal working hours.

Lucius D. Battle Gets Honorary Doctorate

Lucius D. Battle, Vice President-Corporate Relations, received an honorary Doctor of Humane Letters degree from Florida State University, at the Tallahassee school's June commencement.

The degree was presented to Mr. Battle as an "accomplished diplomat, distinguished administrator and student of history and the arts."

Mr. Battle joined COMSAT about a year ago after retiring from the U.S. foreign service. During the later years of his foreign service career he was ambassador to the United Arab Republic, and was Assistant Secretary of State for Near Eastern and South Asian affairs.

Mr. Battle received his bachelor's degree in 1939 and law degree in 1946, both from the University of Florida.

F-5 Out of Storage

The ICSC has instructed COMSAT as Manager for INTELSAT to initiate action to rehabilitate the INTELSAT II (F-5) by the date of the next Series III launch.

The INTELSAT II (E-5) has

Labs Library To Show Employees' Art, Crafts

The Labs library plans to exhibit art work and crafts of employees and their dependents following the relocation to Clarksburg.

Labs employees were given a preview of what is to come at Clarksburg this summer when technician Arthur Standing exhibited some of his charcoal drawings at 1835 K Street, where the Library is temporarily located.

But Miss Judy Coffey, Labs librarian, hopes to expand the program considerably when more space is available.

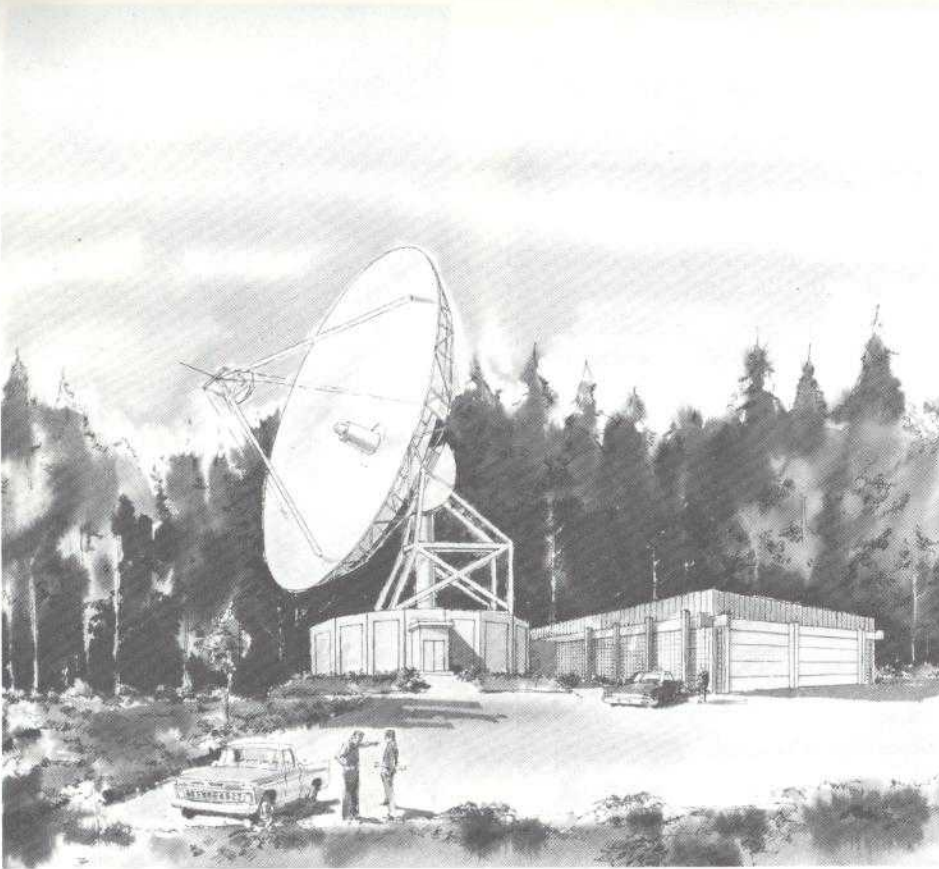
The library at Clarksburg will be located on the first floor near the new facility's entrance.

ICSC to Meet in Brazil

The 42nd meeting of the ICSC is scheduled to begin on August 13 in Rio de Janeiro, Brazil.

been in storage for about two years. It must be rehabilitated and tested at Hughes Aircraft Co., the manufacturer.

The next Series III launch is expected to occur in the fall. The rehabilitated Series II satellite would serve as a backup.



Architect's rendering shows how COMSAT station in Alaska will look.

Plans, Construction Move Forward For Alaska, Guam Earth Stations

Preparations moved forward toward the construction of the two newest U.S. earth stations for commercial satellite communications—Alaska and Guam.

Alaska: COMSAT announced the selection of General Telephone & Electronics International as the contractor for the new Alaskan station to be located near the village of Talkeetna, about 90 miles north of Anchorage.

Work crews were at the site in June and July as preliminary construction got under way. An access road for heavy vehicles was built, and grading and other site preparations began.

COMSAT planned to discuss with the contractors the possibility of accelerating construction of the station. The aim was to have the station ready for initial operations early in July of 1970, two months in advance of the originally planned date, in order to accommodate peak summer traffic at that time in Alaska.

Guam: The Federal Communications Commission on July 16 jointly authorized COMSAT and three record carrier companies to contract with ITT Space Communications for the construction of a new

earth station on the Territory of Guam.

This cleared the way for all parties to cooperate to bring into operation an initial station facility capable of handling Defense Department requirements for wide-band communications service by November 1 of this year.

The commission's authorization came after a compromise agreement was reached between COMSAT and the other parties in the case—RCA Globecom, ITT Worldcom and Western Union International.

This agreement, or memorandum of understanding filed with the commission, covered such other aspects as operation and joint ownership. Subject to FCC approval, COMSAT would own 50 percent of the station and act as systems manager. The three record carriers would share ownership of the other half under quotas fixed by the FCC; RCA would construct the station, serve as operations manager of the station

COMSAT Given 1969 Space Use Award by AAS

COMSAT and its president, Dr. Joseph V. Charyk, received the American Astronautical Society's 1969 Lloyd V. Berkner Space Utilization Award in recognition of the speedy establishment of the global commercial communications satellite system envisioned by the Congress of the United States in the Communications Satellite Act of 1962.

The award, presented annually to the person or persons who have made an outstanding contribution to the commercial utilization of space, was accepted on behalf of the recipients by Dr. Joseph H. Engel, Director of COMSAT's Planning Research and Services, and retiring president of the Operations Research Society of America.

The emplacement of a 1,200 circuit INTELSAT III satellite over the Indian Ocean completed the initial global system of satellites begun just four years ago on June 28, 1965, when Early Bird went into operation.

COMSAT Praised For Apollo Role

COMSAT was commended for its contribution to the success of the Apollo 11 mission by Gerald M. Truszynski, NASA Associate Administrator for Tracking and Data Acquisition.

His message said: "Your magnificent performance in cooperation with other communications companies from liftoff to splashdown contributed vitally to the attainment of this nation's goal to place a man on the moon in this decade.

"While Apollo 11 was the culmination of many years of effort, it is just the beginning of a long series of missions into the further reaches of space for which we expect to depend upon your organization for continuing excellent support."

COMSAT emphasized that its agreement was conditioned on the fact that the arrangement applied only to Guam and was not to be taken as a precedent for operation or ownership of any other U.S. station.

Complicated, Too

Cooperative Effort Makes Moonwalk TV Possible

A big grin on Willie Lee's face at 8:30 p.m. Sunday, July 20, climaxed the tense, week-long, round-the-clock activity at the Operations Center at L'Enfant Plaza.

His grin meant that satellite channels were clear around the world. As many as half a billion people, including Latin Americans, would see the Apollo 11 moonwalk live via satellite.

INTELSAT satellites over the Atlantic, Pacific and Indian Oceans, and 19 earth stations in 11 countries interconnected with terrestrial facilities on five continents, enabling the world to see this historic event taking place 240,000 miles away.

The TV accomplishment stands as a tribute to the efficiency and quick reactive cooperation that has been established between the earth station operators around the world and their terrestrial counterparts, as well as the unique capability that COMSAT has developed in cooperation with earth station owners as manager of the global system of communications satellites.

This accomplishment also was a tribute to the operators of the system, for the global telecast required an unprecedented revamping of satellite pathways when the Atlantic INTELSAT III satellite ceased unexpectedly to function on June 29.

An Ironic Turn

Just a few days before, the initial global system of communications satellites was at hand; an Indian Ocean INTELSAT III satellite was about to join the Pacific and Atlantic Ocean INTELSAT III satellites.

Suddenly, however, it was necessary to rush Early Bird, the world's first commercial communications satellite, out of retirement and to establish a contingency routing of circuits across the Atlantic. The contingency routing utilized Early Bird and the capacity in the Atlantic INTELSAT II satellite not used by the National Aeronautics and Space Administration for communications support of the Apollo program.

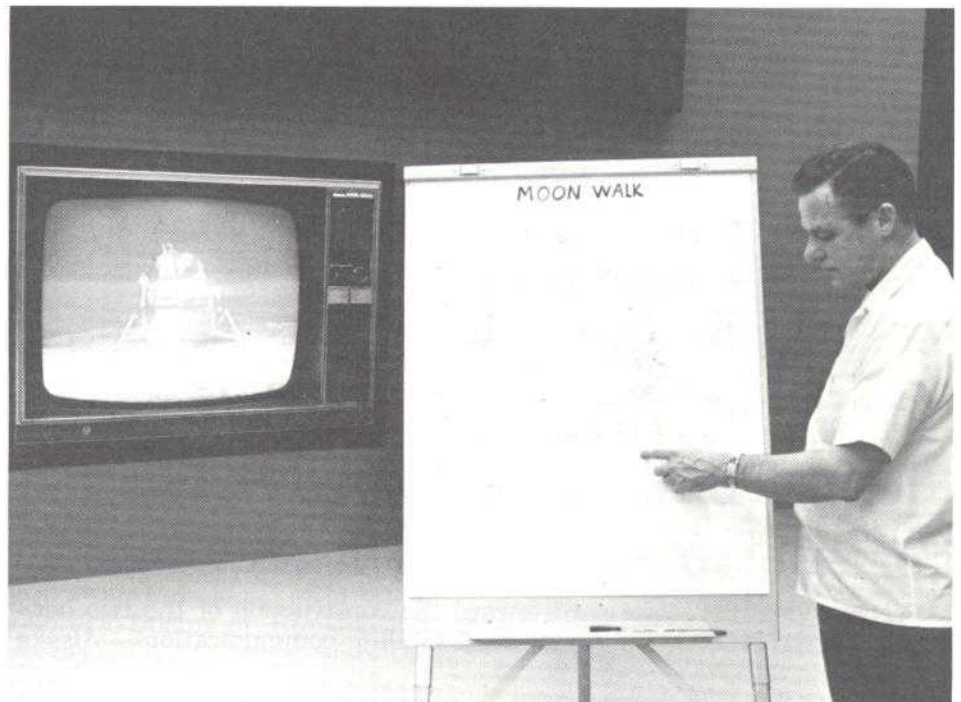
In a very brief period, a large part of the regular transatlantic

the transmission of live television between North America and Europe had to be double hopped

(See Operations, Page 11)



Willie Lee



George Lawler, Director of Marketing, makes last check of complicated, world-wide satellite channel routes.



Critical international order wire, which coordinates routings and circuit

From Page 10

Operations

across the Pacific and Indian Oceans via the INTELSAT III satellites in those areas. Live television could not be transmitted to Puerto Rico and Latin America without the release of regular circuits on the Atlantic INTELSAT II satellite.

In addition, a release of a portion of the NASA circuits also was necessary to provide the margin of capacity that would make television possible even when regular telephone circuits had been released on the Atlantic INTELSAT II satellite.

NASA Made It Possible

In an effort to serve the Latin American interest, the staff of the COMSAT Operations Center carefully pursued for several days all possible alternatives to bring the moonwalk to the countries in this area. NASA came to the rescue in the crucial hour. Some of its circuits were made available and, with other releases, Latin Americans were among the half billion people of the world to observe the moonwalk as it took place.

The need to release circuits to serve Puerto Rico and Latin America created a complicated operational requirement. This called for instant communication between all earth stations and terrestrial carriers concerned, complete systems control by the INTELSAT/COMSAT Operations Center, full cooperation between the Operations Center and the earth stations, and the immediate response of each to the other.

In brief, when releases had been obtained, it was necessary for the earth stations to quickly take down the carriers on which they were transmitting normal voice and record communications, shift to a new TV channel configuration, adjust transmitting powers, stabilize the system and then after the telecast, to reconvert to the configuration used for normal voice and record communications.

On the night of the moonwalk, the following sequence of activities demonstrated the complexity of operations which required round the clock staffing to provide live TV of the moonwalk to Latin America:

- The release of normal circuits



Operations Center worked round-the-clock during week before the moonwalk to make global TV possible.

riers in the United States, Puerto Rico, Brazil Argentina, Chile and Peru.

- The Atlantic area system utilizing the INTELSAT II satellite for voice communication was reconfigured for TV transmission and a new power balance was established to accept video, including preparations to temporarily phase out the COMSAT-operated station at Andover, Maine.

- Simultaneously, the COMSAT-operated earth station at Etam, West Virginia brought up a carrier to transmit TV.

- At the latest possible moment, NASA released some of its routine circuits, providing the margin of capacity needed to enable the Atlantic INTELSAT II satellite to transmit TV without hindering the critical NASA requirement being fulfilled on the same satellite.

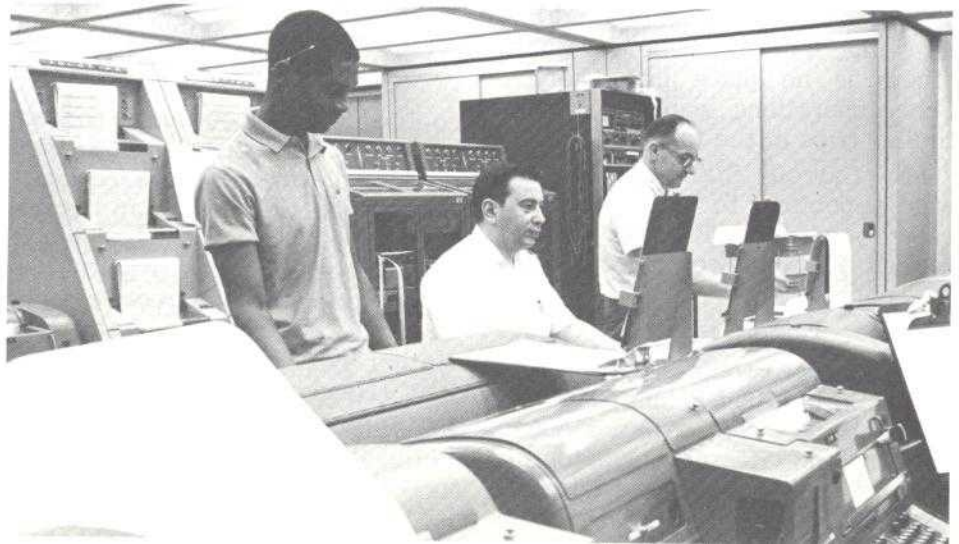
- TV signals began to flow from

the networks in New York through the Etam, West Virginia station via the Atlantic INTELSAT II satellite to Puerto Rico and the other Latin American countries.

