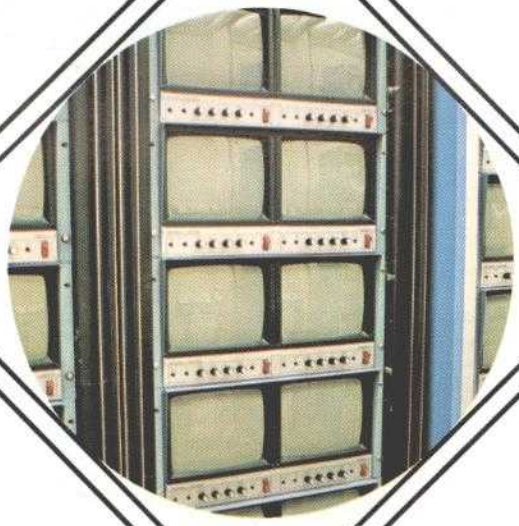
SATELLITE Pathways

July-August 1979
Volume 4 Number 4



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SATELLITE Pathways

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Cover. Creation of the new Equipment Integration Group (EIG) has consolidated diverse activities of COMSAT into a single organization in order to better serve the telecommunications user. Shown on the cover are scenes of EIG employees and some of the equipment they work with or have designed and built: at center, television display monitors to be installed in the EIG-designed Launch Control Center; and, at lower right, the innovative earth station for seismic data transmission in McMinnville, Tennessee, designed and built under subcontract to Sandia Laboratories.

Some idea of the breadth of activities of the New Equipment Integration Group is provided through the display of signs at EIG's Monitoring & Control Engineering Division facility in Rockville, Maryland. New SPADE equipment, the TT&C and CSM equipment to work with the new INTELSAT V satellites and TT&C and Satellite Control Facility equipment for SBS—these are just some of the jobs being designed, engineered, assembled and installed by EIG.

Equipment Integration Group: door to new opportunities

As you walk out of the Comsat Building on the south side of L'Enfant Plaza, you may notice on your left, through the plate glass windows, an assortment of ducts, pipes, and wires. Before Christmas comes this year, those fixtures and the machinery will be in place; the new Launch Control Center will be complete—designed and built by Comsat to accommodate the expanding needs of INTELSAT V.

The LCC is only one of the impressive number of projects currently under construction through the efforts of one of Comsat's newest additions, the Equipment Integration Group (EIG).

This new Comsat enterprise, established a little over a year ago, and fully operational since October, is largely the result of a reorganization within the Comsat family. It consolidates formerly disparate corporate efforts within one group. While it retains many of Comsat's established services, EIG has expanded to serve outside customers, utilizing the latest management techniques, such as computerized planning, budgeting, and controlling systems. Combining these systems with modern business methods, EIG will considerably diversify the revenue base of the Corporation.

The Equipment Integration Group is under the direction of Dr. Terrence P. McGarty. Explaining how his division differs from other parts of the Corporation, Dr. McGarty commented:

"While Comsat Laboratories produces highly sophisticated system components and the new TeleSystems subsidiary of Comsat General manufactures communication products in some volume, EIG designs, engineers, assembles, installs, and tests one-of-a-kind systems. When EIG's work is done, the system is fully operational. The customer unlocks the door, and he's in business."

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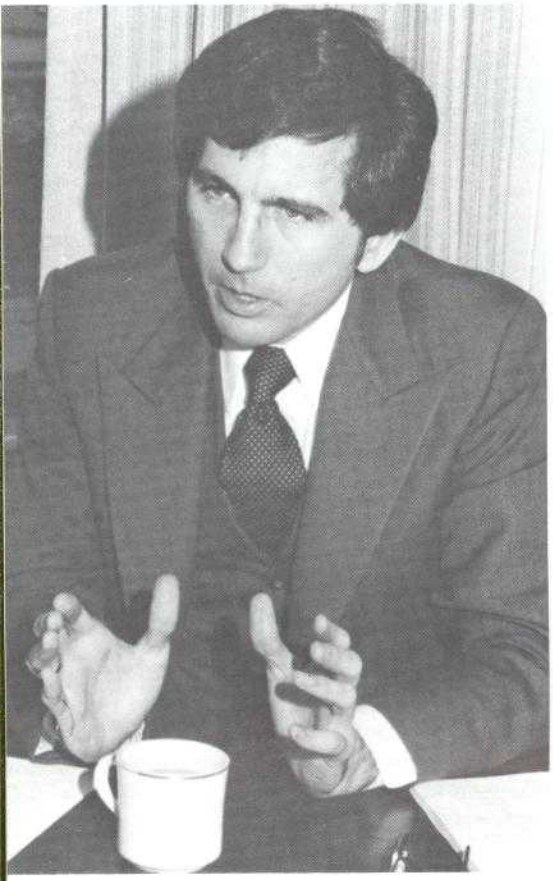
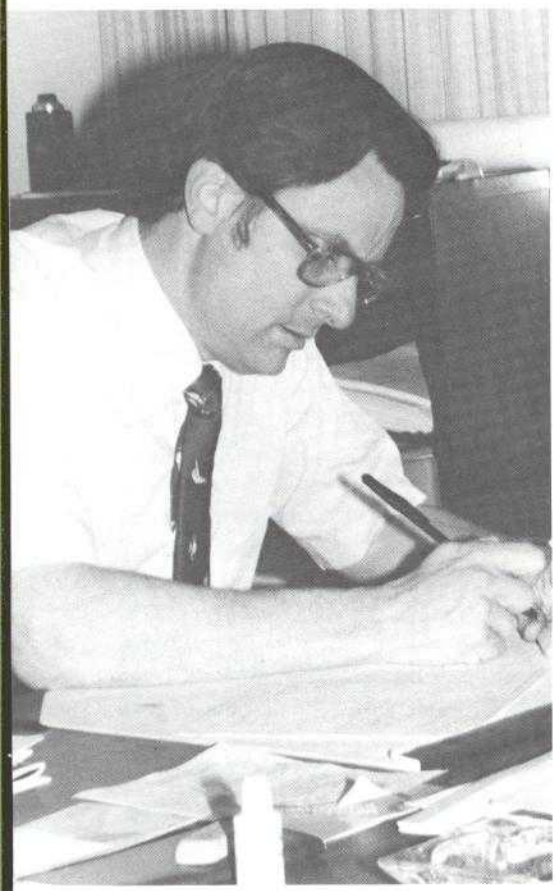


Dr. Terrence P. McGarty is Division Director of Equipment Integration. Dr. McGarty and two of the three divisions reporting to him are based at L'Enfant Plaza in Washington, D.C.

EIG designs, engineers, assembles, installs and tests one-of-a-kind systems. When EIG's work is done, the system is fully operational. The customer unlocks the door, and he's in business.



Brian J. Williams is Director of the Control Systems Engineering Division.

Such products are sometimes referred to as "turn-key"—sophisticated equipment packages employed to meet a customer's unique needs. As an example, EIG is currently reviewing prospects for a project on behalf of the U.S. Geological Survey of the Department of Interior. This project concerns the development of a global earthquake-monitoring system which would transmit data via satellite. The technical and geographic dimensions of the task are considerable: "This is a large-scale network problem," Dr. McGarty notes, "involving end-to-end data processing and computer communications, large-storage capability for data, and small-terminal development."

Two other extensive efforts, currently in the fabrication and assembly phases, are under way in connection with the INTELSAT V generation of satellites. EIG is involved in the design, engineering, assembly, and installation of both a tracking, telemetry, and command system (TT&C) as well as a communications system monitoring (CSM) system. Both the TT&C and the CSM networks are being engineered to continuously deliver data to a central processing location. One result of the efforts will be the notification of system operators when problems are detected.

Additional EIG efforts in support of the INTELSAT V program include: modifications in order to increase the data display capability of the INTELSAT Satellite Control Center (located on the first floor of the Plaza facility) and the replacement of the SPADE terminal at the Etam, West Virginia earth station. Furthermore, as previously indicated, the Equipment Integration Group has responsibility for the development of the COMSAT Launch Control Center (LCC), at which the various INTELSAT launches will be monitored in the future. It will receive data from the eight TT&C stations from the moment an INTELSAT V is launched to the time it is on-line, when control of the satellite will be

passed to the INTELSAT Satellite Control Center.

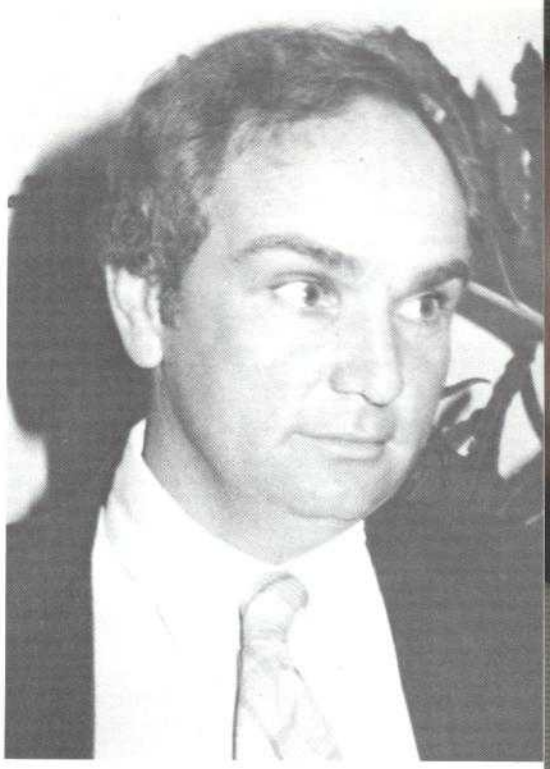
As this article is published, even more projects will be underway. How will they be handled within the EIG organization? The Equipment Integration Group encompasses three divisions within COMSAT: Equipment Design, headed by Walter J. Gribbin; Control Systems Engineering, headed by Brian J. Williams, and Monitor and Control Engineering, headed by Richard S. Cooperman.