- After the program was completed, the system was reconfigured to its original voice/record traffic, with Etam dropping out and Andover coming back into the system.

- The same complicated procedure was repeated on several other occasions, including a live telecast of the splash-down in the Pacific.

With the Atlantic INTELSAT III satellite back in operation, things are back to normal. Live television is again available to countries in the Atlantic area without the need to release circuits. The superb effort to meet a continent's desire to see the once-in-a-lifetime event will become but a mere memory of a job well done.



News and Notes From Etam

Etam CEA Plans Employee Activities

By Deloris Goodwin and Dolores Bucklew

Hopefully, everyone at the Etam Earth Station has recuperated from "spring fever" and is thoroughly enjoying his or her summer vacation, picnics, and, of course, some hard work! The Etam COMSAT Employees Association (ECEA) has been actively engaged in planning picnics for the station employees. Tentative dates for two picnics were set for July 12 and August 23 in order that all employees might have an opportunity to attend.

The ECEA recently raffled off a fishing reel. The winner of the reel was Crawford Booth, Facilities Maintenance Supervisor.

Gus Souris, Operations Supervisor, has been transferred to the Operations Center in Washington, D.C. He assumed his new position as Control Center Supervisor on April 21. Rupard Hobbs, Senior Technician, assumed the duty of Acting Operations Supervisor.

Charles Faris, Electronics Technician, resigned from the Corporation. Mr. Faris accepted a position working with Channel 5 TV in Washington, D.C. His family resides in Parsons, West Virginia, but plans on moving to the D.C. area.

Team Visits Labs

The Grey Team (Acting Operations Supervisor, Mr. Hobbs), along with Messrs. Gaston, Mayes, and Riddle visited the Operations Center and Labs in Washington, D.C. on April 23 and 24. The purpose was to see what the Operations Center and Labs looked like, the functions, and to meet some of the people with whom they are in contact with daily. According to the consensus of their trip report, the visit was very enlightening and interesting, but according to Rupe "there is no place like Etam." Other operations teams will plan similar trips in the future.

Mr. Carroll, Station Manager, was appointed to an unexpired vacancy on the Kingwood City council. He was sworn in on April 15.

Etam Visitors

As has been the case, the Etam Earth Station had its share of visitors during recent weeks. Messrs. Wright and Krasnow, photographers from the Sales Department of Raytheon, were on station April 10 for the purpose of taking black and white TV pictures of the

Raytheon equipment. Several members of the Earth Station Staff did small "bits" of production. Jack Boranson, Project Group Manager of the World Bank, visited the station on April 12. He is the individual who recommends approval or disapproval of loans to underdeveloped countries for their earth stations. A familiarization tour was given for Mr. Boranson. Other visitors included Cliff Hughes from Marconi in England; seven FCC personnel from Washington; and Dutch and Lebanese visitors.

John Little from Headquarters was recently on station in regard to Management Training. He had a variety of brochures on seminars, and self-study courses suitable for Senior Techs and first-line Supervisors. We desire to give our Supervisory people additional training in the future.

Module Burns

The Etam Earth Station had an unfortunate experience on May 4 when module number 3 of the UPS caught fire. The cause of the fire was due to the exploding of an RFI filter. Damage to the module was extensive. Mr. Ray and Mr. Boggs (Borg-Warner representatives), assisted by Facilities personnel, completed repairs of this module on May 17.

Mr. Allen of Philco-Ford was on station and installed additional heaters in the antenna base and EER. He also mounted the wind velocity and direction indicator in the ACU. Mr. Martin, also of Philco-Ford, came on station to correct some deficiency items and do other additional work. He has replaced some of the thermostats in the de-icing system which we had much trouble with this past winter.

The transmit and receive logic checkout was performed at this station by Messrs. Hill and Donahoe (Headquarters) and Messrs. Distant and Koukkos (Raytheon Company.)

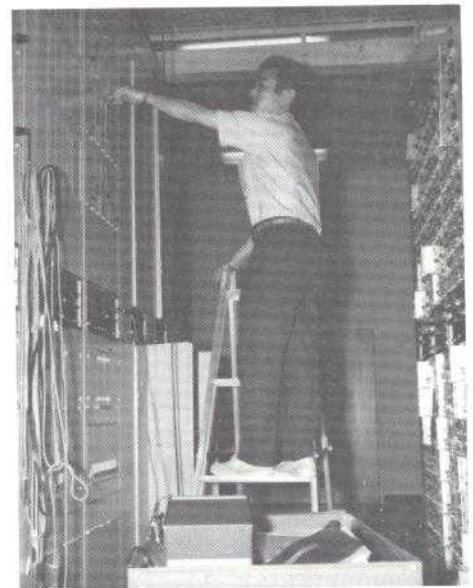
Training has been conducted on the station on logic/control with all Operations teams (4-hour course). We plan to conduct addi-



William Carroll (right) wishes good luck to Gus Souris who was transferred from Etam to the Operations Center at L'Enfant Plaza.



Crawford Booth (right) is the proud owner of the fishing reel raffled off by the Etam CEA. Andy Thomson, Etam CEA president, makes the presentation.



A lineman from Nippon Electric Co. works on NEC's additional installation at Etam.

tional HPA training for our technicians.

Mr. Leonard Gifford has been awarded the April Safety Award for his suggestion that an outside telephone extension be installed in the vicinity of the heat exchangers and hoist landing area. The award was made by Mr. Clay, Chairman of the Safety Committee.



The Club's antenna is prepared for raising by, from left: Norman Miller, Cal Cotner and P. L. Shome.

COMSAT Amateur Radio Operators Join IBM Neighbors in National Test

Amateur radio operators of the IBM Federal Systems Division and the Communication Satellite Corporation, soon to be neighbors in Montgomery County, banded together June 28-29 to participate in Field Day, a nationwide radio exercise and contest.



Harry Malosh, Technical, operates VHF station.

Field Day has been sponsored annually since 1933 (except during World War II) by the American Radio Relay League, a national amateur radio organization. It is a test of the amateurs' ability to set up communications in the field under simulated emergency conditions and to operate on an around-the-clock basis.

It is probably the most popular annual event among the nation's 270,000 radio amateurs. Emergency conditions were simulated, but in the future as in the past the emergency might well be real.

Both COMSAT and IBM have amateur stations at their facilities which may be used by any federally licensed amateur employed there. The COMSAT Amateur Radio Club numbers 38 members while IBM's Amateur Radio Club boasts 60 members.

Field Day chairmen for the two clubs were Stan Jackowski for IBM and Cal Cotner for COMSAT.

The joint Field Day operation took place at the Seneca Creek State Park. Three complete amateur stations were set up, operated under canvas and powered by gasoline driven electrical generators. Nearly 650 amateurs around the world were contacted during the

Comsat Nurse Offers Advice On Sunburn

It is clear to most that a tan cannot be obtained at the beach on the first day. The first exposure should be 15 to 20 minutes maximum with daily additions of 5 to 15 minutes. Also remember that wind can cause burn as bad as the sun, and it is possible, even on a cloudy day, to receive a serious burn.

Maye Callahan, COMSAT Health Unit nurse, offers the following tips:

Too much exposure to the sun can lead to sun stroke or heat prostration. In this situation even shock can occur because the liquid part of the blood is rushing to the areas of burn. Therefore, the blood leaves such areas as the brain and vital organs causing difficulties such as fainting, loss of memory and actually coma at times.

Minor sunburn can best be controlled by the proprietary products that are available at most drug stores, including products that have local anesthetics for the relief of pain.

More severe sunburn, although not one which causes unconsciousness, can also be handled easily. Wet compresses or clothes soaked in water with sodium bicarbonate (baking soda) added to it can be placed on the burned areas to give relief. Also, the person can be immersed in cold water which will give significant relief. It must be remembered that blisters should not be opened or disturbed.

All sunburn, except where the skin is only mildly reddened in partial areas, should be seen by a nurse or physician.

If the sunburn is severe with coma or semicomma, a physician should be called immediately. At the same time, the patient should be placed in a flat position and covered to exclude any air that might circulate, since the transmission of air will cause additional pain in sunburn. The patient's head should be placed lower than the rest of the body. If the person is conscious and can swallow fluids, non-alcoholic beverages, such as water, tea, or coffee should be



Beverly Mahle departs for fast New York visit



Cristoph Mahle

Labs Engineer, Wife: They Take Their Plane, Leave Driving to Us

A lot of us complain about congested, monotonous roads we have to drive on. But like the weather, we do little about them.

However, COMSAT Labs Engineer Cristoph Mahle and his wife, Beverly, have. Both licensed pilots, they bought a used airplane.

Surprisingly, perhaps, they use their single-engine, four passenger Mooney 20, purchased about a year ago, 80 percent for transportation and the other 20 percent for hobby flying.

But "transportation first and then hobby," as Crist describes it, it still sounds pretty exotic.

The European-born Mahles, in the U.S. about 18 months, use their plane to weekend in Montreal or Sea Island, Ga., and for her to shop in New York. They call that kind of use transportation.

Cris explains it this way: "The Mooney cruises at about 175 miles an hour. We can be in Canada in three hours and far south in four.

Driving Difficult

"We find driving increasingly difficult, and we don't enjoy it very much. You have to drive 300 miles to see something different," in a reference to monotony of the highways.

On having an airplane for a hobby, Crist says "it's still kind of

exciting to go up in the air." When in Europe he did try his hand at acrobatics, "simple things, really," he said, "like rolls, spins and Cuban eights."

In addition, on the hobby side, Beverly tried her hand last month as a Powder Puff Derby flier, the annual U.S. coast-to-coast handicapped flying race for women.

Her first time to enter, she finished 20th, tops for all Washington-Baltimore area women fliers. In fact, of 98 entrants, only 58 managed to cross the Dulles International Airport finish line.

Ironically, as Beverly finished the race—piloting her own way cross country—husband Crist was at Dulles departing as a commercial passenger for the west coast on COMSAT business

Business & Flying

He's up in the air a lot, too, in his COMSAT work, flying—always commercial—every two or three weeks to California to Hughes Aircraft Corp., the INTELSAT IV prime contractor.

A 31-year-old Ph.D., Crist is a member of the technical staff, Transponders Branch, R. F. Transmission Lab, heavily involved in

support of the INTELSAT IV program.

Cris says his love for flying has much in common with his professional work. "An airplane is a lot like a satellite, they both just have to work right all the time."

Cris' deep interest in applying his microwave engineering skills to communications satellites brought him and Beverly to the U.S. He joined the Labs' staff in April, 1968.

When the German-born Crist, an Austrian citizen, finished his doctorate studies in Zurich, Switzerland, the kind of work he wanted wasn't available to him in Europe.

She's Technical Type

Swiss citizen Beverly likes technical things, too, Crist said, and it was such a mutual interest that helped bring them together.

Although Beverly isn't trained technically, Crist says, "she's good at understanding. For example, if the car stops, she knows exactly what to do to fix it."

For both Beverly and Crist, fixing things stops short of their airplane. "We leave that to the experts, and too, it takes much time."

They have set up their own safety check and maintenance standards, even beyond those of the Airplane Owners and Pilots Association, to which they belong, and the Federal Aviation Agency.



COMSAT staffers Dick Smith (left) and Ted Gottry (facing camera) explain the IBM 7040 computer to some of Mr. Gottry's students. He teaches University of Virginia extension courses in computers and systems analysis, and brings the students to COMSAT for a first-hand look at the computer center and the Operations Center.

Second Quarter

Earnings Hit 20c a Share

COMSAT realized earnings of \$1,976,000 or 20 cents per share for the quarter ended June 30, compared to \$1,506,000 or 15 cents per share for the second quarter a year ago.

For the first six months of 1969 earnings totaled \$3,501,000 or 35 cents per share, compared to \$3,304,000 or 33 cents per share for the first six months of 1968.

Revenues were at an all-time high, totaling \$11,546,000 for the second quarter and \$21,768,000 for the first half of 1969. Last year revenues totaled \$7,314,000 for the second quarter and \$14,252,000 for the first half.

As of June 29, 1969, prior to the failure of the Atlantic INTELSAT III satellite, COMSAT was leasing full-time to its customers the equivalent of 1,334 half circuits, an increase of 523 over the total a year earlier. Of these, 819 were over the Atlantic Ocean and 515 were over the Pacific.

A major portion of the service which had been provided by the satellite that ceased to function was restored via Early Bird and an INTELSAT II series satellite. Since the failure did not occur until June 29, it had no appreciable effect on second quarter earnings. The Atlantic INTELSAT III was restored to service on August 1.

INTELSAT Committee Resumes Work Next Month

An INTELSAT Preparatory Committee, consisting of representatives from more than 40 nations, ended three weeks of meetings July 11 in Washington after working on draft agreements to be submitted to the INTELSAT Conference on Definitive Arrangements.

The full conference will be convened when the committee finishes its work. The committee is scheduled to meet again in September.

Meanwhile, the interim INTELSAT arrangements remain in effect until superseded by new Definitive Arrangements.

Private Industry Uses Satellites For TV of Iron Ore Mine Opening

The use of communications satellites to help private industry tell its story was demonstrated in a multi-continent, closed circuit telecast originating in Australia.

Private industry used communications satellites for a four-continent, closed-circuit telecast on June 26 to officially open a multi-million dollar iron ore project in Western Australia.

The INTELSAT III satellites over the Atlantic and Pacific Oceans relayed coverage of opening day ceremonies of the international mining venture to audiences in New York, London, Tokyo and three Australian cities.

Called the Mt. Newman mine at Mt. Whaleback, the project is one of the biggest iron ore mining programs ever undertaken.

The mine is expected to produce at least five million tons of ore this year. Output is expected to increase to 19 million or more tons by 1974, enough ore to fill a train of railroad cars stretching from New York City to Dallas.