Determining system feasibility (both technical and non-technical aspects), blocking out network designs, and conducting trade-off studies for specialized applications of satellite communications is the responsibility of Walter J. Gribbin and his staff, who make up Equipment Design. Gribbin's division has already completed several studies of data collection networks for a variety of U.S. Government agencies including the Department of Defense, the Department of Energy, and the State Department.

The determination of system feasibility and the like is only the first step for EIG. Secondly, the necessary equipment (hardware) for the project needs to be engineered. The type of equipment needed, performance requirements, and system specifications must be determined. This is the job of "Ben" Williams and his staff of 19 in Control Systems Engineering (CSE). Currently Mr. Williams' division is assembling the LCC, modifying the INTELSAT Satellite Control Center, and, as well, holding overall project responsibility for the INTELSAT V TT&C equipment. It is Mr. Williams' division which also handled the modification of the SPADE equipment at the Etam earth station.

Realization of "turn-key" systems is performed within the Monitor & Control Engineering Group (MCE), under the guidance of Richard S. Cooperman. MCE is the largest group within EIG and is

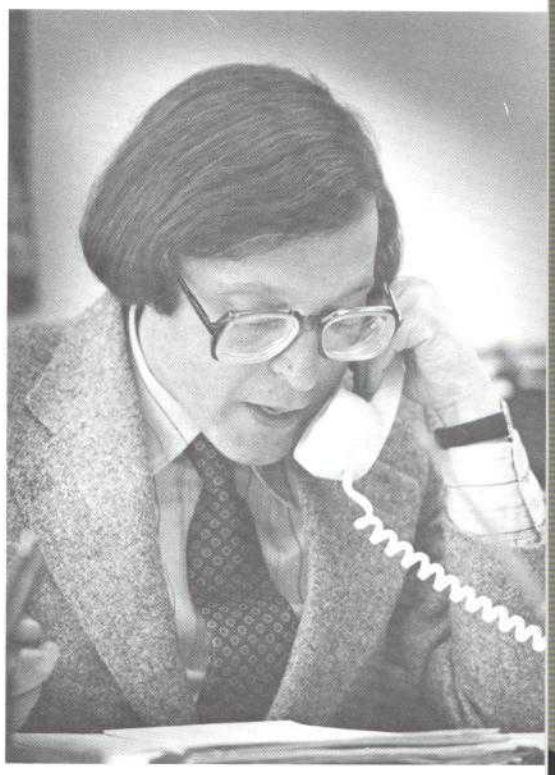
(Continued on next page)



Walter J. Gribbin is Director of the Equipment Design Division.

It is clear that the Equipment Integration Group offers COMSAT a promising future through opening up new opportunities and expanding our business in the communications satellite and related fields.

PHOTOS BY BILL MEGNA AND MIKE GLASBY

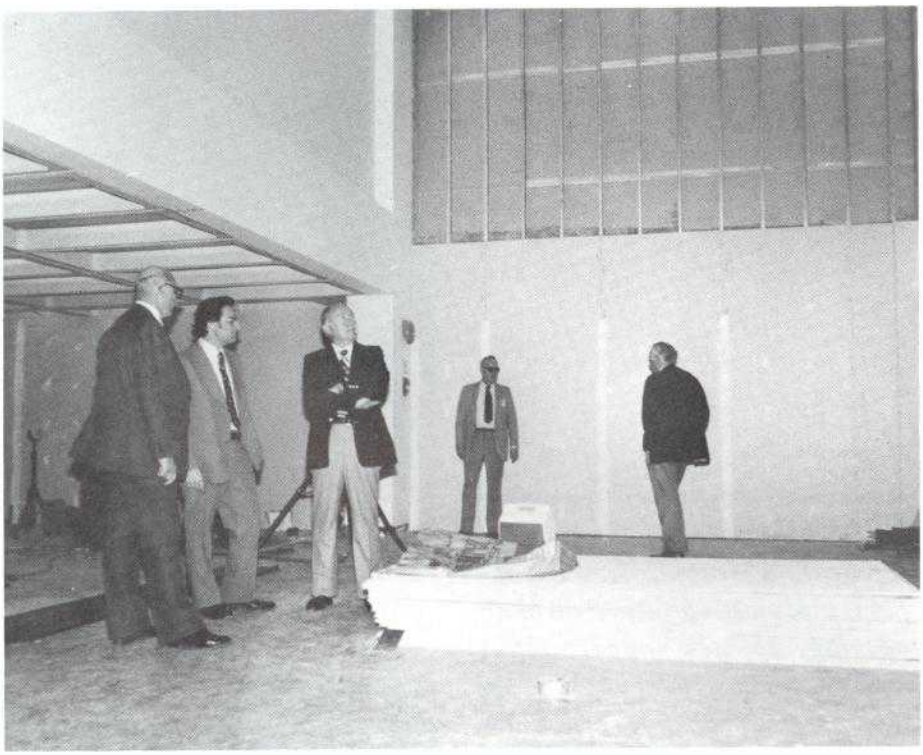


Richard S. Cooperman is Director of the Monitoring & Control Engineering (MCE) Division. MCE is located at 5 Choke Cherry Road in Rockville, Maryland.

(Continued from page 3)
located in its own facility in Rockville, Maryland. Essentially, MCE translates a system from a paper design to an operating network for the customer. To convert system designs and engineering specifications into an operating system, MCE has its own software development and engineering capabilities in addition to its fabrication and assembly functions.

Richard Cooperman describes the activities of MCE as follows: "We deliver on time, within the budget, and the equipment works!"

He points with pride to the design and installation of TT&C equipment for MARISAT at the earth station in Fucino, Italy. "From the moment we started putting that system together until the moment we were finished, it took us 90 days, and we were under budget."

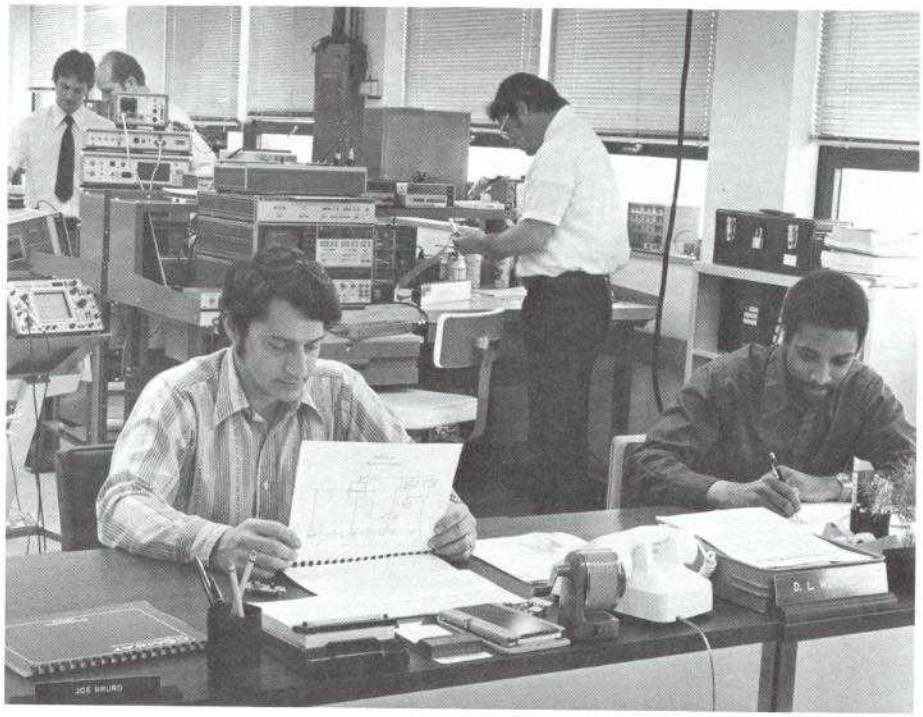


The new Launch Control Center, which is a project of EIG's Control Systems Engineering Division, is shown during an early stage of its construction on the ground floor of the L'Enfant Plaza headquarters building. The three men in the left foreground are, from the left, Gene E. Christensen, Manager, Facilities and Office Services; Brian J. Williams, Director of EIG's Control Systems Engineering Division; and Edward J. Sanderson, Director, General Services. The two men in the rear are outside contractors.

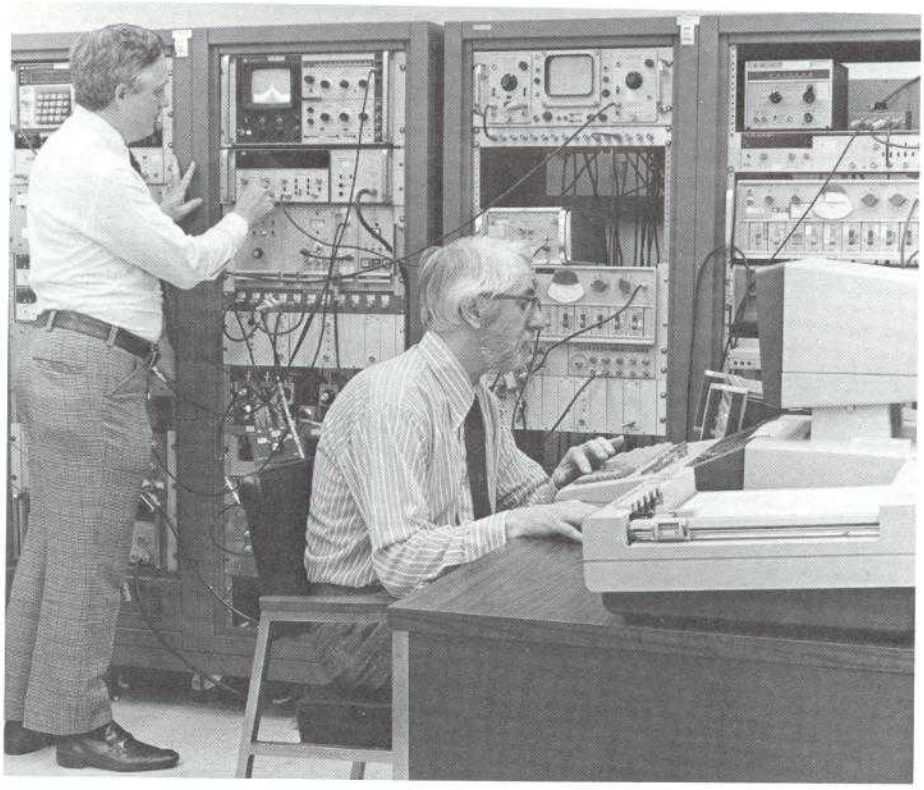
Bill Woods, standing foreground, and Charles Conabee, right foreground, have the responsibility for developing system test procedures. Technicians, rear, are shown assembling CSM equipment.