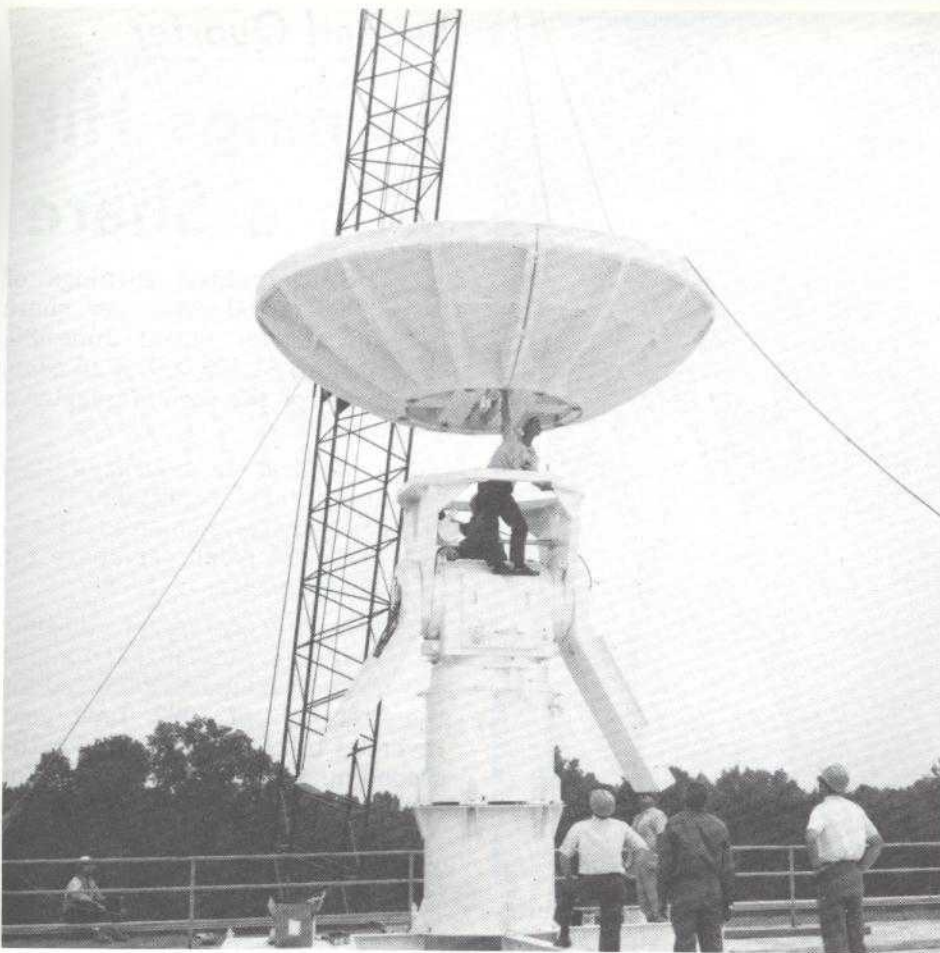
to carry the telecast were made by AMAX (American Metal Climax, Inc.) of New York, the U.S. participant in the iron ore mining project.

Donald J. Donahue, AMAX president, said the use of communications satellites was decided upon because:

"It seemed logical to utilize the most advanced international communications technology available to unveil the world's newest and most modern iron ore project, one that is truly international in character."

Modem Contract Planned

COMSAT on behalf of INTELSAT has announced its intent to award a contract to Fujitsu, Ltd., Tokyo, to design and fabricate four 4-phase PSK modulator-demodulators (modems). The 7-month contract is for \$14,440.



Antenna to help in the study of new uses for satellite technology is installed on the roof of the COMSAT Labs.

Labs to Work With NASA On New ATS Experiments

A 16-foot antenna to conduct experiments with an ATS satellite has been installed on the roof of the COMSAT Labs at Clarksburg, Md.

COMSAT Labs, along with the Naval Electronics Laboratory, Ohio State University and the University of Texas, will participate with NASA in experiments involving the latest in the series of Applications Technology Satellites, called the ATS-E.

Planned for launch in August, the ATS-E will test some new concepts in satellite communications.

The satellite will be gravity gradient stabilized, that is, it will not rotate but will be held in position by the gravitational field of the earth.

The satellite also will test higher frequencies than are presently used, receiving as high as 30 GHz and transmitting at 15.3 GHz.

The purpose of the experiments is to study the problems of millimeter wave transmission and re-

ception, with the goal of expanding the frequency spectrum usable for telecommunications. In particular, the program will investigate the effects of atmospheric attenuation and the degrading effects of precipitation.

To correlate the characteristics of reception with local weather conditions, COMSAT has purchased two small weather radars. Significant electronic and weather data will be stored in COMSAT's computer for later readout and interpretation.

The ATS-E satellite program will be followed in 1970-71 by the ATS-F, which will have two millimeter wave down-link frequencies and much wider bandwidth. COMSAT is participating in the planning for the ATS-F.

Jay Levatich, Manager of the Propagation Branch, Systems Integration Laboratory, is managing COMSAT's effort in the NASA project.

News of People At Headquarters

By Laura Weldon

Winnie Jefferson (Finance) has returned from New York where she attended a three-day executive secretary seminar. She describes the AMA seminar as "simply terrific and a must for every secretary."

The following engagements have been announced:

Gloria Smith (Finance) engaged to Purvis Snipes, a salesman for Kraft Corporation. A December wedding is planned.

Wilma Downing (Finance) engaged to Lewis Barba, an Accountant at Comsat. An October wedding is planned.

Flo McSwain (Finance) engaged to Clint Childers who is stationed at Andrews AFB. A September wedding is planned.

Wedding bells rang for Betty Collins (Procurement) July 26.

Sam Scialabba and his wife Nancy have a new addition. It's a 7 lb. 12 oz. baby girl named Diane.

For those of you who are just dying to see a snake skin see Sheila MacPherson (Finance). She and her family have just returned from a vacation at Skyline Drive and the snake skin is one of the mementos she brought back. Sheila says the first day at Skyline Drive she saw a bear.

People are talking about the talent of Theresa Whitehead, 4th floor Service Center. In addition to making people smile, Theresa is a singer and has an album out on which she is a soloist.

Lee Twombly (O&MP) says that when her little girl, Linda, 3, kisses her good bye in the morning, Linda says in that sweet old fashioned way that little girls have, "Sock it to me Mommy!"

Have you noticed the jewelry Marta Vincentini and Alicia (Vincentini) Townsend have been wearing lately, absolutely out of this world. Alicia says her mother in South America makes it as a hobby.

Join Manager's Staff

The ICSC has approved one-year assignments of N. V. Sheno of India and Heinz Haberle of Germany to the Manager's Technical Staff and S. K. Jerath of India to the Manager's Finance Staff.

Global Coverage Provided With Indian Ocean Satellite

Upon the positioning of an INTELSAT III satellite over the Indian Ocean, the commercial satellite system became global in coverage for the first time—a goal COMSAT has aimed for since its inception.

The milestone achievement came July 1 when the INTELSAT III satellite began communications tests with earth stations serving the Indian Ocean region. Full-time commercial operation began July 13.

The Indian Ocean satellite is initially operating with earth stations in Bahrein, Indonesia, Japan, Kuwait and the United Kingdom.

Other stations to operate with the satellite are being constructed by national entities in Australia, France, India, Italy, Thailand, and West Germany. They are scheduled to go into operation late this year and early next year.

The Indian Ocean satellite, which was launched from Cape Kennedy on February 5, 1969, provided service over the Pacific Ocean

until replaced by another Series III satellite launched on May 21. The successful May 21 launch made the earlier satellite available for repositioning over the Indian Ocean, a maneuver which was successfully accomplished during June by use of the on-board hydrazine jets.

An objective of national policy set forth in the Communications Satellite Act of 1962, which authorized the establishment of COMSAT, was that global coverage be provided as expeditiously as possible.

Satellite capability over the Indian Ocean could have been provided as early as 1967. But satellite service in the region had to await the construction of earth stations.

Earth Station Development

The number of earth stations in the commercial satellite system is growing rapidly, expanding satellite services to areas not previously covered.

The schedule of earth stations in late July showed 28 operational stations, with a total of 31 antennas, located around the world.

The volume of international news events, topped by the epic Apollo 11 mission and President Nixon's round-the-world trip, encouraged a number of countries to accelerate the commercial operational date of their earth stations.

Latin America and the United States both have six stations in commercial operation—the two largest concentrations in the system today.

Countries or areas which either have stations in commercial operation now, or stations which will go on the air shortly include:

Argentina, Australia (2), Bahrein, Brazil, Canada (2 antennas), Chile and France; W. Germany, Indonesia, Italy, Japan (2 stations), Mexico, Panama, Peru, Philippines and Spain;

Canary Island, Thailand, Ascension Is., United Kingdom (2 antennas at Goonhilly Downs) and United States (6).

Their First Five Years



Shown with James McCormack (center) are four more COMSAT employees who recently received five-year pins. From left, they are George

White House Review

The Nixon Administration has appointed a committee to make a study of the issues involved in the proposals for a U.S. satellite communications service. Action by the Federal Communications Commission is expected following the committee's review.

A Presidential assistant, Dr. Clay T. Whitehead, advised the FCC in late July that the Administration wants 60 days in which a committee of Government officials can consider the issues and the best ways to proceed.

COMSAT's proposals for a domestic service have been pending

The Traveling Wave Tube

Discovery That Facilitated Satellite Communications

In August 1943 the staff of the Physics Department at the University of Birmingham, England, faced the most important career decision of their lives. For several years they had been developing radar to counter the Luftwaffe.

Now, they were told, the work was finished. Those who wished to stay and continue working on microwave tubes—not very exciting—could do so. Those who wanted to do something more interesting would be going to the United States to work on a secret project.

Two men on the staff went back to their labs and made fast decisions.

One was Klaus Fuchs, who chose the secret project in the U.S., which turned out to be the atomic bomb project. Fuchs later was convicted of giving atomic secrets to the Soviet Union.

Working in the lab adjacent to Fuchs was Rudolph Kompfner. He chose to stay on to finish his work on a gadget he was beginning to call the traveling wave tube which has come to play a very important part in satellite communications.

Rudolph Kompfner was an Austrian-born architect working in England when World War II broke out. His long-time hobby had been radio devices and theory. At the beginning of the war he was interned briefly and then assigned to work at Birmingham with a group whose assignment was to develop a workable high-power radar system.

Kompfner became increasingly

This is the first of a series of articles which will discuss informally the technology of satellite communications.

fascinated by problems of amplification. While he worked days on radar, he spent his evenings doodling with variations on klystron amplifiers.

His basic idea was to increase the power of a radio signal by imposing on it the energy from an electron beam. The problem was in what manner and for what distance to bring the signal and the beam together.

Kompfner experimented with first one idea and then another until he hit on the scheme of synchronizing the two by making the microwave signal (moving at nearly the speed of light) follow a helix around the much slower electron beam.

The transfer of energy which results in amplification comes from the phenomenon that alternations in the signal's electric field have the effect of retarding and accelerating individual electrons as they pass down the beam, creating analogous "bunches" of electrons. The net effect is a slowing down of electrons, which means that they must give up some of their energy. It must go somewhere. In this case the energy is transferred to the signal on the helix, raising its power.

The Modern TWT

A lot has happened to TWT's since 1943. Dr. John R. Pierce of Bell Labs became interested in Kompfner's invention and later persuaded Kompfner to join the Bell organization. Someone has said that Kompfner invented the TWT, and Pierce discovered it: a tribute to Pierce's mathematical analysis.

The modern satellite TWT is a compact device weighing about 11½ pounds complete, and operating at between 30 and 40 watts of electrical power. In household terms this means that the unique performance of a TWT requires no more input than a small light bulb. A TWT of this size can achieve a

(Continued on Page 19)

Employee Reaction to Moon Landing

A New Era of Opportunity and Peril

By Laura Weldon

Employee reaction was mixed—from amazement to fear—to man's landing on the moon.

This question was asked: "As the dream of centuries comes true of man's landing on the moon, what thoughts stand out in your mind?"

Vicky Bostwick, cashier:

"Well, it is amazing to see how far we have come in the last two-hundred years and to see what man's capabilities are. It seems to me to be the most significant thing that will happen in my lifetime. It will be interesting to see what this will lead us to beyond the moon."

Ed Berkowitz, attorney:

"Several thoughts occur. I think this is the beginning of a new era and the achieving of a goal. The flights of Apollo have demonstrated that we can achieve a goal which we thought was impossible.

"But I believe that we might now want to consider channeling this ability to other problems which many of us think are as difficult as flying to the moon."

Edward Smith, messenger:

"I'm all for progress. Even though some people think it is wrong to tamper with outer space, if man was not supposed to be there, I feel he would not have gotten this far."

Meredith White, receptionist:

"I think I am afraid because this might create another world to have hate, fear, and competition and I believe one world of this is enough."

Ismael Dieguez, chief translator:

"Indeed, it is a great achievement that some years from now will be seen by the people as we now see the Christopher Columbus voyage of 1492.

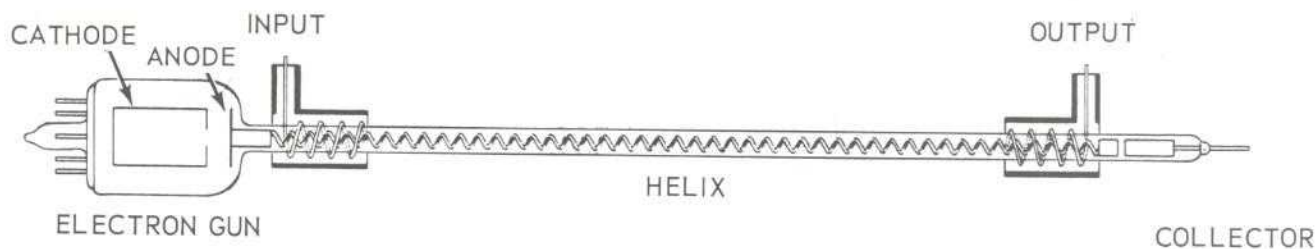
"My main thought is, if we can reach the moon, certainly we can do better in our world."

Orlando Anderson, reproduction pressman:

"The government is concentrating more on solving the unknown rather than solving the problems that are presently existing. I feel that more financial consideration should be given to the people of Biafra, Appalachia, and ghettos in America."

Suzie Runfola, receptionist-typist:

"I don't think we should have anything to do with outer space at all. I feel that if God had wanted us to know what was up there, He would have made the moon our next-door neighbor. I hope that if there is anyone in outer space that they will not bother to visit us."



Schematic View of Traveling Wave Tube

From Page 18

TWT Amplifiers

gain of 50 db—in other words, it amplifies an incoming signal about 100,000 times and handles half the traffic on an INTELSAT III.

The accompanying diagram shows the major functional parts of an O-type ("ordinary") TWT. The cathode, or electron emitter, is a small concave disc with a surface temperature in operation of about 700 degrees centigrade. The cathode is surrounded by focus electrodes which form a beam of electrons along the tube's axis.

The electrons are accelerated to high speeds (thus energy) and focused by the positively-charged anode. This part of the tube is called the electron gun. The steady stream of electrons zipping through the center of the helix is held in place by a series of permanent ring-type magnets. At the collector end of the tube the electrons are slowed down and collected, which completes the electric circuit.

The signal to be amplified is brought into the tube just behind the anode. It travels at nearly the speed of light around the helix toward the collector and in so doing absorbs energy from the "bunched" electron beam. Near the far end the amplified signal enters an output coupler.

INTELSAT's Use of TWT's

Traveling wave tubes of low, medium and high power are used in both INTELSAT satellites and earth stations. In an INTELSAT III transponder incoming signals are amplified first by a tunnel diode amplifier and then by low-level and high-level TWT's.

Earth stations in the INTELSAT system amplify incoming signals

level TWT's. Outgoing signals pass through a medium-level and a very high-level coupled cavity-type TWT capable of providing 8 to 10 kilowatts of signal power.

TWT Work at COMSAT Labs

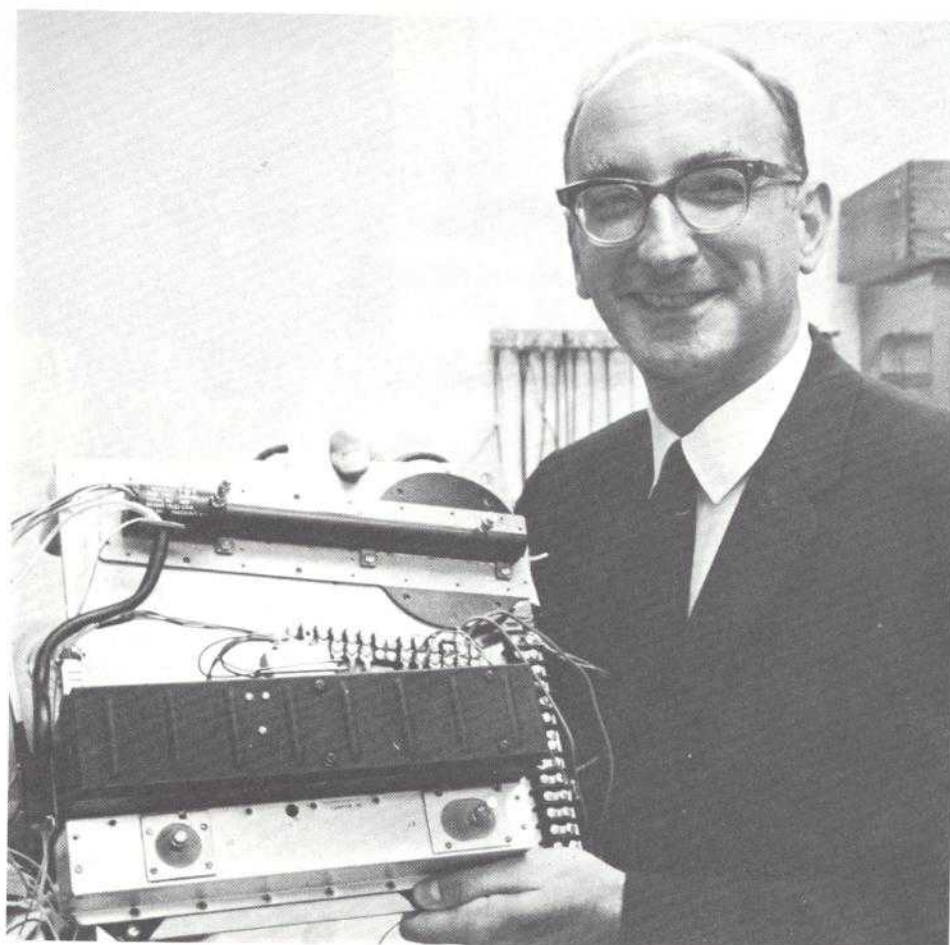
According to Bob Strauss, Manager of the Advanced Device Applications Branch of the Physics Laboratory, COMSAT Laboratories is involved with traveling wave tubes in several key ways.

The Labs support the Space Segment Implementation Division in identifying problems and helping to solve them. For example, when INTELSAT III F-5 developed TWT troubles in test, a telephone call

from California allowed identical conditions to be set up at the Labs in Washington and the problem was pinpointed the same day.

The Labs also independently test all kinds of spacecraft and earth station components. One extensive test of a sample satellite TWT amplifier included 6 months of powered operation in vacuum.

Mr. Strauss emphasized that one of the most important aspects of R&D in amplifiers is looking for successors to the TWT; some device, still in the future, that would offer improved efficiency, less distortion, and much longer life—perhaps a solid-state device that would last indefinitely.



COMSAT Offers Plan for Alaska Satellite Services

COMSAT has offered a plan to introduce satellite communications to Alaska on a broad scale, extending services to remote bush areas as well as urban centers.

Meanwhile, the Corporation has continued to develop and refine its proposals for a domestic U.S. satellite service. This issue has been pending before the Federal Communications Commission for three years.

There were these developments:

- On July 18, in a letter from COMSAT Chairman James McCormack to the Alaskan congressional delegation and Alaska Governor Keith Miller, COMSAT outlined a three-phase plan to meet Alaskan requirements for TV, voice and record communications by utilizing satellites.

Joint COMSAT-NASA Team

- On July 8, COMSAT President Joseph Charyk agreed to a NASA suggestion to form a joint COMSAT-NASA team to initiate early demonstrations of TV and other services via satellite between areas of the United States, including Alaska.

- On June 26, Mr. McCormack suggested in a letter to RCA President Robert W. Sarnoff that COMSAT and RCA cooperate to introduce satellite communication within Alaska as an important part of this state's overall communications development.

In the July 18 letter to the Governor and congressional delegation, COMSAT said that, "Our goal has been to find a program that would, as nearly as possible, meet the immediate and long-range communication needs of Alaska at as low a cost as possible, and which could be implemented at the earliest practicable date."

As outlined in the letter, the first stage envisioned a COMSAT-NASA joint effort to arrange for a series of interesting tests and demonstrations utilizing either available NASA ATS satellite capacity, or possibly an in-orbit

commercial satellite. Such demonstrations, using largely available ground facilities and equipment might include TV, voice and data.

Use Advanced Satellite

The second stage called for use of capacity on an advanced INTELSAT satellite, plus construction of a network of ground facilities. The latter might utilize the Talkeetna earth station as a key-stone facility. This phase, which could be implemented by early 1971, would include all forms of commercial services — television, telephone and data — reaching bush and urban areas.

The third phase contemplated integrating the Alaskan system into a proposed domestic U.S. satellite program, linking Alaska with the "lower 48 states" in a wide scale network.

The Corporation later briefed the Alaskan delegation, the Governor and the members of the Governor's Task Force in more detail concerning the three-phase program outlined in the letter.



President Nixon talked with representatives of the Alaskan congressional delegation.



Winners of filing awards under COMSAT's patent incentive program pose for a photograph outside the building at 2100 L St., N.W. They are Richard B. McClure; Andrew M. Walker; George D. Dill; Eugene

Cacciamani; William G. Schmidt; Marvin R. Wachs; O. Gene Gabbard; James R. Owens; William J. Billerbeck; Dr. Ettore Fariello; and Emeric Podrazcky. Several others were not present. (Details on Page 3.)

Sampson, Wenrich Win Golf, Tennis

George P. Sampson, Vice President, Operations, is the new COMSAT golf champion, having fired the best score among 44 players at the annual CEA golf outing.

Carl Wenrich, a Procurement Officer assigned to the Labs, is the new singles' tennis champion. Jay Levatitch and George Szarvas are the doubles champions.

Details on Pages 14, 15.

Satellite Capacity of 20,000 Circuits Foreseen for Second Half of 1970s

Satellites providing 20,000 to 30,000 circuits of capacity may be available in the second half of the 1970's, COMSAT has advised the Federal Communications Commission.

These satellites would provide maximum redundancy in order to achieve the highest standards of reliability and useful lifetime.

Such satellites were forecast in a letter from COMSAT Chairman

Strassburg, Chief of the FCC's Common Carrier Bureau, who had asked the Corporation for a description of its future plans beyond INTELSAT IVs.

"Historically," Mr McCormack's letter said, "we have seen about a four-fold increase in circuit capacity attending each step from INTELSAT I through IV. A similar increase would seem reasonable in a new design, perhaps 20,000 to

Schedule for Next Launch Awaits Completion of Delta Failure Inquiry

The next launch in the INTELSAT III series is being planned for later this year at Cape Kennedy. The satellite, F-6 in the series, is intended for a station over the Atlantic Ocean where it will augment the present Series III satellite in service there.

The present Atlantic III continues to provide full service. Atlantic traffic requirements, however, are expected to exceed the capacity of a single Series III satellite by the end of this year, requiring an additional one over that ocean.

Planned for this winter is the launch of the F-7 satellite in the III series, also for Atlantic service. This would permit the present Atlantic III to become a spare in orbit.

The procurement of an F-8 in the series was authorized by INTELSAT's Interim Committee at its recent meeting in Rio de Janeiro. The F-8 will be delivered in the spring and will be available if needed.

Following the restoration of the III in early August, Early Bird was once again placed in orbital retirement. Early Bird had been reactivated on June 30 to handle traffic between North America and Western Europe when the Atlantic III temporarily went out of service.

Early Bird remains available for further service if required.

Meanwhile an investigation into the cause of the July 25 launch failure of the F-5 in the III series is being continued. NASA, which conducts launches for COMSAT as manager for INTELSAT, announced earlier that preliminary indications were that the third stage of the Delta vehicle failed to function properly.

Ground radar located the satellite and the vehicle in a low elliptical orbit. The apogee of the orbit is only about 3,000 miles, far too low for the satellite ever to be raised to synchronous orbit. All attempts to activate the spacecraft have been unsuccessful.

Both the third stage and the satellite are in the same very low orbit. The orbit will gradually decay as the satellite and third stage encounter increasing drag. Ultimately, they will re-enter the atmosphere and burn up from the intense friction caused by streaking through the air at a velocity of over 25,000 feet per second. However, it will be many years before this occurs, COMSAT engineers believe.

The satellite and third stage now are among the thousands of rocket stages, satellites and pieces of space junk that are presently catalogued and tracked in orbit by the Air Force.

Earth Station Development

New earth stations being constructed in the rapidly expanding global ground network will extend the reach of satellite communications directly to every continent this year.

A box score as of the first of September showed 28 antennas in service.

By the end of the year, 42 antennas are expected to be in commercial operation at 36 different station sites around the world. Six station sites will have two antennas each in service. The pace of development on the ground has quickened as satellite service has become available on a global scale with positioning of INTELSAT III's over the Atlantic, Pacific and Indian Oceans.

Four new earth stations are due to inaugurate service soon in the Mideast and North Africa. They include Iran, Kuwait, Lebanon and Morocco. A new station at Bahrain in the Persian Gulf began commercial service in July.

In the Pacific new stations scheduled to go on the air this year for full-time commercial service include those in Taiwan, Hong Kong, Indonesia, Australia and Guam (U.S.). A new station in Argentina, scheduled to start service in September, will mark the sixth one to provide service in Latin America.

In the United States, six stations are now in operation. A seventh is expected to start service this fall on Guam and an eighth is under construction in Alaska for operation in the summer of 1970.



Kiyoshi Tamura (right) has succeeded Junichi Kimura (second from left) as representative of Kokusai Denshin Denwa Company, Ltd. and Japan's representative to the INTELSAT ICSC meetings. Mr. Kimura has been reassigned to the KKD office in Tokyo. With Messrs Tamura and Kimura are President Joseph V. Charyk (left) and General George P. Sampson, (third from left), Vice-President—Operations.

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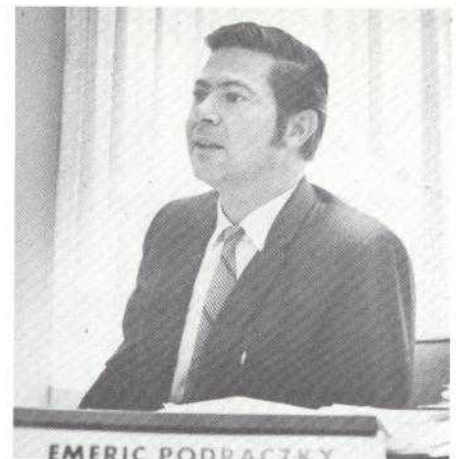
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Matthew Gordon
Editor: Kay Smith



"We had to get out of Hungary in a hurry."



"My first work with satellites was in Canada."



"COMSAT's patent program is an icebreaker."

Lab Manager, Who Fled From Behind Iron Curtain, Receives COMSAT's First Domestic Patent Award

A Laboratory manager who escaped from behind the Iron Curtain to freedom almost 13 years ago—carrying his two-month-old daughter in his arms and with his wife at his side—is the first employee to receive a patent under COMSAT's new incentive invention program.

He is Emeric Podraczky, one of COMSAT's pioneer employees, and manager of the Systems Integration Laboratory.

The 1965 Hungarian revolution patriot received his U.S. patent—a combined filing and issuance award under COMSAT's program—for design of a fail safe mechanically despun antenna for a spin-stabil-

ized space communications satellite.

The fail safe characteristic is that the invention will permit a satellite's antenna to function with reduced performance even if its bearing should freeze.

Under COMSAT's incentive for invention program, the inventor is eligible for two Corporation awards, one at the time the patent is filed and a second when the patent is issued. Each award is a minimum of \$100.

In addition to receiving COMSAT's first domestic patent, Mr. Podraczky played a role in the development of COMSAT's awards program.

Long before he was granted his own patent, he "began applying a needle in a few places," as he phrases it, for the adoption of some kind of invention incentives award and recognition for professionals.

Known for his candid, forthright manner of saying what he's thinking, Mr. Podraczky said "it was because I opened my mouth that led to our leaving Hungary."

Escape from Hungary

A leader in the Hungarian national resistance movement following the 1956 Russian takeover, Mr. Podraczky's arrest appeared imminent—like "in a day or two," he says—when he and his wife Gizelle decided to break for freedom with their infant Agnes.

They quietly boarded a train in Budapest and, thanks to helpful railroad workers, were told to leave the train 20 miles from the Austrian border because "Russian troops were at the next station."

The Podraczkys began a 20-mile walk toward Austria at dusk, dodged Russian patrols and tanks, and edged across the border at dawn.

"That December 17, 1956, was the best dawn we ever saw," Mr. Podraczky recalls.