Cooperman says that the biggest challenge for MCE at the moment is its responsibility for the computer-controlled INTELSAT V Communications System Monitor (CSM) whose function is to insure maximum usage of the new satellites. This state-of-the-art monitoring system will be installed and operating at earth stations all over the world prior to the introduction of the INTELSAT V satellite.

During the next few years, MCE engineers will be installing systems on every continent of the earth except Antarctica, probably only a temporary exception. With such an outlook, it is clear that the Equipment Integration Group offers COMSAT a promising future through opening up new opportunities and expanding our business in the communications satellite and related fields.

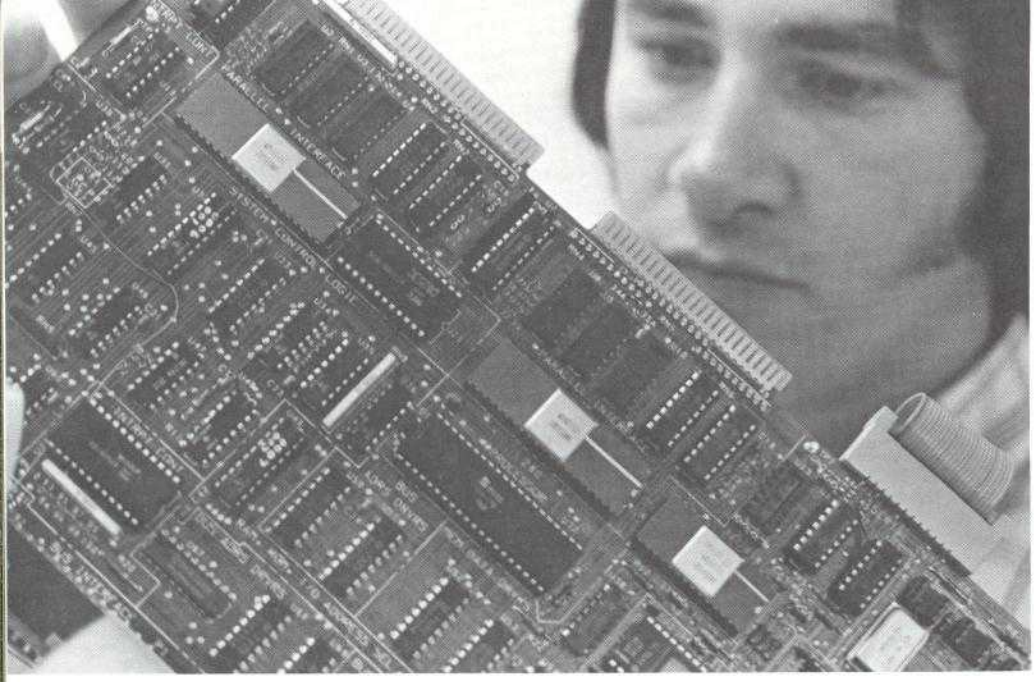


A view of the Microwave Systems Department of the Monitoring & Control Engineering Division: clockwise beginning with left foreground, Joe Bruno, Rick Walton, Jack Ehrmann, Roger W. Bowen, and Dave Woodward.

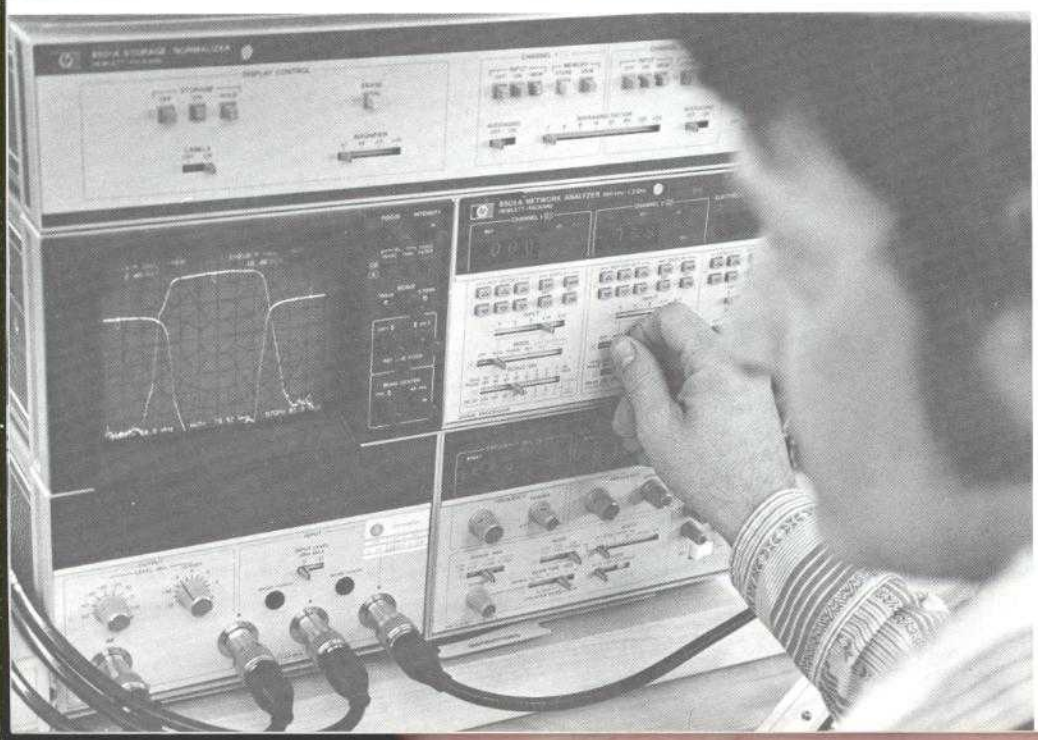


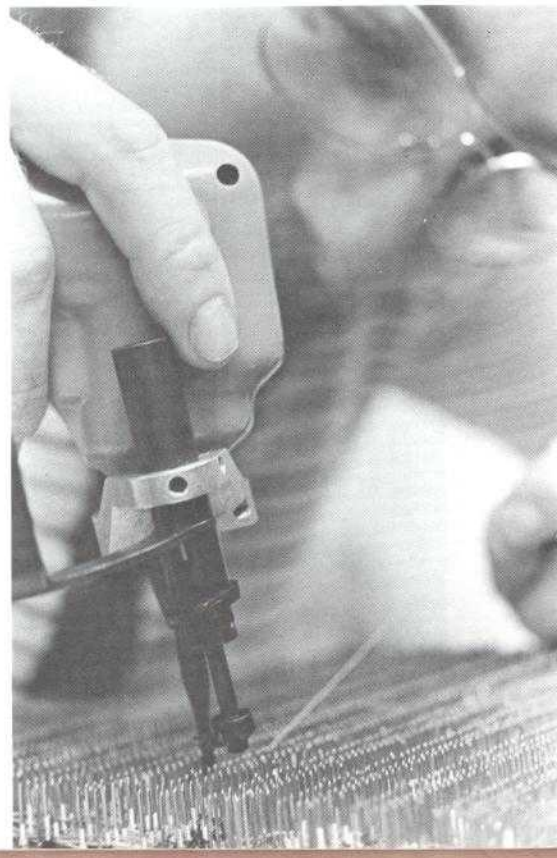
Jerry Barnett, Manager, Microwave Systems, left, and Arthur Standing, Senior Staff Scientist, of the Monitoring & Control Engineering Division, operate the INTELSAT V CSM test bed. The test bed simulates the communications traffic of a satellite and is an essential tool in the design of the CSM equipment.

(Additional Photos on Next Page)



People at EIG's Monitoring & Control Engineering Division at work: clockwise beginning upper left, Tim Deblois building a satellite range processor; Betty Morris assembling power strips; Ron Kuezli wire wrapping; Joe Bruno testing with a network analyzer; and Carolyn Faulkner at the drafting board.





INTELSAT Board elects Chairman/Vice Chairman; adopts new antenna guidelines

The Thirty-eighth Meeting of the INTELSAT Board of Governors was held in June in Hamburg, Germany, at the invitation of the German Signatory. Twenty-six Governors representing 80 of the 102 Signatories were present. Among its key actions the Board:

Organization and Administrative Matters

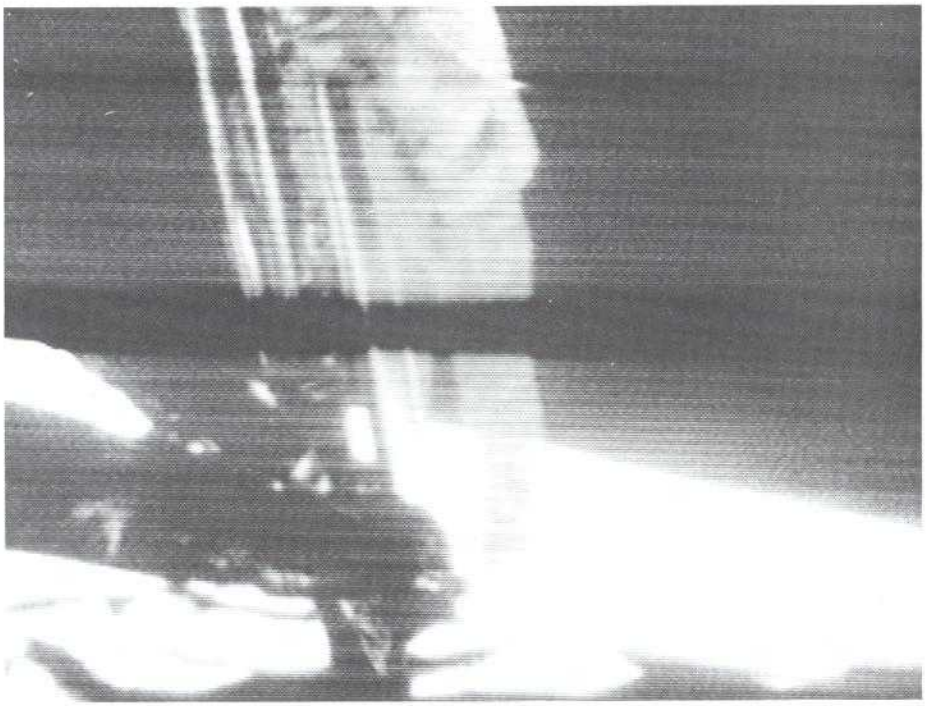
- Elected by acclamation Mr. Randolph Payne of Australia and Mr. Irving Goldstein of the United States as Chairman and Vice-Chairman respectively of the Board of Governors, for one year terms beginning June 13.
- Appointed Dr. Kunishi Nosaka of Japan as Chairman and Mr. George Payet of France as Vice-Chairman of the Advisory Committee on Technical Matters, and Mr. Geoffrey Hall of the U. K. as Chairman and Mr. Neil Tuckwell of Australia as Vice-Chairman of the Advisory Committee on Planning.
- Approved INTELSAT participation, with the Signatory of Italy, as co-sponsor of the Fifth International Conference on Digital Satellite Communications which will be held in Genoa, Italy, in March 1981.

Technical and Operational Matters

- Authorized the Director General to amend the INTELSAT V contract to include a new delivery penalty and incentive scheme which re-establishes penalties for delivery of INTELSAT V (F-1) after December 8, 1979 and provides incentives for early delivery of INTELSAT V (F-1), (F-3), (F-4) and (F-5). It also authorized amendments of the contract to incorporate provisions for: a revised apogee motor program with a cost reimbursement scheme; inclusion of a $1.875 million cancellation option associated with the apogee motor program which is valid until September 15, 1979; and improvement in performance of the receivers for both fixed and maritime service through inclusion of field effect transistor amplifiers. The Board requested the Advisory Committee on Technical Matters to review the technical aspects of the program improvements, and report to the Board's Thirty-ninth Meeting.
- The Board after extensive discussion took a series of decisions on matters relating to system plans, INTELSAT V procurement options, TDMA, and launch vehicles. These were designed to assist in ensuring that the necessary information will be available for the satellite procurement and operational decisions which will need to be taken in late 1979 and 1980.
- Adopted non-mandatory guidelines to assist earth station owners in the planning of new antennas. The guidelines suggest that additional antennas be considered to provide path diversity, earth station back-up capability and operational flexibility. In the INTELSAT V timeframe earth station owners should consider provision of a second antenna when their forecast traffic is in the range of 300-400 circuits, and a third antenna when forecast traffic is in the range 800-1000 circuits.
- Authorized the Director General to enter into negotiations with INMARSAT for the provision of maritime space segment services by INTELSAT, on the basis of the draft contract the Director General had prepared and in consideration of the views expressed by the Governors.
- Noted that following informal consultation the Director General and the Advisory Committee on Technical Matters have concluded that the ARABSAT I and II networks would be technically compatible with use of the radio frequency spectrum and orbital space by the existing and planned INTELSAT network, provided that they are operated in accordance with the special provisions agreed in the consultative meeting.
- Approved changes to the performance specification for TV-associated sound program transmission utilizing the FM subcarrier technique, as recommended by the Advisory Committee on Technical Matters.
- Decided to tender advice to the Meeting of Signatories that service in Colombia's leased one-quarter transponder between Bogota and Leticia meets the requirements for consideration on the same basis as international traffic under Article III(b)(ii) of the INTELSAT Agreement. The Board approved in principle lease to Australia on a preemptible basis of an INTELSAT IV spot beam transponder, to be converted when the INTELSAT IV-A becomes available in the Pacific to two INTELSAT IV-A hemispheric beam transponders.

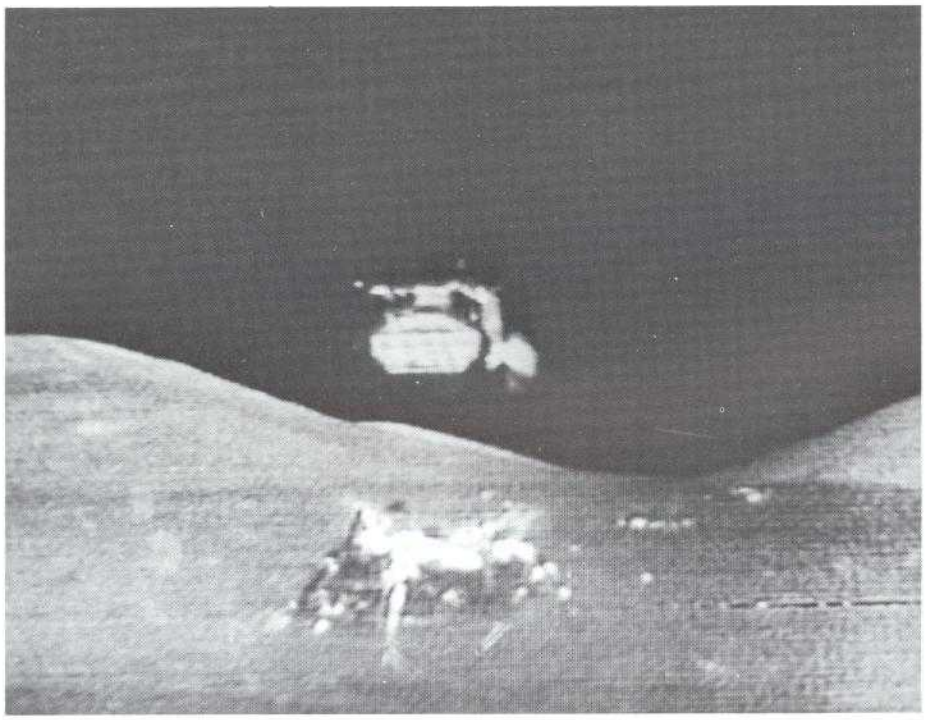
Approved the U. S. Automatic Seismic installation terminal at McMinnville, Tennessee, for access free of charge for two weeks during the period 1 July-30 September 1979; approved the Leticia, Colombia non-standard station for access to Colombia's quarter transponder and for reception of occasional TV; and approved the French Trou Biran non-standard station for access from July 1 to August 31, 1979, subject to review by the Advisory Committee on Technical Matters of the station's technical acceptability.

The preceding report was prepared by Jay S. Trager, INTELSAT Affairs, International Communications.



Age-old dream realized. ***On July 20, 1969, Astronaut Neil Armstrong became the first man to set foot on the moon. In the photo above, Armstrong descends from the Lunar Landing Vehicle on to the surface of the moon. Taken from a TV monitor, this epic event was flashed around the world, via satellite, to an audience estimated at one-fifth of the world's population.***

NASA PHOTOS



Final ascent from the moon. ***In December 1972, Apollo 17, the sixth and final lunar landing mission approaches its conclusion. Televised live to a waiting world, the Lunar Module "Challenger" ascent stage lifts off from the lunar surface to rejoin the Command Module "America" orbiting the moon. With the successful completion of the Apollo flights, NASA moved on to SKYLAB.***

Satellites play key role in decade of manned space flight

In May of 1961, President John F. Kennedy went before the Congress of the United States and charged the government and the American people with landing a man on the moon and returning him safely to earth before the decade was out.

Ten years ago in July, this commitment was met when America landed the first man on the moon. The world was able to witness this historic event as the result of another technological achievement of the Twentieth Century—the development of communications satellites.

Today, a quarter of a million miles in space, there remains a small memento of man's landing on this lunar planet in the form of a steel plaque bolted to a landing leg of the Lunar Module *Eagle* and which bears a map of the world and this inscription:

Here men from the planet Earth first set foot upon the Moon, July 1969 A.D., We came in peace for all mankind.

And it was as Apollo 11 Commander Astronaut Neil Armstrong descended from the Eagle to place man's first footprint into the lunar dust that cameras recorded and carried the historic event live by television to a waiting world via the global communications satellites.

At 10:56 p.m., Sunday, July 20, 1969, as he steadied himself on the moon's powdery surface, Armstrong's image and message was beamed to the world, "That's one small step for man, one giant leap for mankind". It

"Though barely begun, the communications satellite program has tied the nations and peoples of our planet together in a way never before possible and it promises the benefits of intercommunity contact to the most remote and isolated areas."