Besides their own safety and hiding, when Russian troops loomed near, the other big thing in the freedom dash was keeping infant Agnes (now 13 and the Podraczky's only child) quiet.

"Fortunately, she slept during much of the walk," Mr. Podraczky said, "and when she cried we were

Staff Members to Receive Awards Under Invention Incentives Program

Nineteen members of the COMSAT technical staff have become eligible for filing awards under the Corporation's Inventions Incentive Program. The purpose of the recently established incentive program is to stimulate employees toward the development of patentable ideas and reward them for their efforts.

The areas of technical development for which patents have been filed include those related to signal processing systems and subsystems electronic components and mechanical hardware.

Employees receiving one or more filing awards include:

William J. Billerbeck and James

R. Dwens of the Spacecraft Lab.; Eugene Cacciamani, George D. Dill, Dr. Ettore Fariello, O. Gene Gabbard, Richard B. McClure, William G. Schmidt and Andrew M. Walker of the Communications Processing Lab.; Emeric Podraczky, Systems Integration Lab.; and Marvin R. Wachs, R. F. Transmission Lab.

Those also eligible for one or more awards are: John P. Beyer, Domestic and Special Project Office, Office of the Vice President-Technical; Ronald W. Bounds and James D. Dunlop, Spacecraft Lab.; Dr. Leonard S. Golding, John G. Puente and Chester J. Wolejsza, Jr. of the Communications Processing Lab.; and Lewis V. Smith, Earth Station Design Department



Glenn Vinqvist (speaking on the phone) and John Scroggs (shown on the left monitor screen) participated in successful televue demonstration.

Paumalu and Jamesburg Demonstrate Televue Capability Via Satellite

Results generally were good for the first televue demonstration via satellite conducted between Paumalu and Jamesburg on July 30.

The equipment, manufactured by Nippon Electric Company, Ltd., was set up in the offices of the two earth stations. Paumalu station Manager Glenn Vinqvist and Jamesburg station Manager John Scroggs participated in the test.

Person-to-person speech tests and videos of papers and drawings were demonstrated, using a four megahertz band through the

Pacific INTELSAT III satellite.

In a technical evaluation, the video quality was termed excellent and audio quality in the handset was generally good.

NEC engineers, present for the test, concluded in their report that "It was verified that there is no particular technical difficulty in applying the televue to satellite communication."

Although commercial application of such equipment still is some time away, the Paumalu and Jamesburg "station-to-station" test marked a first in satellite communications.

Ecoss de la Montana

Cayey Pace Resumes After Restoral

By Luis Rodriquez

The title for this column of news and notes from Cayey, was suggested by Mr. Rodriquez. It means, in English, echos from the mountain. The Cayey earth station is located on top of a mountain and is surrounded by others.

The pace of operations at Cayey returned to normal following the restoration of service by the Atlantic INTELSAT III satellite. During July, when the III was not working Cayey operations were

minimal and consisted mostly of TV reception of Apollo 11 coverage.

ITT has completed relocation of microwave equipment from the carrier room to the station's control room. The interface and testing phases of the transfer were finished in late July.

Freas "Bud" Kreischer of Washington Operations recently conducted classes at the station on antenna servo systems.

Four officials from a Caracas, Venezuela, television station, visited Cayey during July. They were

News From the European Office

Several significant changes took place at COMSAT's European Office during the summer. Subsequent to the recent determination by COMSAT to continue its European Office indefinitely, two of its three original members have returned to the United States. Mr. Richard R. Colino, its first Director, sailed back to the U.S. with his family in August to take up a new assignment as the principal assistant to Mr. John A. Johnson, Vice-President—International. Miss Martha S. Draper, who was the European Office's Administrative Assistant until the end of July 1969, returned to her home town of Boston.

Mr. Colino has been replaced by Mr. Sydney L. W. Mellen, who served as the Deputy Director from the founding of the European Office and has now taken over the position of Director.

Mr. Miles L. Merians joined the European Office staff in May of this year as Liaison Officer, after having served as Manager for Latin America in the International Development Division at COMSAT's headquarters in Washington.

Mrs. Erika Hofmann, who has been working as a secretary at the European Office for a year, has now taken over Marty Draper's position as Administrative Assistant. Miss Susi Lei has been working as a secretary at the European Office since October last year and Miss Diana Bursik joined the European Office staff in July of this year as a secretary.

interested in information about possibly acquiring a transportable antenna.

Visitors from Washington on COMSAT business included Robert Mowery and Norman Sefton, to conduct a safety inspection, and Dan Flynn, from the Personnel office, to discuss the exempt salary program.

John J. Gonzalez has been promoted to operations supervisor from senior technician.

Personnel who have left the station recently include Dan Smith, G. Rivera-Acosta, Mike Burgos and William Prats.

Mellen Named Head Of European Office

Sydney L. W. Mellen has been appointed Director of the European Office of the Communications Satellite Corporation (COMSAT) effective August 24, 1969.

Mr. Mellen joined COMSAT early in 1968 after a distinguished career in the United States Foreign Service culminating in service as Minister for Economic Affairs in the United States Embassy in Rome. He has served as Deputy Director of the European Office since its establishment in Geneva, Switzerland, on March 1, 1968.

Mr. Mellen will serve under John A. Johnson, COMSAT's Vice President-International.

Other recent staff changes include:

Allan W. Galfund, promoted to Senior Information Officer, Office of Information;

Robert C. Gaudet, appointed Director, Systems and Procedures Division, Financial Office;

Mrs. Erika Hoffman, promoted to Administrative Assistant, COMSAT European Office;

William Kaht, promoted to Manager Engineering Economy Branch, Systems Engineering Division.

James H. Kilcoyne, Jr., joined the Office of Information as an Information Officer;

Fernando Van Reigersberg, appointed chief of Linguistic Services with the Interim Communications Satellite Committee;

Miss Kay Smith, appointed Assistant Information Officer with the Office of Information.



Vic Jeter poses beside recovery helicopter on deck of the Hornet.



COMSAT banner was displayed beside other carriers' on Hornet radome.

COMSAT Banner on Recovery Ship; Vic Jeter Shakes the President's Hand

By M. Lee Dorsey

COMSAT was well represented aboard the "Hornet," the recovery ship for the Apollo 11 crew. Vic Jeter, Operations Supervisor from the Jamesburg Earth Station was aboard, and so was the COMSAT banner.

Mr. Jeter acted principally as advisor to the communications crew for INTELSAT III and the Jamesburg station. The COMSAT banner was made especially for the "Hornet" by COMSAT Headquarters in Washington.

There were some tense moments in the communications dome aboard ship and at the Jamesburg station when the failure of the klystron in the high power amplifier took place. The lineup between Jamesburg and the "Hornet" had been completed and transmission of President Nixon's arrival was about to begin when the klystron malfunctioned. The communications team disconnected the equipment in one van, transferred it to another, then reconnected it. The operation was completed in 19 minutes, a tribute to well organized teamwork.

This was the first time traffic other than radio and TV was transmitted from the ship's transportable satellite station to an earth station by an INTELSAT spacecraft. In addition to the three scheduled TV transmissions, traffic was carried twice daily from July 12 through July 26 for Western Union International and the

Voice of America. The traffic consisted mainly of press releases.

Mr. Jeter had planned to get some good close-up pictures of President Nixon as he left the "Hornet." On the last minute, the President's plans were altered, and in the confusion, Jeter lost sight of him.

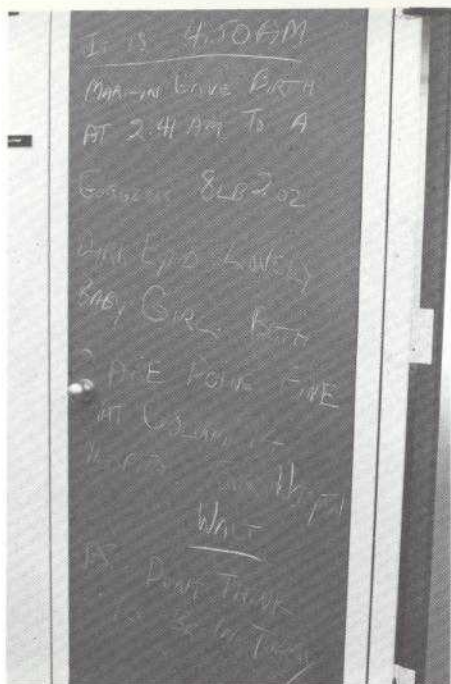
The next thing Jeter knew, there was the President, standing right in front of him with his hand out.

All Jeter could do was to grab the President's hand and say, "Hello, Mr. President, how are you?"

President Nixon responded, "Fine, thank you, how are you?" then looked closely at Jeter's COMSAT identification tag, and continued down the line shaking hands.

Commenting on the trip, Mr. Jeter said:

"It was the very professional way in which the operations were conducted that impressed me. Every last detail of the recovery was practiced over and over again, so that on the day of the splashdown and recovery of the Apollo 11 "Columbia," all the events went perfectly. They were so perfect they seemed almost routine."



Walter Kutrip, Personnel, announced the birth of a daughter in a fresh way.

News of People At Headquarters

By Laura Weldon

Many COMSAT oldtimers will probably be glad to hear that Judith Martin, formerly of Personnel, has returned to the Corporation. Judy is working as Secretary to Andy Werth at the Laboratories.

Gloria Sapia-Boschics, just returned from vacationing in Guadalajara, Mexico. Lucky Gloria!

Robert Jacoby, Finance, has left the Corporation to return to Michigan State University where he will major in accounting.

Susan Martin, Finance, has transferred to COMSAT's Los Angeles office.

Shirley Taylor, COMSAT Labs, was given a lovely party by her co-workers to celebrate her retirement.

Vicky Bostwick, Finance, is engaged to Robert North, U.S. Air Force.

Robert E. Bernier, INTELSAT Management, left the Corporation to be one of NASA's European Representatives and will be residing in Paris.

Earl Turner, O&MP, was recently married to the former Miss Joanne Gibson.

Elizabeth Cox is engaged to Robert Wier, a student at Catholic University Law School. A November wedding is planned.

Actions Taken by the ICSC in Rio Include Approval for F-8 Contract

At its 42nd meeting in Rio de Janeiro last month, the Interim Communications Satellite Committee (ICSC) took the following actions:

- Authorized COMSAT as manager to contract with TRW by September 1 for an INTELSAT III F-8 spacecraft at a price not to exceed \$7.5 million, and to make every effort to obtain delivery no later than May 1, 1970.

- Approved the emplacement of the INTELSAT III F-6 spacecraft (the next satellite to be launched) over the Atlantic Ocean at 31 degrees west longitude, and tentatively selected 6 degrees west longitude as the position for the INTELSAT III F-7 spacecraft. This would leave the INTELSAT III F-2 spacecraft in justaposition to the F-6 as a spare in orbit.

- Authorized the manager to incorporate into the INTELSAT IV contract with Hughes an expanded environmental testing program at a cost not to exceed \$550,000.

- Authorized the manager to execute a contract with NASA for two Atlas/Centaur launch vehicles and associated services for launch of the INTELSAT IV satellites at an estimated nonrecurring cost of

\$1,165,000 and a recurring cost of \$15,581,000 per launch vehicle.

- Authorized the manager, in conjunction with signatories desiring to participate, to arrange field trials of the SPADE (frequency sharing) system which could involve both experimental and operational traffic using the Atlantic INTELSAT IV satellite.

- Authorized COMSAT to use data and inventions developed under INTELSAT-funded demand assignment programs for a joint study with AT&T on the interface between U.S. terrestrial facilities and demand assigned facilities in the satellite system.

- Decided that administrations may request from the Committee, on a case by case basis, an allotment of satellite capacity at the normal rate of charge for the simultaneous transmission of voice and telegraphy on a voice circuit to meet public service requirements with a limit of three telegraphy circuits per voice channel, and three voice circuits per carrier.

- Authorized the manager to negotiate a \$24,810 contract with Lockheed Missiles and Space Company for a wheel attitude control system comparison study.

- Scheduled the Forty-third meeting of the Committee to begin October 1 in Washington, D.C.

At the present, 68 countries are members of INTELSAT, and the ICSC has approved quotas for 10 additional countries.

CEA Members Join Fall Football League

The CEA has formed a football team that will represent Headquarters and the Lab in the District of Columbia Recreation League. Practice and scrimmages have begun, but interested persons are still welcome.

Games will be scheduled for Saturday mornings between 8:00 and 11:00, and will be played at the Monument Grounds or the Tidal Basin. The first game is scheduled for the last week of September.

For further information about practice and games, contact either Melvin Harley, Printing and Reproduction, or Andrew Walker, Communications Processing Laboratory.

COMSAT Scholarships

In order to be eligible for a National Merit Scholarship and/or a COMSAT Scholarship, students who will be entering college in the fall of 1971 must:

- Notify their high school principal in early October 1969 of their intent to take the National Merit Scholarship Qualifying Test.

- Take the National Merit Scholarship Qualifying Test (NMSQT) on Saturday, February 14, 1970, or (at the option of the principal) on Tuesday, February 17, 1970.

- Complete Form CSC 207, "Application for COMSAT Scholarship" and return it to the COMSAT Personnel Development Department by early March 1970.

Details can be obtained from E. P. McCarthy, COMSAT Personnel Office.

ICSC Holds 42nd Meeting In Brazil

The 42nd meeting of the International Communications Satellite Committee (ICSC) was held at the Copacabana Palace Hotel in Rio de Janeiro from August 13 through 20 under the auspices of the Ministry of Communications of Brazil.

Carlos A. Nunez of Mexico, Chairman of the ICSC, and John A. Johnson, COMSAT Vice President—International and Vice Chairman of the ICSC, presided at the sessions.

The ICSC annually holds a meeting away from INTELSAT headquarters in Washington, D.C. The Rio meeting was the first to be held in South America. In previous years, meetings were held in Paris, Tokyo and Naples.

Preparations for the meeting were begun months in advance by the ICSC Secretariat and the INTELSAT Affairs Division. Harry M. Tollerton, Administrative Secretary, and Robert W. Kinzie, Director of IAD, were responsible for complete arrangements.

Selected staff also attended the meeting. Those attending were Jane Boyd, Sally Bright, Josiane Bryant, William Byrnes, Ismael Dieguez, Maja Geck, Ruth Kupper-schlag, Christine Dziekonski, Richard Magee, Norma Shoemaker, Fernando Van Reigersberg, Catherine Rollings, and Carmen Vazquez.

The support staff was responsible for translation, interpretation, typing of documents and general preparation.

In addition, COMSAT as Manager was represented by William D. English, A. Bruce Matthews, Lewis C. Meyer, Wilbur L. Pritchard, George P. Sampson, Reginald C. Westlake, H. William Wood, Edward N. Wright and Kenneth F. Zitzmann.