Dr. Robert A. Frosch,
NASA Administrator

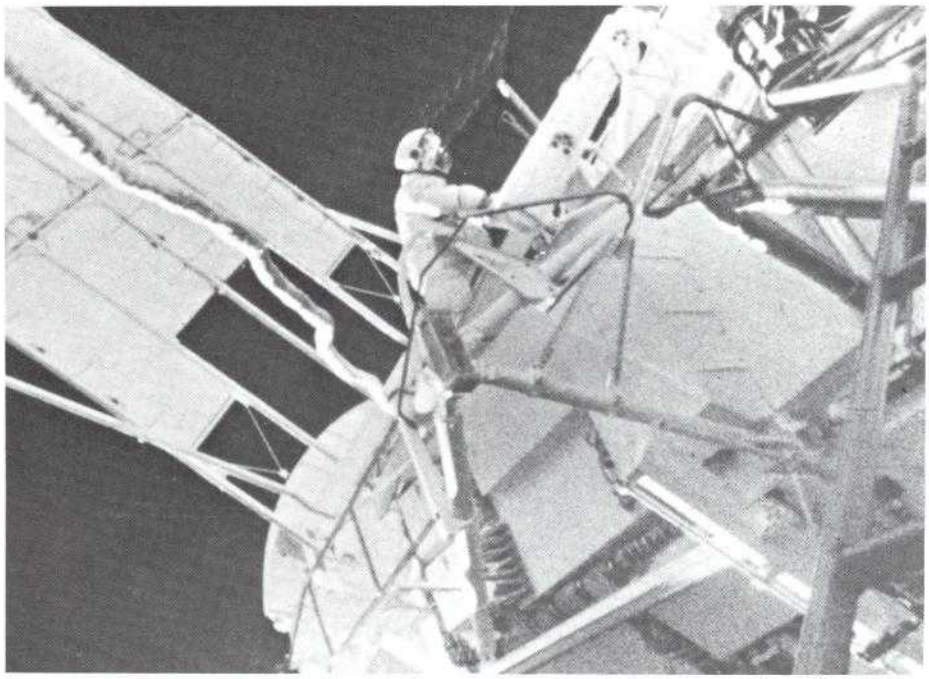
was estimated that more than one-fifth of the world's population had watched the lunar landing sequence.

As man ventured out into the unknowns of near "outer space", COMSAT's and INTELSAT's network of communications satellites and earth stations, encompassing the globe, provided the eyes and ears of the world as man explored the moon, manned earth orbiting laboratories and completed an international space "first" with the joining of an American Apollo spacecraft and a Soviet Soyuz space vehicle.

As man more daringly probed the unknowns of space flight, the global satellite system provided operational links between spacecraft and mission controllers and commercial links to bring live reports of space exploration to a viewing world "via satellite."

In recognition of the important part communications satellites have played in space flight, Dr. Robert A. Frosch, NASA Administrator, said, "Though barely begun, the communications satellite program has tied the nations and peoples of our planet together in a way never before possible and it promises the benefits of intercommunity contact to the most remote and isolated areas."

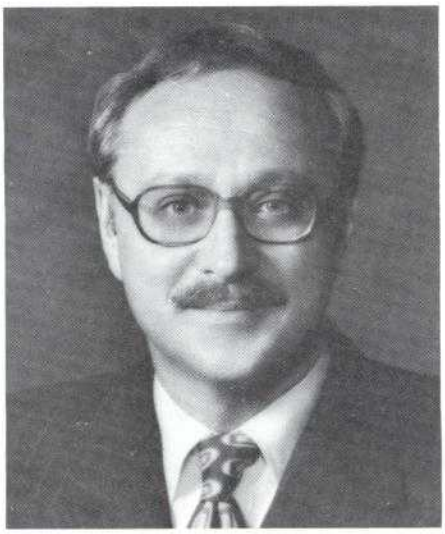
On this and the following page are photos of some of the highlights of this period of manned exploration of space during which the COMSAT-managed global system played an important role in providing a link between men and machines, the earth and a world audience.



The era of SKYLAB. ***Less than six months after the last of the Apollo missions the era of orbiting workshops began with the launch of SKYLAB I. Three SKYLAB missions were successfully carried out. In the photo above, NASA Astronaut "Pete" Conrad ventures outside the spacecraft to retrieve solar telescope film canisters. Such Extra Vehicular Activity was carried live by satellite.***
NASA PHOTO

International link-up. ***Shortly before noon Saturday, July 19, 1975, the American Apollo spacecraft and the Soviet Soyuz spacecraft separated to conclude the first space link-up between two countries and temporarily terminating the American era of manned spaceflight. The United States plans to resume manned flights using its Space Shuttle.***

Australia's Payne and COMSAT's Goldstein elected to head INTELSAT Board

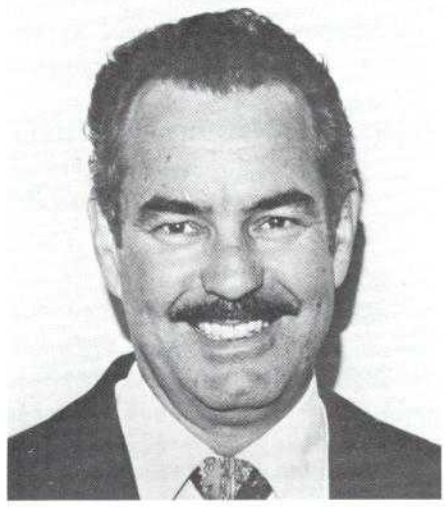


Irving Goldstein

Randolph Payne of Australia and Irving Goldstein of the United States were elected by the INTELSAT Board of Governors to one year terms as Chairman and Vice-Chairman, respectively, at the Board's recent meeting.

Mr. Payne, the Australian Governor, has been Vice-Chairman of the Board for the past year and since 1974 has represented Australia at many INTELSAT Board meetings. He is currently Director (Marketing) of the Overseas Telecommunications Commission (Australia) which he joined shortly after its inception in 1946. From 1946 to 1964 he served with OTC in technical and managerial capacities at cable stations throughout the Pacific, Indian Ocean and Far East regions, and from 1964 to 1973 he worked with OTC's International Relations Department in Sydney where he became involved with a number of International organizations. He became Director (Commercial) in 1973 and Director (Marketing) in 1977.

Mr. Goldstein has been involved with the Board of Governors for over five years, first serving as the Alternate U.S. Governor and then moving to the U.S. Governor's position this past February. In March of this year, Mr. Goldstein was elected Vice-President and General Manager, International Communications; he had been Assistant General Manager, External Relations and Business Development, International Operations. Mr. Goldstein joined COMSAT, Office of General Counsel, in 1966 after three years with the FCC. In 1972 he was named Director of COMSAT's European Office, with responsibility for corporate interests and activities in Europe, Africa, and the Middle East. In July 1974, he was appointed Director of International Affairs and in April 1977, he became Assistant General Manager, External Relations and Business Development.



Randolph Payne

Global satellite traffic predicted to double by 1983

Global international telecommunications via satellite will increase by about 100 percent by 1983.

This was one of the predictions of the 1979 Global Traffic Meeting, sponsored by the International Telecommunications Satellite Organization (INTELSAT), which concluded in Washington, D.C., recently. More than 200 delegates representing over 100 countries, attended the week-long INTELSAT Global Traffic Meeting.

The purpose of the meeting was to determine, by taking into account the traffic requirements of individual countries, short, medium and long term demand forecasts for the telecommunications services provided by the INTELSAT global satellite system. Data from these forecasts will be used by INTELSAT in planning its system to meet user requirements with maximum efficiency, and in projecting future satellite systems. The INTELSAT system is currently carrying about 60 percent of the world's international transoceanic telecommunications.

In the near future, INTELSAT will begin placing in orbit its new high-capacity INTELSAT V series satellites, which will be capable of carrying 12,000 simultaneous phone calls plus two television channels—double the capacity of the satellites in the present system. And planning is already advancing for future satellites of up to 40,000-circuit capacity.

Data from the meeting show that the most concentrated growth can be expected in the Atlantic Ocean region where traffic should climb by as much as 114 percent—to a total of 23,253 equivalent telephone circuits—by year-end 1983.

Labs' Torus antenna experimental design projects new image for future earth stations

Seeking to provide better connections between the growing number of domestic satellite systems and the international INTELSAT system, COMSAT has asked the Federal Communications Commission (FCC) for permission to construct a new, money saving communications antenna which can receive and transmit messages with at least seven satellites simultaneously.

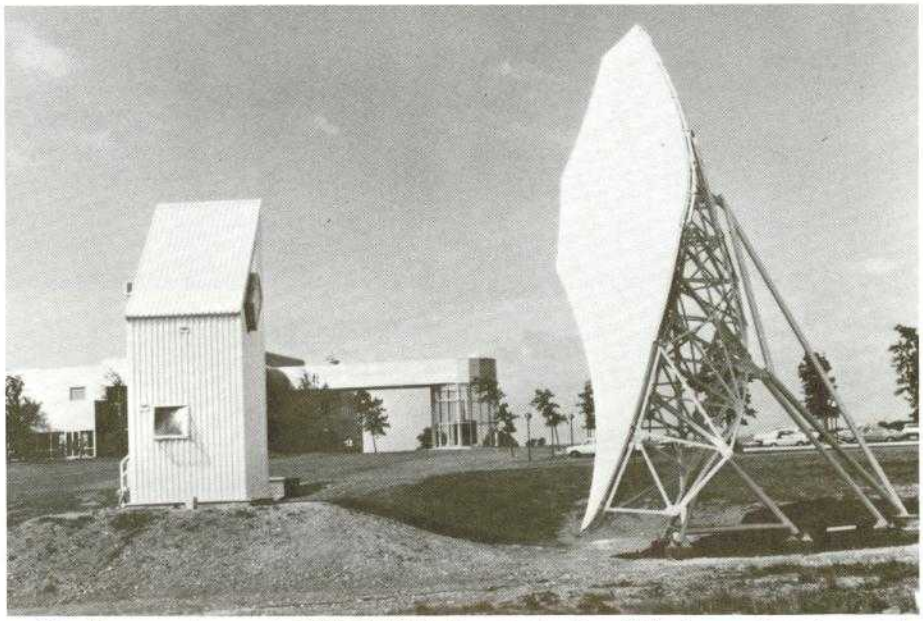
The new "torus" antenna, named after its nearly flat and almost rectangular toroidal shape, has been developed by COMSAT Laboratories. The first torus antennas are being proposed for location at three of the COMSAT-operated INTELSAT earth stations at Etam, West Virginia, Andover, Maine and Jamesburg, California. A torus prototype has been used at COMSAT Laboratories at Clarksburg, Maryland with INTELSAT satellites on an experimental basis since 1973.

In addition to its multiple satellite access capability, the torus offers two major cost advantages. When access is to be gained to more than one satellite, a torus is significantly less expensive to build and, over the life of a torus, much more economical to operate than the traditional, dish-shaped Cassegrain antenna which will work with one satellite only.

COMSAT filed its application for permission with the FCC on behalf of itself and the other owners of the three earth stations. COMSAT holds a 50 percent ownership interest in these stations. The other owners, U.S. international communications carriers, share the remaining ownership interests.

The torus is needed because today's Cassegrain antennas cannot "efficiently and effectively" interconnect the growing number of domestic systems and their satellites with the INTELSAT international system.

There are already three U.S. domestic satellite systems—COMSTAR (leased by COMSAT GENERAL to AT&T), SATCOM (RCA) and WESTAR (Western Union Telegraph Company)—offering services through seven orbiting satellites. Launch application for two more domestic satellites, SATCOM-3 and WESTAR-3, are pending before the FCC. Two new domestic systems—an advanced WESTAR system and a system by Satellite Business Systems (a joint venture of COMSAT GENERAL, IBM and Aetna Life & Casualty)—are now under construction, and at least one more new system (the AT&T system to succeed COMSTAR) is in the advanced planning stage.



The Torus antenna at COMSAT Laboratories is a full-size engineering working model showing the shape of things to come for earth stations of the satellite communications network. It has been used on an experimental basis since 1973.

To provide adequate connections with the INTELSAT system using the traditional Cassegrain antennas, each domestic system would require the construction of at least one Cassegrain antenna at each of the major international earth stations COMSAT operates in Maine, California and West Virginia.

For access to the three existing domestic satellite systems, construction of three cassegrain antennas at an earth station would cost approximately $2.3 million. But a torus antenna would provide access to the same three satellites at a cost of only about $1.1 million—a savings of more than $1 million at each site or about $3 million in savings at all three sites.

Additional millions of dollars would be saved by increasing the number of satellite feeds—to at least seven—on the torus rather than building up to seven separate Cassegrain antennas.

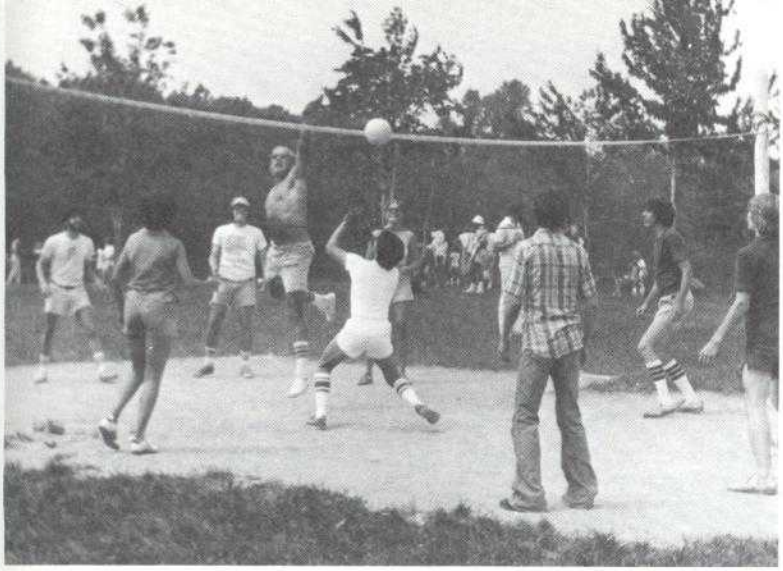
Operating and maintenance expenses would be also substantially lower with the torus, resulting in savings of hundreds of thousands of dollars over the life of the torus.

In addition to avoiding the proliferation of Cassegrain antennas, the torus also would offer reduced interference on congested frequencies, high reliability and superior service.

The proposed torus with dimensions of 32 feet by 55 feet is less than half the size of the approximately 100 feet-in-diameter Cassegrain antennas which provide international service at the three COMSAT operated earth stations.

CEA Picnic:

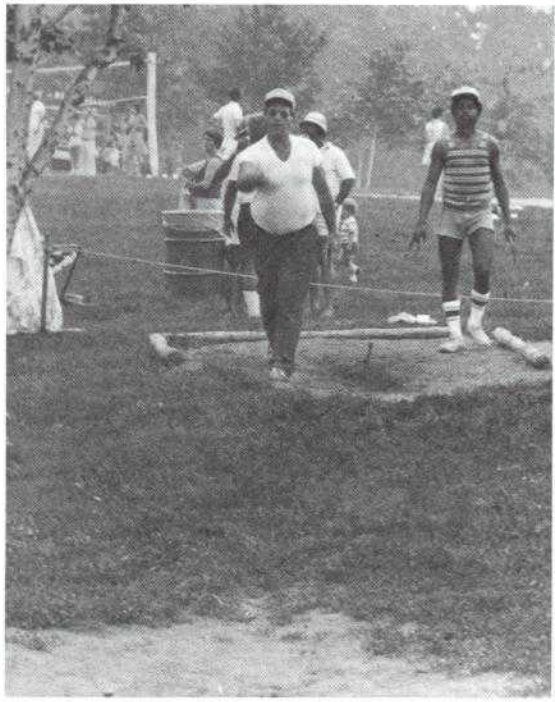
This year's annual CEA picnic held at Smokey Glen Farm was attended by an all-time high—nearly 900 adults and more than 400 children. Entertainment was provided by a Bavarian folk dance group with picnickers joining in the dancing with members of the troupe. New activities included a beer drinking contest, tug-of-war, a pie eating contest and horse-drawn hayrides.



1979

Food and drink consumed included 538 pounds of chicken, 20 kegs of beer, 1,000 hot dogs and 2,400 assorted ice cream treats. The total cost of the picnic was in excess of $9,000 averaging a little more than $7 per picnicker. Congratulations are extended to Gene Barrett and Claudette Tucker for arranging a very successful picnic.

PHOTOS BY BILL MEGNA AND MIKE GLASBY



Network Bits

Field Correspondents

Andover
Joanne Witas

Brewster
Dorothy Buckingham

Cayey
Elfren V. Castro

Etam
Bev Conner

Jamesburg
C.B. Marshall

Labs
Norma Broughman
Joan Prince
Blaine Shatzer

M & S Center
Darleen Jones

New York
Stephen Keller

Paumalu
Bob Kumasaka

Plaza
Mary Lane

Santa Paula
Terri Myers

Southbury
Eileen Jacobsen

ANDOVER. Andover celebrated its 175th birthday August 4. A history book entitled *Andover, The First 175 Years*, was released during the celebration. Compiled by the Friday Club, a member of the General Federation of Women's Clubs, the book is the result of the work of many of the Club's members and interested citizens in gathering the material and donating the numerous pictures scattered throughout the 350-400 pages.

The hardbound publication touches upon the legends of the earliest years of Andover, contains much historical fact taken from public records, "town" stories and anecdotes as well as the collections of senior citizens. COMSAT, of course, is mentioned along with the town's early reactions to satellite communications in general. Sprinkled with Andover flavor and character, the book makes for light, breezy and fun reading. Former Andover employees interested in acquiring the book may do so by writing to the Andover Friday Club, P.O. Box 237, Andover, Maine, 04216. The price of the book is $15 plus $1.50 for postage and handling.

We have a neophyte when it comes to the care and maintenance of a swimming pool. Our Station Manager, **Don Fifield,** is beginning to find out how much work goes into the upkeep of his swimming pool and some of its problems—pumps, filters and hoses are just a few of those he's encountered and conquered since his return to Andover. To "get away from it all" Don heads into the mountains or along the coast on his "full dress" 1,000cc Honda. **Gerry Michaud** and **Dick Plantier,** along with AT&T's **Ken Fields,** took a motorcycle trip to the coast taking in a clam and lobster feed in Belfast. Don Fifield was supposed to go on the trip also but was too busy with his pool. So he wouldn't feel entirely left out, the guys brought him back a clam and Maine lobster (just the empty shells of course).

Due to the energy situation our staffers are sticking pretty close to home for vacations, with nearby ponds and lakes becoming increasingly popular. Others are trying to find means of conserving fuel for the winter. One of the latter is Jim Fogg. During the energy crunch of '73-74, Jim installed a 1,500 gallon fuel tank underground for storing #2 fuel. In the meantime he has added a gasoline storage tank—underground of course. In addition, Jim has converted his oil-fired hot air furnace to two wood stoves, which will provide all the heat his home will need with one of the two also providing all the hot water required. At present, Jim has accumulated 10 cords of wood, split into 16-and 24-inch pieces, which he expects should last between 18 and 24 months. To store the wood, Jim is displaying his talent as a carpenter and is constructing a 20-by-24-foot shed. Jim, also a novice mason, reconstructed one chimney and built a new one. His Project 1980: a solar hot water system.

Ken Dixon is spending his vacation time building a two-story log home, 30 by 24 feet, nestled on 160 acres of wooded land. In fact, all of the lumber being used in his new home came from his land and was milled at a local sawmill in Andover. Ken and his family expect to move into their new home this fall.

Shaun Arness, Dave Berry, Al Briggs and **Dave White** did some fishing recently at Seeboomak, in the north woods of Maine, catching plenty of salmon and trout. Joining our station staff as a Junior Technician is **Mark Irish,** a resident of West Peru, who recently completed a tour with the Air Force. **Jack** and **Andrea Conner** are the parents of a new daughter **Janet Elizabeth,** weight seven pounds, eight ounces.

—Joanne Witas

BREWSTER. Wallace C. (Wally) Lauterbach has retired as Station Manager. He has been replaced by **J. R. Silvius,** formerly Manager, M&S Service Center. The Brewster CEA sponsored a retirement party for **Wally** and wife **Doris** at the Elks Club in Omak. Wally, Brewster's original Manager, has been at Brewster since 1966. As "going away" gifts, Wally was presented with a digital watch and an engraved silver tray was given to Wally and Doris (photos below). We are pleased that the Lauterbachs plan to make their retirement home here in Brewster.