A highlight report summarizing the proceedings of the ICSC meeting has been prepared jointly by the COMSAT Office of the Vice President—International, the INTELSAT Affairs Division and the ICSC Affairs Department. (A summary report is made in the news item on page 6.)



Seen attending opening day ceremonies at the 42nd ICSC meeting are: Carlos A. Nunez, representative of Mexico and the ICSC Chairman (second from left); Prof. Carlos Furtado de Simas, Minister of Communications, Brazil (second from right); and John A. Johnson, COMSAT Vice President—International and Vice Chairman of the ICSC (right).



Seen preparing for business at the ICSC meeting are (left to right): Kenneth F. Zitzman, Director of INTELSAT Management; Wilbur L. Pritchard, Director, COMSAT Labs; Edward N. Wright, Assistant to COMSAT Vice President, Technical; A. Bruce Matthews, Vice President, Finance; Louis C. Meyer, Director of Procurement and Contracting for COMSAT; H. William Wood, Director of INTELSAT Systems Management; and George P. Sampson, COMSAT Vice President, Operations.



COMSAT personnel attend dinner reception given by the Brazilian Ministry of Communications for ICSC representatives.



News and Notes from Jamesburg

Jamesburg Station Plays Key Role In Apollo 11 Communications and TV

By M. Lee Dorsey

It goes without saying that the Apollo 11 Mission was the most exciting event any of us at Jamesburg or any place in the world has experienced. We are doubly proud of the dual role Jamesburg played in providing communications to "Columbia" and "Eagle" during the entire journey to the moon and back, and in acting as a key facility, making it possible for television viewers around the world to view this historical event.

Jamesburg received the "moon walk" transmissions from Australia via the Pacific INTELSAT III and fed them to NASA in Houston. At the same time we transmitted the return network "moon walk" pictures and sound across the Pacific Area and to Europe via Japan and the Indian Ocean satellite.

For the "Columbia" splashdown in the Pacific, our station was the principal facility for reception of those historic pictures from the WUI/GE transportable earth station on the U.S.S. Hornet. We then relayed them to the TV pool in New York for dissemination to the world. In this case we were the main U.S. station routing transmission to both Pacific and European countries.

Representative on the Hornet

Vic Jeter, of the Jamesburg staff, was on the Hornet recovery ship for the splashdown. He got some good pictures and shook the hand of President Nixon on the Hornet.

Jamesburg Picnic

The Employees Association sponsored two picnics this year at Saddle Mountain, one on June 28 and the other on July 12. The scheduling of two picnics enabled employees from all shifts to attend

at least one picnic. The food was good, the drinks cold and the swimming excellent.

Harold McClure's wife, Margaret was our CEA photographer this year. She took a lot of good pictures for our CEA album and for COMSAT NEWS.

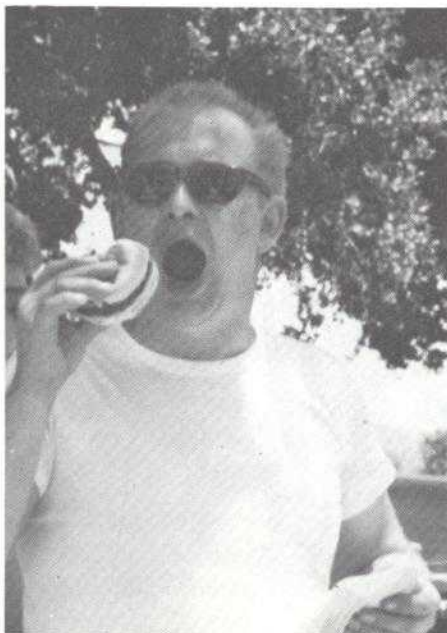
Hospital

Virginia Robinson, wife of our Facilities Engineer, was in the hospital. We certainly hope she is feeling better. Virginia is our favorite baker here at the station. She sends in her excellent banana nut bread for our coffee break once a month. We sure miss that banana nut bread.

Visitors

Because of interest in the Apollo 11 mission, our station had many interesting visitors. To name a few, there was Mr. Serafin of ABC; Dick Swartley and Max Lowy of GE Space Division; C. V. Germano of W.U.I., N.Y.; and Colonel Wamsted, Deputy Commander of the U.S. Army Satellite Communications Agency.

Other visitors included three students from France, the Messrs. Martin of Nimes, Menardo of Nice and Rivals of Toulouse, who were making a tour of the United States and were on the Monterey Peninsula. They had heard of our earth station and expressed a desire to visit us. Our Administrator, Don McKenzie, conducted the French students through the station.



Jamesburg employees had their choice of two CEA picnics, four scenes of which are shown above.

COMSAT Papers To Be Presented At London Forum

INTELSAT and the Institution of Electrical Engineers (IEE) of the U.K. will co-sponsor an International Conference on Digital Satellite Communication in London November 25-27, 1969. Dr. Joseph V. Charyk is scheduled to deliver the keynote address.

This will be the first INTELSAT-sponsored technical symposium.

The conference will be a forum for the exchange of information on the latest developments in digital communication techniques and discussion of the impact, present and future, of digital systems on satellite communications. The aspects to be discussed include processing, operations, and economic considerations.

The guest speaker at the conference dinner on November 26 will be Prof. H. Bondi, Director-General of the European Space Research Organization.

Fifty papers will be presented, representing eight countries: Australia, France, Germany, Italy, Japan, Switzerland, the United Kingdom and the United States. Ten papers by COMSAT personnel have been accepted. The technical program is divided into seven broad areas: systems requirements; multiple access and demand assignment techniques; modulation, synchronization and coding techniques; spectrum utilization and system constraints; operational requirements, economic considerations; and future systems.

John G. Puente, Manager of COMSAT's Communications Processing Laboratory, is Co-chairman of the Technical Program Committee for the conference. Dr. B. I. Edelson, Assistant to the Director, COMSAT Laboratories, is a member of the Steering Committee.

Conference visitors will be able to visit the Empress Exchange, the first all-digital tandem exchange carrying public traffic.

The official languages of the conference are English and French. Simultaneous translation will be provided.



Patricia Hooper uses her newly acquired shorthand skill to take dictation from Thomas W. Harrington, COMSAT Director of Personnel.

Pat Hooper Completes SOC Course, Becomes a Secretary in Procurement

Patricia Hooper, 19, became the first graduate of COMSAT's Phase II Program conducted under Project Secretarial Opportunities Consortium (SOC) in August. Mrs. Hooper and twenty-one other young women have been participating in the Phase II Program since January.

Project SOC is a specialized clerical training program for young women between the ages of 16 and 24. The goal of the program is to help the participants develop marketable job skills leading to full time employment.

The Department of Health, Education and Welfare funded the first phase of the project under the Manpower Development Training Act. Phase I consisted of 26 weeks of classroom training designed to develop general secretarial skills.

COMSAT is conducting Phase II of the project, which consists of 26 weeks of on-the-job training under the supervision of the Office of Personnel. Paul Gaffney, William Lockett and Gene McCarthy are coordinating this part of the program.

Phase II training will be completed in December this year, but participants may take the COMSAT Typing and Shorthand Test anytime they feel they are ready. If they pass the exam, as Mrs. Hooper did, they are eligible for Phase III, which is full time employment. The 22 women in the program are competing for ten positions COMSAT has guaranteed to offer.

Mrs. Hooper, who had no previous secretarial training, commented, "The program is a good one and I would recommend it to anyone who could discipline herself, but returning to the classroom takes determination and the desire to get ahead." She added, "The chance to get a better job and higher pay was a good incentive." Mrs. Hooper is now working as a secretary in Procurement Contracting with John Thaler, Manager of the Earth Station Department.

COMSAT, in cooperation with the National Alliance for Businessmen, may participate in the Phase II Project again next year.

Signaling System

COMSAT on behalf of INTELSAT has announced its intent to award a contract to the Plessey Electronics Group, British Telecommunications Research, Limited. The British firm will study a new signaling system with respect to its application to satellite telephony. The fixed price contract is for \$40,365.

News and Notes From Etam

70 Persons Enjoy CEA Summer Picnic

By Mrs. Deloris Goodwin

The Etam COMSAT Employees Association (ECEA) picnic was held on July 12, 1969, at Camp Horseshoe Recreation Area near Parsons, West Virginia. About 70 people came to join the fun, including 30 children. We all enjoyed playing softball, horseshoes, and badminton, as well as eating hot dogs, hamburgers, and other picnic "goodies."

Dewey Clay, our former Procedures & Training Supervisor, reported to Headquarters in Washington, for temporary duty prior to his assignment to Talkeetna, Alaska, as Station Engineer of the Alaskan earth station. Our former Operations Supervisor, James Silvius, became our new Procedures & Training Supervisor after Mr. Clay's departure.

John Formella, Senior Technician, became Acting Operations Supervisor of the Gold Team. Rupard Hobbs, Senior Technician, was promoted to Operations Supervisor of the Grey Team. He had been Acting Operations Supervisor.

Mrs. Delores Bucklew, Accounting Personnel Clerk, resigned from the Corporation on June 13. She accepted a job with the Department of Agriculture in Kingwood, where she resides.

Classes Held

Etam Earth Station technicians attended training classes on high powered amplifiers given by Ray Knight from the Andover Earth Station. The technicians thought the 20-hour seminar was informative and well conducted.

A Skills Inventory was conducted in July by A. J. Stotler of COMSAT Headquarters, in conjunction with training upgrading of our electronic technicians and facility mechanics. The training checklists that will result from the inventory will indicate where we are now and what is required in the way of training for optimum manning by 1970.

Our station also plans to give some on-the-job training beginning August 4 to technicians seeking a higher degree of proficiency in various sub-systems. Additional facilities and operations training began during the last week of July.

visor, attended the PRADCO Sensitivity Training course during the week of August 10-15 in Cleveland, Ohio.

After the July 25 launch, attention of the staff was directed toward maintenance and repair. Because operational commitments sometimes prevent complete checks, a thorough maintenance inspection was made during August.

The station has been conducting tours each Wednesday between 2:00 and 4:00 p.m. Attendance has been good, and therefore the tours will be a continuing policy.

Visiting Headquarters

Our Blue Team with Mr. Helfgott, Mr. Everly and Mr. Gifford had the pleasure of visiting the Operations Center and Labs in Washington, D.C. on July 28 and 29. They met some of the people with whom they are in daily contact and were able to see what the Washington facilities actually look like.

Three employees recently obtained their FCC licenses. Congratulations are extended to Darrell Riddle, Rupard Hobbs and Leonard Gifford for their achievement.

Personal Notes:

Mr. and Mrs. Victor Molek became the proud parents of a daughter, their second child, on May 30. The baby weighed 6 pounds, 11 $\frac{3}{4}$ ounces at birth and has been named Dana Lee. Congratulations to the Moleks!

Some of our employees have been confined to hospitals. Richard Dean, Utility Man, suffered a light heart attack. He is now recuperating at home and plans to return to work in September. Ed Wawzinski, Electronic Technician, recently underwent major surgery. He too is recuperating at home and plans to return to work soon.

The Bermuda onion is gaining popularity! The onions are served with the grilled hamburgers each Wednesday. This is all made possible by the assistance of Chet ("Chef") Randolph and William ("Rare") Adams. One of the employees recently remarked that the hamburgers were getting better, and he could not determine whether the change was due to the

From Page 3

Podraczky

able to get her quiet quickly."

It had been suggested to the Podraczky's that they give Agnes drugs, "but we refused to do that," he said.

Six weeks after their escape to Austria, the family arrived in Canada where they now claim their citizenship.

Engineering Career

With his electronics engineering degree from the Polytechnic University of Budapest, and advanced graduate studies almost complete toward his doctorate, Mr. Podraczky went to work for RCA Victor in Montreal.

He first concerned himself with radio relay systems, but interest in communications satellites was growing. Mr. Podraczky was instrumental in RCA Victor of Canada winning a contract in 1960 for relay communications satellite transponders.

Move to COMSAT

While working in satellite transponder technology, he met Sidney Metzger, COMSAT's chief engineer, who asked Mr. Podraczky to join the Corporation and head a group dealing with communication satellite repeater problems.

Mr. Podraczky began developing his idea in 1964 that led to his patent while at Tregaron, COMSAT's first headquarters.

Mr. Podraczky recalls "the mirror room" at Tregaron with amusement. He explained: "the room was ringed with mirrors and one day they all came tumbling down."

But with a sparkle in his eye and a grin at the side of his lips, he recalls, too, "the pet squirrel at Tregaron which regularly came in the window."

A writer of many technical papers and reports, Mr. Podraczky has become quite involved in the last few years in international communications matters.

"There's so much to be done in developing position papers at international sessions, and so few people, really, to do the work."

For recreation and relaxation he rides a bicycle almost daily near his Bethesda residence. "I'm not a physical fitness nut," he quickly explains, but then adds, "I like to play tennis rather regularly and then in the winter our family likes to ski."



Engineers at Hughes Aircraft Company, El Segundo, California test equipment that will be used to check INTELSAT IV series Satellites. This test center is the first of three to be built.

(Continued from Page 1)

Response

30,000 circuits per satellite, which could be available in the second half of the 1970s."

Mr. McCormack said satellite systems beyond INTELSAT IV would embrace such characteristics as:

Much higher capacity, increased ground-control flexibility, improved station keeping, longer life, reduced stringency in requirements for earth station performance, alternative forms of modulation and dedicated wideband channels for TV and high-speed data.

Pointing to the approaching saturation of the 4 and 6 gigaHertz bands, Mr. McCormack said portions of the frequency spectrum above 10 gigaHertz have great promise for future use.

In the absence of a move to higher frequencies, Mr. McCormack said, the next major step will bring an application of narrow-beam transmissions so that individual frequency bands can be expanded by multiple use.

Among Mr. McCormack's observations in connection with the advanced satellites to come were these:

- The requirement for very nar-

row coverage beams probably will translate into large antennas. Unfurlable satellite antennas offer attractive opportunities for holding down launch vehicle dimensions.

- For narrow beam antennas to be effective, methods of pointing only the antenna rather than the satellite will be required. Low thrust devices, perhaps electric propulsions, may have to be employed for precise orientation of spacecraft.

- Solar array systems seem likely to encounter practical limitations at as yet undetermined levels, beyond which nuclear power may be attractive.

American Telephone and Telegraph Company, in responding to Mr. Strassburg's requests for information, advised the FCC that it regards additional submarine cables across the Atlantic and Pacific Oceans as necessary. COMSAT replied that the cost of such cables to rate-payers is unknown and that satellites will provide the redundancy of facilities and routing which AT&T says is necessary.

Mr. McCormack suggested that the Commission initiate now a broad study into questions bearing on the future assignment of total traffic between cables, satellites and other international communications facilities.

2 COMSAT Staffers Speak at 'Wescon'

Edwin J. Istvan, Assistant to the Chairman and President for Special Activities, and Dr. S. H. Durrani, a member of the technical staff, participated in the Annual Western Electronic Show and Convention (Wescon) held at the Cow Palace in San Francisco, August 19-22.

Wescon is sponsored jointly by the Western Electronics and Manufacturers Association and the Institute of Electrical and Electronic Engineers. It is the western counterpart of Eascon, both of which are designed for exploration into the latest developments in electronics.

The session, Data Relay Satellites, was presented in conjunction with the communications program and was conducted on Wednesday, August 20.

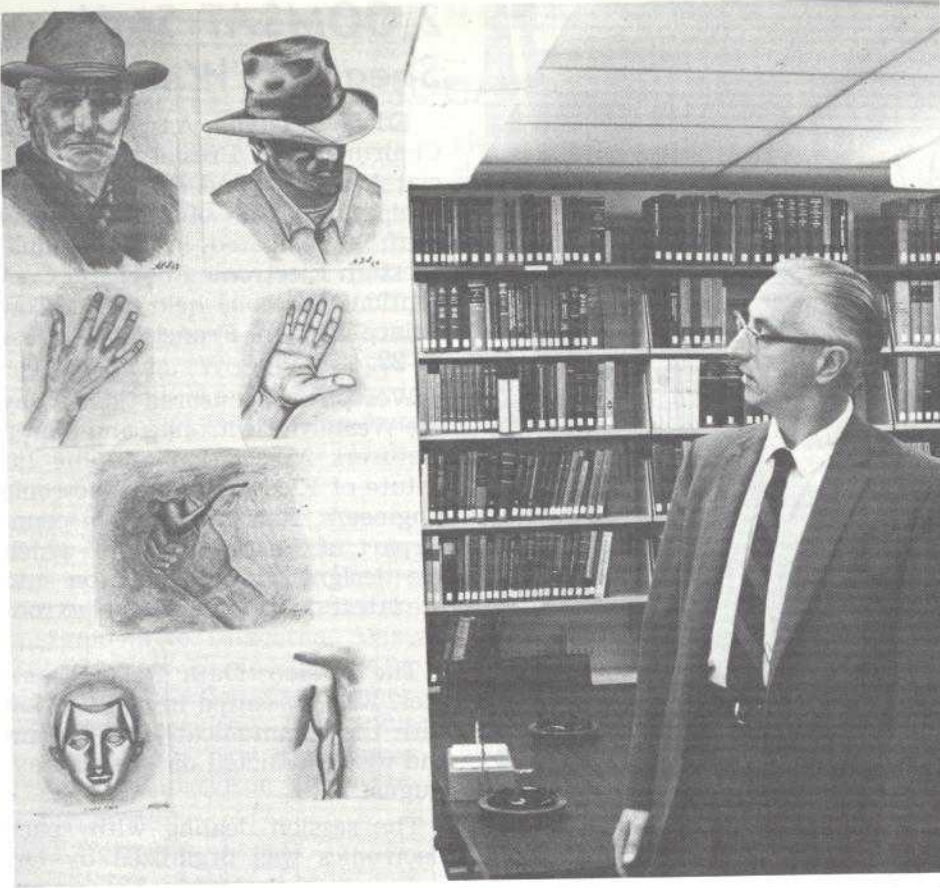
The session dealing with space electronics was organized by Dr. Durrani and chaired by Mr. Istvan.

The five topical papers and their authors were: "Collection of Data from IN SITU Sensors via Satellite," S. D. Dorfman, Hughes Aircraft; "Domestic Communications via Satellite," Dr. Richard Lane for W. B. Gross, General Electronic Co.; "A Multiple Access Satellite Relay System for Low Data Rate Users," P. J. Heffernan, NASA-Goddard Space Flight Center; "Wideband Transmission of Photographic Data Using the IDSP Satellites," W. J. Gill, Philco-Ford; and "Coding and Signal Selection for the Data Relay Satellite Interrogation Channel, G. D. Boyce, General Dynamics. A discussion session followed the presentation of these papers.

General sessions in addition to communications dealt with computers, microwave relay systems and large scale integration.

Study Contract Let for Digital Logic Circuits

COMSAT on behalf of INTEL-SAT announced its intent to award a contract to the Government Electronics Division, Motorola, Inc., Scottsdale, Arizona, for a study of high-speed digital logic circuits. To be completed in three months, the contract is for a fixed price of \$48,848.



Arthur Standing, a member of the COMSAT technical staff, displayed his charcoal drawings in the Labs Library at 1835 K St., N.W.

COMSAT Plan Given At Alaskan Meeting

COMSAT presented its latest program for broad-scale introduction of satellite communications to Alaska during a recent two-day conference held in Anchorage to discuss the state's future communications development.

The conference, which attracted a sizable group of both government and industry experts, was called by Alaska's congressional delegation to study ways to establish a system of telephone, telegraph and television communications serving both urban and bush areas.

COMSAT Chairman James McCormack lead the COMSAT delegation.

COMSAT's Alaska Project Manager William Miller made a presentation on behalf of COMSAT on August 30. Miller outlined a three-phase program in some detail.

The program outlined by COMSAT in all phases would be capable of handling high quality voice, record and TV communication, and equip Alaska with the latest technological advances in telecommunications.

News and Notes from Paumalu

Modifications Keep Station Busy

One of the major items of interest at the Paumalu Station during the past few months has been the modification of the original 85 foot antenna and associated communications equipment. The antenna was removed from service in March during the Pacific INTELSAT III transition, and the new 97 foot Paumalu II system assumed the primary communications role.

The Paumalu I system was placed in operation in December 1966 and was in operation continually until March 1969. Work presently being done is designed to upgrade the system to compare favorably with the newer stations.

Visitor Activity

To say that Paumalu has been very active as the result of recent modifications is putting it mildly. Activities connected with the modifications have brought a steady stream of contractor personnel to Paumalu.

Separate Japanese installation teams from Nippon Electric Company have been here modifying original equipment and installing

sensitive, low noise receivers.

Lenkurt personnel have also visited the station to install and test radio equipment.

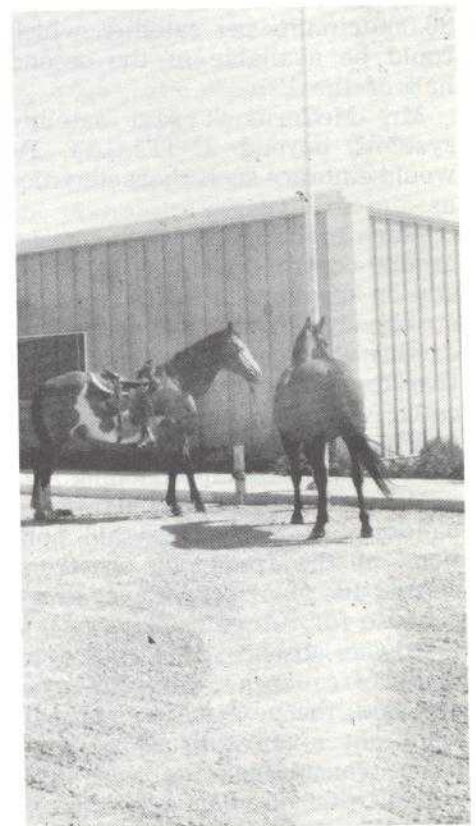
As a fitting climax to the effort, full scale cleaning and painting of the antenna has begun.

In addition to the contractors, technical personnel have contributed in the modification program. William Ferguson, Ronald Price, William Young, Ronald Zimmerman and Michael Moore have visited from Headquarters in Washington, D.C.

James Adams, David Morgan, Thomas Schultz, Richard Attwood, Jim Erskine and John Bland from Brewster have contributed their efforts and expertise during recent months.

Personal Notes

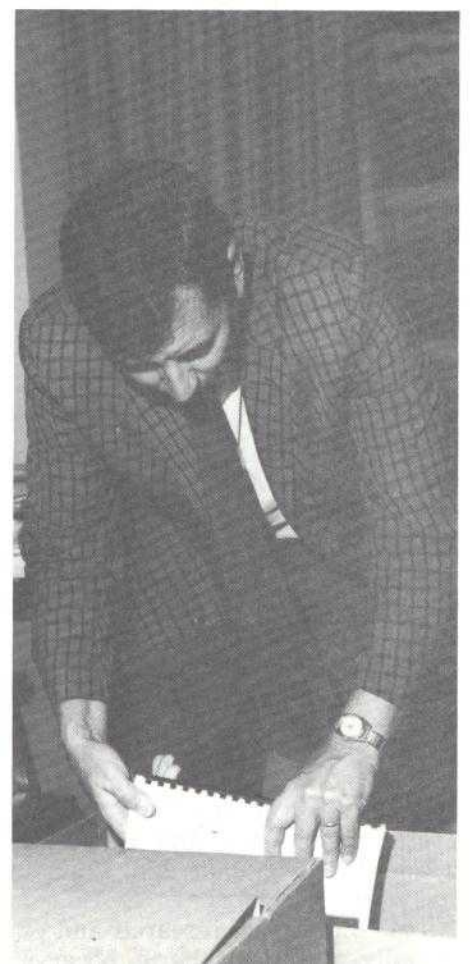
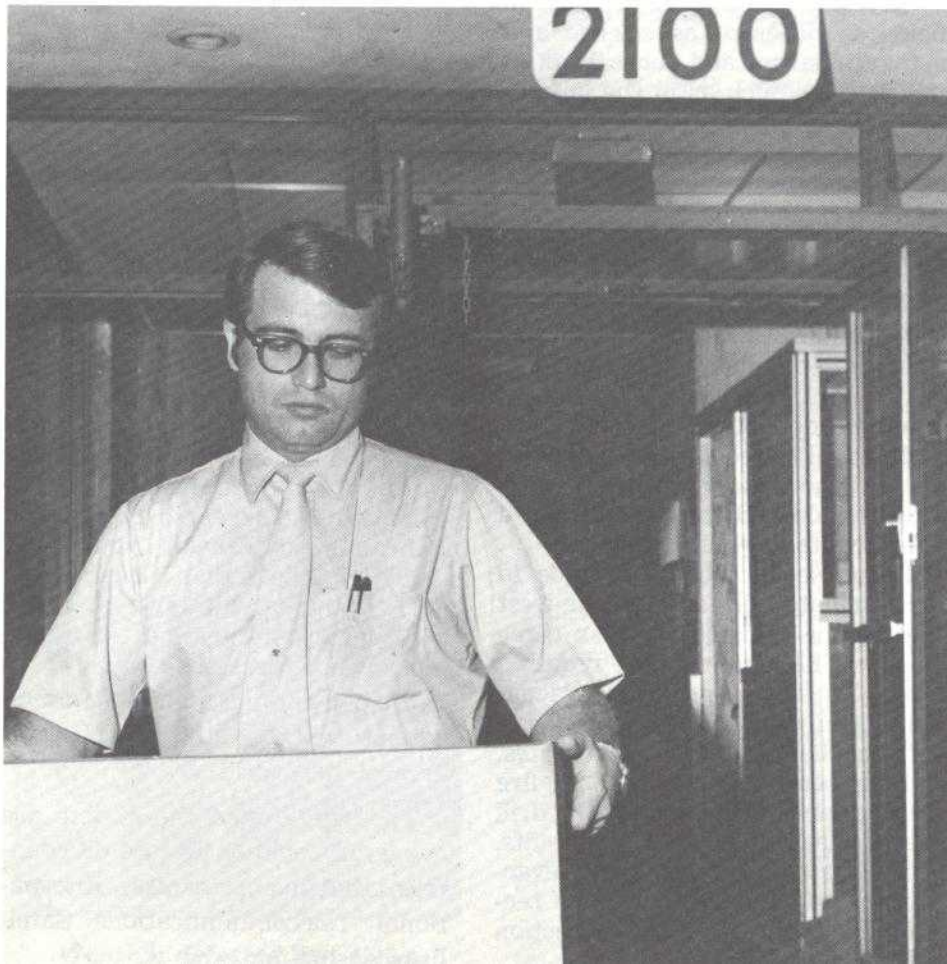
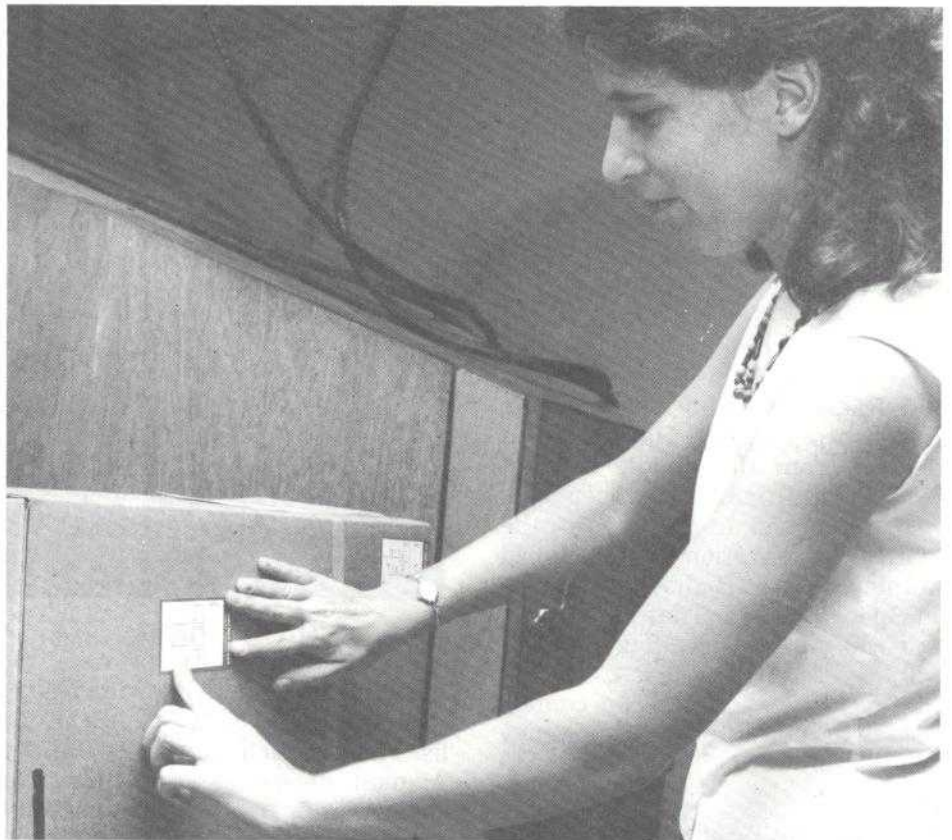
Congratulations are in order for a number of Paumalu employees who have had recent additions to their families. The Charles Wongs and Yoshiaki Daikokus welcomed daughters into their families. Sons were born to the Allan Prevos, Melvin Tates and Franklin Meyers.