We would also like to welcome **Jim Silvius,** his wife **Jean** and son J.C. to Brewster. They are presently in the process of buying a house and getting settled. **Wayne Colpitts** has departed for his new assignment as Station Engineer at the Samoa Station now under construction.

—**Dorothy Buckingham**

ETAM. Mike Britner and family recently vacationed in Nashville. **Don Gaston** and friends made a fishing trip to the Chesapeake Bay, under sail most of the time. **John Haller** spent a week leading his Boy Scout troop to Camp Mountaineer. Among his scouts was **Mark Everly,** son of Senior Technician **Spencer Everly. Paul Helfgott** used a week's vacation time as a Counselor at a 4-H camp near Kingwood.

C&P Telephone held an "Open House" at the station for all telephone subscribers in the Rowlesburg exchange. Exhibits were displayed by C&P, AT&T, Telephone Pioneers and COMSAT. Tours of the station were conducted by Etam's **Mike Britner** while **Henry Bulk** showed a COMSAT film in a tent loaned by the National Guard unit from Camp Dawson.

Most of our staff are involved in gardening but the growing season is late. Consequently, there are no ripe tomatoes as of now to go with our hamburgers. **Robert Grimm,** with the station for but a short time, has terminated employment with COMSAT.

Etam has three new hires: **Jim Benedum**, who, with his wife and daughter, resides in Bridgeport; **Ken Smith,** who lives with his wife and daughter in Weston; and **Reggie Thackeray,** who transferred from Tangua, Brazil, and presently lives with his wife and two children in Kingwood. —**Bev Conner**

JAMESBURG. William B. Carroll, Assistant General Manager, International Communications, recently visited the station. During his stay he held an open discussion with available staff members. In the photo below, Mr. Carroll signs the Visitors Register as Station Manager **A. J. Stotler** looks on.

In the photo above, Senior Electronic Technician **Mark L. Seaman** (at left) receives his five-year Service Award from Station Manager Stotler.

—**Cambrel Marshall**

LABS. Ground-breaking for the new SBS TT&C station is scheduled for the end of August or early September. Construction is nearly completed in the Personnel and Procurement Departments, while Facilities is now occupying new space at the Labs. **Kim Bittle**, a former Co-op student has returned to the Signal Processing Department. Work study student **Debbie Loy** has departed and been replaced by **Sue Russell** in the Library.

Vacationing were **H. G. Suyderhoud** and wife in Florida; **Debbie** and **Jeff Widerman** in Myrtle Beach; **Claudette Tucker** at Daytona Beach, then touring South Carolina; **Jo Ann Wagner** at Rehoboth Beach; and **Hank Mueller** in California. **Rosa Liu** took a trip to Hawaii and the West Coast.

Phyllis Book and **Ron King** were married recently and spent their honeymoon backpacking in the Rockies. **Colleen Sensabaugh** and **Bill McGrady** are also among the newlyweds as were **James P. McRorie's** daughter **Monica Anne** and **Robert E. Lester.**

Anne Speare appeared in public wearing a cast on her foot, the result of a recent accident. **Ken Stuart** toured the General Atomic Nuclear Fission Experimental Breeder Reactor while attending a training conference in San Diego. The system, called Doublet III, is a prototype of the next generation of nuclear reactors for generating electric power, which operate at temperatures of from 60 to 100 million degrees. A new parking lot with a capacity of 60 cars has been constructed east of the existing employees parking lot.

As of mid-July, standings in the Labs Intramural Softball League were: (Division 1) MCE, one win and three losses; Shop, four wins and no losses; and Drafting, three wins and two losses. Division 2 standings were: Sliders, one win and four losses; Blue Streaks, two wins and three losses; and Spacecraft, three wins and two losses.

In the Upper Montgomery County B-League, the Labs team is in first place in the seven-team league with nine wins and two losses. The 15-game regular season ends early in August with the top four-team playoff later in the month in Laytonsville. **Bert Collins** and **Jerry Creamer** are the 1979 team managers.

Patent Incentive Awards were presented to **Ali Atia, William Baker, Arnold Berman, Otakar Horna, Randall Kreutel, Christoph Mahle, Michael Onufry, Smith Rhodes, Ronald Stegens, Kenneth Stuart, Vasil Uzunoglu** and **Chester Wolejsza.** Safety Award receivers were **Lorrin Rodgers, Henri Suyderhoud** and **William Schaefer.**

Terminating employment with COMSAT were **David Kennedy, Ronnie Zak, Brij Agrawal** and **Britt Orrison.** Included among the new hires at the Labs are **George Walker, Harry Reese, Barbara Wenschhof, Gary**

Barber, Fred Natschke, Michael Simms, Barre Lankford, Robert Johnson, Mark Seddon, James Dunnington, James Williams, Catherine Painter, David Meadows, Hoi Chong, William Osborne, Richard Rose, Alfred Jaques, Roy Waldt, William Render, Linda Mikisits, John Lane, William Morgart, Ronald Coyle, Lynn Horowitz and **Glenn Harmon.** **—B.P.S.**

M&S. A farewell luncheon was held at the Washingtonian for **Jim Silvius** prior to his departing for his new assignment as Brewster Station Manager. **Jim Vinneau** conducted Cryo training for AT&T employees Anton Matesi of Hanover, Illinois, and Arnie Crow of Three Peaks, California. Calibration Team members **Charles Andersen** and **Andy Brunk** recently completed visits to earth stations at Los Grotos, Jamesburg, Santa Paula and Brewster.

George Robertson's wife **Ellen** spent three weeks in China taking part in an education study program conducted by George Washington University. During her trip she visited a variety of schools throughout Kwangchow, Nanning (near Vietnam) and Peking. Highlights of her visit included a tour of the Nanning Art Institute, Peking University, a walk along the Great Wall of China, Westlake Park and a trip on the Pearl River. According to Ellen, food was plentiful and good and the people and children were fascinated by the "Westerners", especially Americans, whom some had never met before.

Vacationers included **Judy Ahalt** to Florida, **Bob Riblet** and son to Ohio, **Turk** and **Betty Hall** to West Virginia and **Floyd Thompson** to his annual fishing waters in South Carolina. Among our new employees are **Gary Barber, James Johnson, Paul McGranahan, Michael Sims** and **Andy Brunk.** **—Darleen Jones**

PAUMALU. The annual Paumalu CEA picnic was held early in July on a private beach in Haleiwa with approximately 75 employees, family members and guests attending. With CEA President **Robert Makizuru** serving as head chef, assisted by **Tom Akimoto**, the picnickers were treated to a menu which included charcoal-broiled chicken, barbecued meat, fish, hot dogs, a variety of salads and many other snacks. While the adults displayed their prowess in volleyball and ping pong, there were organized games and swimming for the young. By the end of the day, all were in agreement that the picnic committee, chaired by CEA Secretary-Treasurer **Lily Miram** and assisted by **Eddie Miyatake** and **Ken Yamashita,** did its usual outstanding job.

Visitors to the Paumalu Earth Station are now greeted by a new sign painted COMSAT blue with white lettering at the station's main entrance. Seen erecting the sign are Bill Romerhaus and Jeff Doran of the Facilities crew.

It was a near tragedy for the **Edward Clarke** family when fire destroyed their rented home to the ground. Fortunately, the Clarkes, with their five children, were away on a picnic at the time. Arson is suspected and local police are investigating. Station employees donated money, clothing and household items to the stricken family.

The Control Building has received its second coat of paint since being built—Gulf blue. Our station painter **Cas Corpuz,** assisted by **Ed Clarke,** completed the project in three weeks. **Masao Nakano** has joined our staff as a part-time custodial employee. The **Mark Kolbs,** parents of **Tim Kolb** from Crown Point, Indiana, recently spent some time in Hawaii visiting **Tim** and **Ruth** and their grandchildren.

Finally, the end of summer means back to school not only for children but for the schoolteacher wives of **Tom Akimoto (Joyce), Joe Chow (Marian), Paul Koike (Hazel)** and **Ronald Miyasato (Amy).**

—Bob Kumasaka

PLAZA. Robert D. Jackson, Supervisor of the COMSAT GENERAL Telex Switching Center, has been elected and installed as the Grand Knight of the Sacred Heart Council, Knights of Columbus, Bowie, Maryland. The Council has almost 900 members and is involved in community, youth, church and social action programs.

Recent transfers to the Satellite Orbital Control and Monitoring Department are **Lorrin Rodgers** and **Billie Martin,** formerly of the Computer Center at the Labs, and **Butch Kehl,** from the COMSAT General Control Center.

Among the participants in the 3,000-meter Interagency Jogging Competition around the Tidal Basin held recently were COMSAT's **Kent Linnebur** (finish position 21), **Vic Slabinski** (position 87), **Frank Graves** (position 91), **Bernie Coleman** (position 92) and **Billie Martin.** One hundred and six runners crossed the finish line. Then, when it comes to nerve, there's Ron Jennings—the gas shortage didn't stand in the way of his vacation to Southwest Texas.

Lieutenant **Elizabeth Susan Peterson,** daughter of PATHWAYS Editor **John Peterson,** called home with two pieces of good news recently: she has been notified of her promotion to Captain in September and received orders transferring her to an air medical evacuation wing flying out of the Philippines. **- Mary Lane**

SOUTHBURY. Congratulations are in order for **Rich Vasko** and wife **Margaret** on the birth of a daughter **Elizabeth.** Congratulations also to our new Maintenance Technician **Denis Bouchard** and Station Engineer **Ronnie Hicks. Ray Sprong, Jr.,** recently joined our station staff as an Electronic Technician. **Constance**

Sarles, one of our original MARISAT Operators, has resigned to take a position with Data Products.

Bruno Sadys recently tried his luck in Atlantic City and reports he returned a poorer but wiser man. **May Scott** spent a week vacationing in Arkansas visiting family and friends.

Summer seems to have brought on a spurt of vehicle activity among our staff: **Eileen Jacobsen** has undergone an image change, discarding her old, green Jeep for a sleek, black and silver Grand Prix; **Annabelle Lyle** is attempting to master the art of manipulating a four-speed transmission without getting caught in the gate; and **Ronnie Hicks** is considering disposing of his antique station wagon collection after many years spent in restoring these vehicles.