COMSAT's Washington employees, numbed by rush-hour traffic, might be envious of the Brewster technicians who rode these horses to work.

The COMSAT Laboratories Move to Clarksburg.....

... and at 1835 K Street and 2100 L Street, this meant packing and more packing in preparation for the move ...



Pioneer in Electronics Research Joins COMSAT Labs as Consultant

Dr. Ivo Ranzi, whose distinguished career in electronics and telecommunication goes back to the 1920's, is spending a year at COMSAT Laboratories as a consultant. Next March he will return to his post as Professor of Space Telecommunications with the University of Rome and the Italian Ministry of Posts and Telecommunication.

Dr. Ranzi has been the Chairman of the International Radio Consultative Committee (CCIR) Study Group IV on Space Systems and Radioastronomy since it was established in 1959. He will be in Geneva from the middle of September until early October this year to attend a meeting of the CCIR in preparation for the World Administrative Radio Conference on Space in 1971. That conference and the meetings leading up to it will be very important to COMSAT and INTELSAT since the conference will allocate new frequency bands for satellite communications.

At COMSAT Labs, Dr. Ranzi is helping the Systems Integration Laboratory in its studies of the effects of the atmosphere and precipitation on communications at frequencies above 10 GHz. The Manager of the Systems Integration Laboratory is Mr. Emeric Podraczky.

Dr. Ranzi is particularly interested in scattering and absorption effects. Signal losses in the atmosphere become a problem at frequencies above 10 GHz, yet these high frequencies are becoming more attractive for satellite communications due to the increased demand for and potential overcrowding of lower frequency ranges.

The ITU **Telecommunication Journal** said of Dr. Ranzi in July 1963: "Ivo Ranzi has a taste for adventure in travel as well as in research, and has ventured far afield in scientific expeditions: in tropical West Africa (Eritrea) in 1931, to study cosmic and ionospheric rays in the western Antarctic in January and February, 1950. Between 1949 and 1952 he made several journeys to Buenos Aires to organize research and especially the ionospheric observa-



Dr. Ivo Ranzi

tions made by the Argentine Navy.

"Ivo Ranzi speaks Spanish, English, and French as well as Italian. A man of extensive culture, he spends his spare time painting surrealist pictures.

"Ivo Ranzi is equally at home in fields as different as science and art, rationalism and surrealism, in the field as much as in the laboratory. He is one of the most attractive and original figures in the world of telecommunication."

Fire Drill Results Are Being Reviewed

A building evacuation drill was held on September 10 for all COMSAT employees in the L'Enfant Plaza headquarters.

The drill tested both the response time of the building management's fire brigade and the time required to evacuate the building.

Response by the fire brigade to the simulated fire area on the west end of the fourth floor was three minutes. Evacuation time required from the sounding of the evacuation bells until all personnel had left the building was six minutes.

Representatives of the D.C. fire department who witnessed the drill were pleased with the results. Problems encountered in the evacuation are being reviewed and recommendations for their correction will be submitted.

COMSAT Show At Teheran Fair To Depict System

The COMSAT exhibit at the Second Asian International Trade Fair at Teheran, Iran, October 5-24 features the initial global system of commercial communications satellites.

The exhibit consists of a theater in which a three-screen slide presentation describes the global system and the network of earth stations in about 20 different countries that operate with the satellite.

The Teheran Trade Fair precedes the dedication of the Iranian earth station at Assadabad. This station will provide Iran with a direct line of high quality communication to 14 different countries in North America, Latin America, Europe and the Middle and Near East, all via the INTELSAT III satellite over the Atlantic Ocean.

Iran has been a member of INTELSAT since September 3, 1968. The Ministry of Posts, Telegraph and Telephone represents Iran in INTELSAT, and owns and operates Assadabad earth station.

Geographically Iran holds a favorable position in the satellite system. Earth stations located in this area of the world can communicate either by the Atlantic or the Indian Ocean satellites. This geographic relation of satellites and earth stations provides access to a large part of the globe by selection of the satellite which provides the desired coverage.

As presently planned, the earth stations in Lebanon and Iran will work with the Atlantic Ocean satellite, while the earth stations in Bahrain and Kuwait will carry traffic via the Indian Ocean satellite. As the satellite system grows with earth stations and terrestrial interconnections, the capability for both regional and global communications will be advanced in this area of the world.

The satellites in the system are owned in common by the 68 countries that comprise the International Telecommunications Satellite Consortium.

Carl Wenrich, Levatitch and Szarvas Win COMSAT Tennis Championships

Carl Wenrich, a Procurement Officer assigned to the Labs, is COMSAT's new singles tennis champ while two Labs' engineers, Jay Levatitch and George Szarvas, are the doubles kings.

They won their crowns in the second annual CEA-sponsored tournament in matches played during August weekends at Hains Point courts.

Wenrich bested a field of 23 singles' entries to succeed Henry Williams, a Labs technician, as titlist.

Williams dropped out this year in quarter-finals play, losing to Szarvas. Wenrich then stopped Szarvas in two straight finals' sets, both by 6-4 scores.

Levatitch and Szarvas claimed the doubles championship—played for the first time this year—by defeating Wenrich and his partner, Richard McBride of the Earth Station Division, in two sets, 6-2 and 6-1. Twelve teams were entered.

The singles and doubles winners and runners-up will receive trophies from the CEA, to be presented at the annual Christmas dance.

Levatitch served as tournament director for singles play while Mc-

Bride had a similar role for the doubles.

Results of all matches:

SINGLES

First Round

Burt Edelson, Labs, defeated Tony Buige, Labs, 7-5, 6-3.

Alan Kasper, Legal, defeated Kay Smith, Information, 6-3, 6-1.

Dan Flynn, Personnel, won by default from Lawrence Adams, Operations.

Hiram "Tony" Bingham, International, defeated Ralph Loffredo, Labs, 6-0.

Bruno Blachler, Labs, defeated Peter Hartwell, Earth Station Div., 6-0, 6-0.

Eleven other players drew byes.

Second Round

Carl Wenrich, Procurement, defeated Tony Clark, Labs, 6-4, 6-1.

Richard McBride, Earth Station Div., defeated Tom Dobyms, Labs, 6-2, 6-1.

Bill Lowe, Labs, defeated Edelson, 6-3, 6-3.

Kasper defeated Jay Levatitch, Labs, 4-6, 6-4, 6-3.

George Szarvas, Labs, defeated Flynn, 6-1, 6-1.

Henry Williams, Labs, defeated Bingham, 6-3, 4-6, 6-2.

Irving Novgrad, Operations, won by default from Blachier.

Ed Jordan, Computer Div., defeated James Dunlop, Labs, 6-1, 6-4.

Quarter-finals

Wenrich defeated McBride, 6-0, 6-0.

Lowe defeated Kasper, 6-3, 6-4.

Szarvas defeated Williams, 6-1, 6-2.

Jordan defeated Novgrad, 6-1, 8-6.

Semi-finals

Wenrich defeated Lowe, 6-0, 6-0.

Szarvas defeated Jordan, 6-0, 6-2.

Final

Wenrich defeated Szarvas, 6-4, 6-4.

DOUBLES

First Round

Charles Baer, Executive Office, and George Christie, International, defeated Tony Buige and Burt Edelson, both of Labs, 7-5, 6-3.

Tony Bingham, International, and Frank Osha, Legal, defeated Lawrence Adams, Operations, and Tom Dobyms, Labs, 6-0, 6-1.

Six other teams drew byes.

Quarter-finals

George Szarvas and Jay Levatitch, both of Labs, defeated Alan Kasper, Legal, and Bill Lowe, Labs, 6-4, 6-3.

Ed Jordan and Henry Williams, both of Labs, defeated Baer and Christie, 6-2, 6-3.

Richard McBride, Earth Station Div., and Carl Wenrich, Procurement, defeated Bingham and Osha, 6-0, 8-6.

James Dunlap and Tony Clark, both of Labs, defeated Irving Novgrad and Matthew Mautz, both of Operations, 6-3, 7-5.

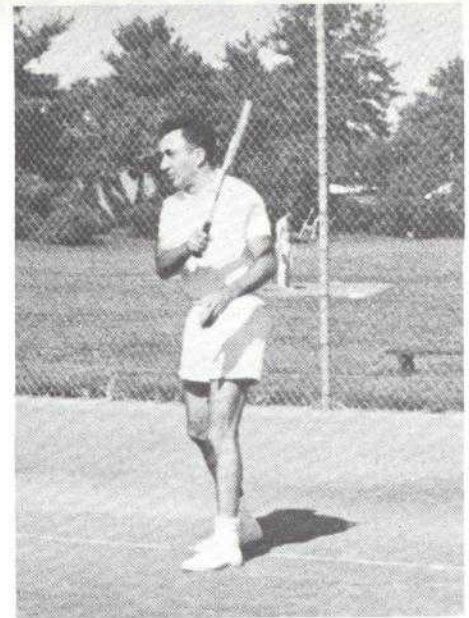
Semi-finals

Szarvas and Levatitch defeated Jordan and Williams, 6-4, 6-2.

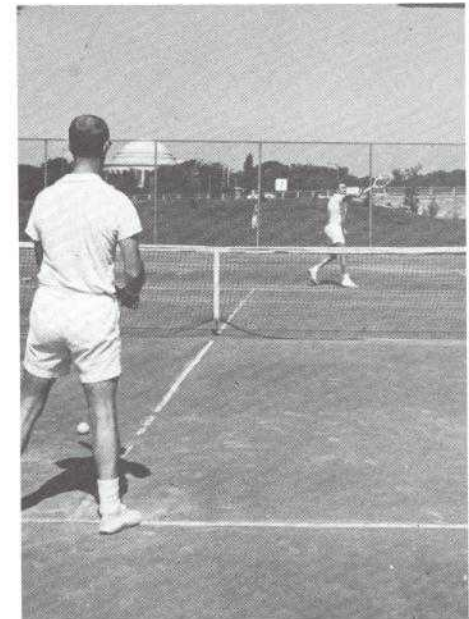
McBride and Wenrich defeated Dunlap and Clark, 6-1, 7-5.

FINAL

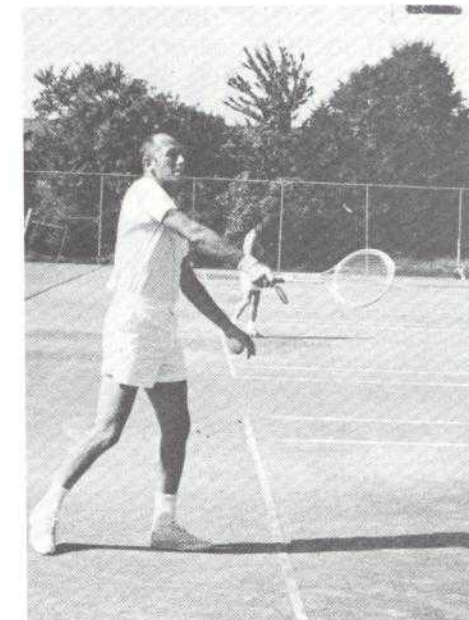
Szarvas and Levatitch defeated McBride and Wenrich, 6-2, 6-1.



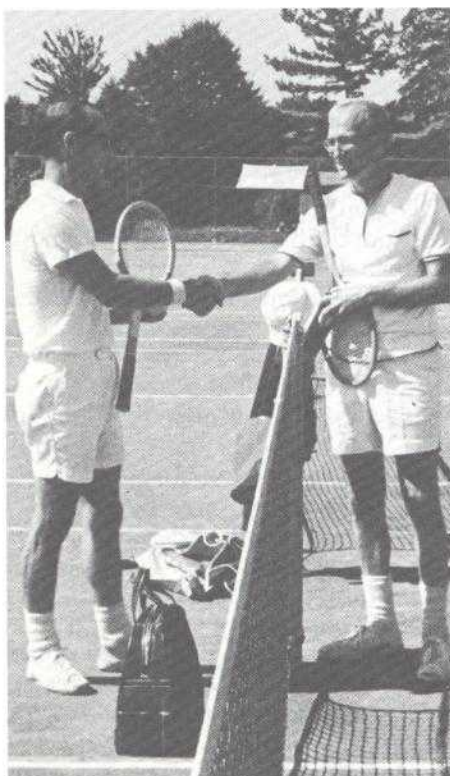
Szarvas hits a forehand.



Wenrich versus Szarvas



Ed Jordan lost to Szarvas



Wenrich defeated Bill Lowe.



General Sampson Wins Golf Title Mary Weisend Women's Crown

George P. Sampson, Vice President, Operations, won medalist honors and Miss Mary Weisend the women's division while three other tied for the men's handicap title in the 4th annual CEA-sponsored 18-hole golf tournament.

Gen. Sampson fired an 84 to top a field of 44 men entries and succeed Dave Burks, Operations-Traffic, as COMSAT's medalist champ.

Miss Weisend, secretary to the Vice President, Corporate Relations, shot a 126—25=101 to win the women's crown, a separate division played for the first time in COMSAT's golf tourney history. She led a field of three.

Joseph V. Charyk, President; Drew Walker, Labs, and Dave Burks each posted a net score of 75 in a three-way tie for first flight net honors. In a playoff at the Washingtonian on September 10, Burks won with a superb score of 73.

The tournament was played August 27, one of the summer's most beautiful days, at the 6,500-yard, par 72 Washingtonian Country Club near Gaithersburg.

Winners of other handicap flights, set up by Drew Walker, CEA vice president in charge of athletics, on the basis of a player's gross against par, were:

Second flight—Bill Hogan, Labs, a summer student employee.

Third flight—(tie) Joe Sciulli, Labs, and Nat Tonelson, Computer Division.

Fourth flight—Randy Williams, Internal Audit.

In addition awards of golfing apparel were given for:

Longest drive on the 9th hole—Walker, about 270 yards.

Closest to the cup, tee shot, on the par 3 11th hole—Jim Hall, Computer Division, 10 feet.

Other women players were Mrs. Ruth O'Donnell, the President's secretary, and Mrs. Toni Loomis, secretary to the Vice President and General Counsel.

Dr. Charyk presented each golfer with a golf ball and a green's marker prior to the start of the tournament.

Assisting in directing the tourney were Gene Gabbard, Labs, and



Previous Golf Champs

1966

Medalist—Dr. Joseph Charyk
Handicap—Drew Walker, Labs

1967

Medalist—Marvin Bowser, Field Operations
Handicap—Jim Owens, Labs

1968

Medalist—Dave Burks, Traffic
Handicap—John Gerstner, Marketing



LONGEST DRIVE