—**Dolores Raneri**

Editor's note. In this issue we welcome a new addition to "Network Bits"—MCE ROCKVILLE, a division of the newly established Equipment Integration Group.

MCE ROCKVILLE. The Monitor and Control Engineering Division located just off Shady Grove at 5 Choke Cherry Road was established in August 1978. Starting with 23 employees, we have grown in just 11 months to approximately 60. We invite visitors, at any time, to visit what we consider our efficient and progressive surroundings.

Our softball team competes with the best with the players wearing their green, silk-screen T-shirts embellished with our logo, the "Choke Chicken." **Frank Dabrowski**—affectionately known as the Godfather—actually MCE's Quality Assurance Manager, is the team's Executive Manager. Team Captain **Danny McAuliffe** prides himself with the reputation that everyone who shows, plays. Draftsperson **Carolyn Faulkner** is looked upon as the team's outstanding player.

Don Fietkiewicz recently received the corporation's Ten-Year Service Award with **Kurt Boehm, Gene Guenthner** and **Danny McAuliffe** receiving Five-Year Service Awards.

—**Shari Properzio**

Service Anniversaries

Celebrating COMSAT anniversary dates in July 1979 were:

15 years

Hqtrs. Carl J. Reber

10 years

Hqtrs. Charlotte E. Barlow, Ronald S. Kos, Paul D. Rankin, Marion A. Timmons.

Labs. Richard A. Arndt, Ali E. Atia, John W. Bowles, Howard L. Haines, Barbara C. Hutchens, Samuel K. Jones, Don S. Kutch, Dirk M. VanDerLoo.

5 years

Hqtrs. Donald H. Bambeck, Melvin B. Bohne, Alethea M. Liptak, Robert J. Oslund, William R. Schnicke.

Labs. Frederick L. Frey, Julia V. Gabor, Charles A. Jenkins, Joseph E. Kasser, Johann U. Tyler.

Celebrating COMSAT anniversary dates in August 1979 were:

15 years

Hqtrs. Gene E. Christensen, Alan R. Coburn, Donald E. Greer, Edward J. Martin, Hans J. Weiss, William D. Young.

Labs. Arnold L. Berman.

10 years

Hqtrs. Albert Mark, Joyce K. McKenzie.

Labs. Daniel F. DiFonzo, Ronald K. Garlow, Darleen L. Jones, Raymond L. Joyner, Wayne W. Moore, William K. Sones, Pierce C. Stine.

Palo Alto. Hokan T. Holm, Fred S. Osugi.

5 years

Hqtrs. Joel R. Alper, Thomas M. Barr, Betty G. Bentz, Chester C. Braham, Cynthia R. Clarke, Doris M. Lee, Sandra M. Palmer.

Labs. Ignace G. Atohoun, Eugene H. Bainbridge, Charles E. Barrett, Hwai-Huang Chang, James B. Collins, John C. Hsing, Raymond E. Kessler, Robert F. Riblet.

Jamesburg. Marco A. Treganza

Paumalu. Leonard M. Nagashima

New York. Mary L. Ward

ADDENDA

COMSAT weighs satellite-to-home subscription TV

COMSAT has confirmed that it is considering development of a system to provide subscription TV service by satellite directly to millions of American homes.

COMSAT said it is involved in discussions with other companies on possible arrangements for providing the service.

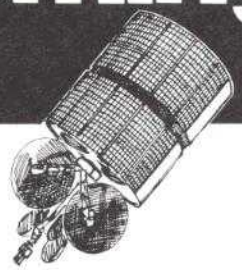
The satellite TV service would offer programming over several channels simultaneously. The programs would be broadcast via satellite directly to small antennas on the roof-tops of subscribers' homes.

Subscribers would pay a monthly charge that would cover the total service, including the use and maintenance of the roof-top antenna. The monthly charge could be less than many families now pay for a single night out at the movies.

Programming—with no commercial interruptions—could consist of first run movies, sports events, educational and cultural programs, data and text transmissions and other telecasts.

"The technology for such a system already exists, and we are investigating the business potential for satellite-to-home TV service," said Dr. Joseph V. Charyk, President and Chief Executive Officer of COMSAT.

COMSAT is coming to Samoa.



Sau i Samoa le COMSAT.

EARTH STATION UPDATE

Construction is on schedule at the earth station near Tafuna. This earth station and its big, dish-shaped antenna will make possible a wide range of communications services around the clock, seven days a week beginning this fall.

The earth station is being built by COMSAT, the Communications Satellite Corpation. Working with a sophisticated satellite more than 22,000 miles above the Pacific, it will provide high quality and reliable telephone, telegraph, telex, data and facsimile services as well as television reception from anywhere in the world.

Through this new window on the world, Samoa will join the international network of more than 120 countries that are using satellites to make the world just a phone call away.

COMSAT is proud to join with the Government of American Samoa to bring you these improved communications services. Watch for future updates about your new earth station. We're COMSAT, the company that will be your link to the world . . . via satellite.

TULAGA O LE GALUEAIINA O LE NOFOAGA

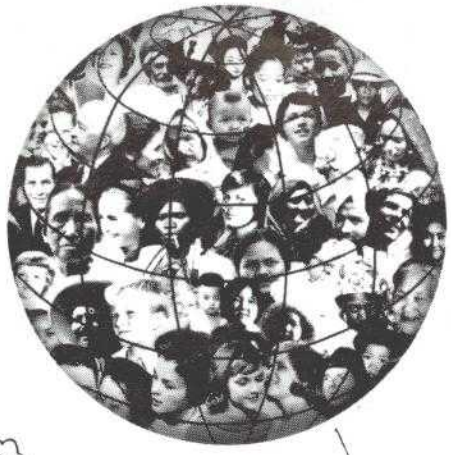
O loo ua gasologa manuia pea le fausia o le nofoaga o le satelaite i Tafuna. O lenei fale, faatasi ma ona anetena lapopo'a pei ni sasa, o le a faafaigofie ai fesoota'iga eseese i soo se taimi i soo se aso, amata i le faaiuga o le tausaga nei.

O lenei fale satelaite o loo fausia e le COMSAT, le Faalapotopotoga mo Fesoota'iga i Satelaite. Latou te galulue faatasi ma se satelaite o loo fealua'i pe 22,000 maila i luga a'e o le Vasa Pasefika. E ala mai ai iina fesoota'iga lelei ma le manino mo telefoni, uaealesi, masini telekarafi, atoa ma isi lava ituaiga fesoota'iga e aofia ai ma ata o televise, ma soo se itu o le lalolagi.

Mai lenei faamalama o le a sisi i Samoa, o le a ui atu ai Samoa i se fesoota'iga ma atunuu e silia i le 120 i le lalolagi o loo latou faaaogaina fo'i ia lava satelaita e faanofo lalata ai latou uma.

O se mitamitaga tele i le COMSAT lona galulue faatasi ma le Malo o Amerika Samoa e faaoo atu i tagata nei gaoioiga fou ma le maoa'e mo fesoota'iga. Faafofoga mai pea mo nai tala o taualumaga o le galuega o le fale satelaite.

O i matou o le COMSAT, le kamupani o le a avea ma ou fesoota'iga ma le lalolagi atoa . . . e ala i satelaite.



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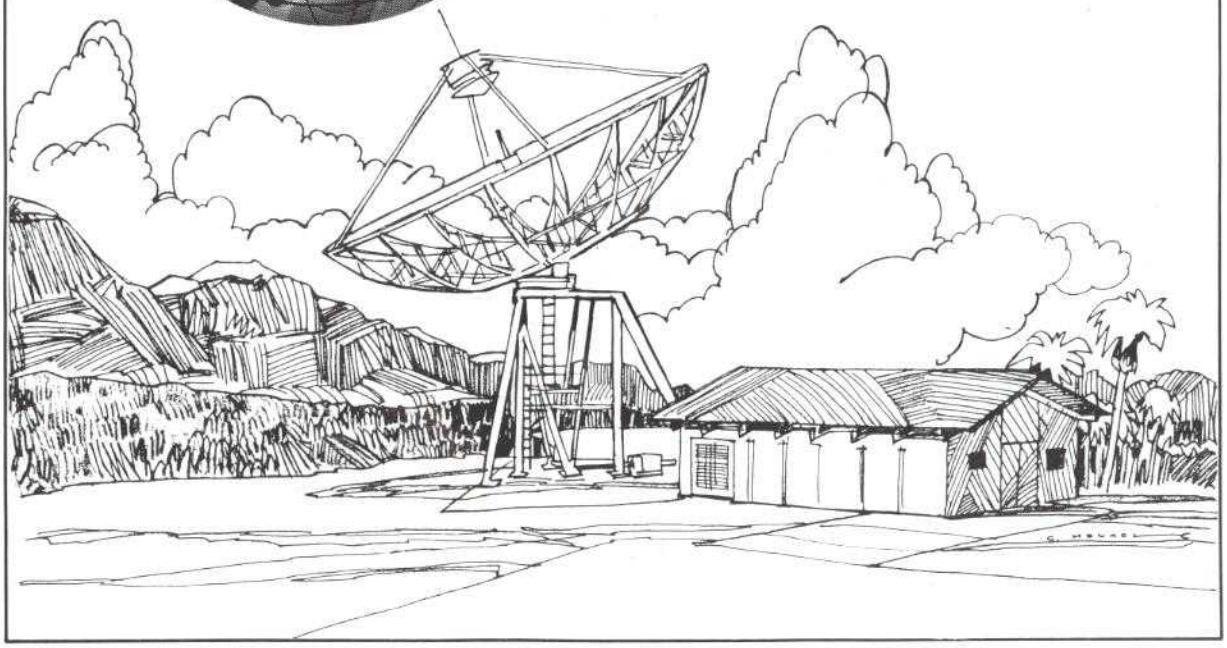

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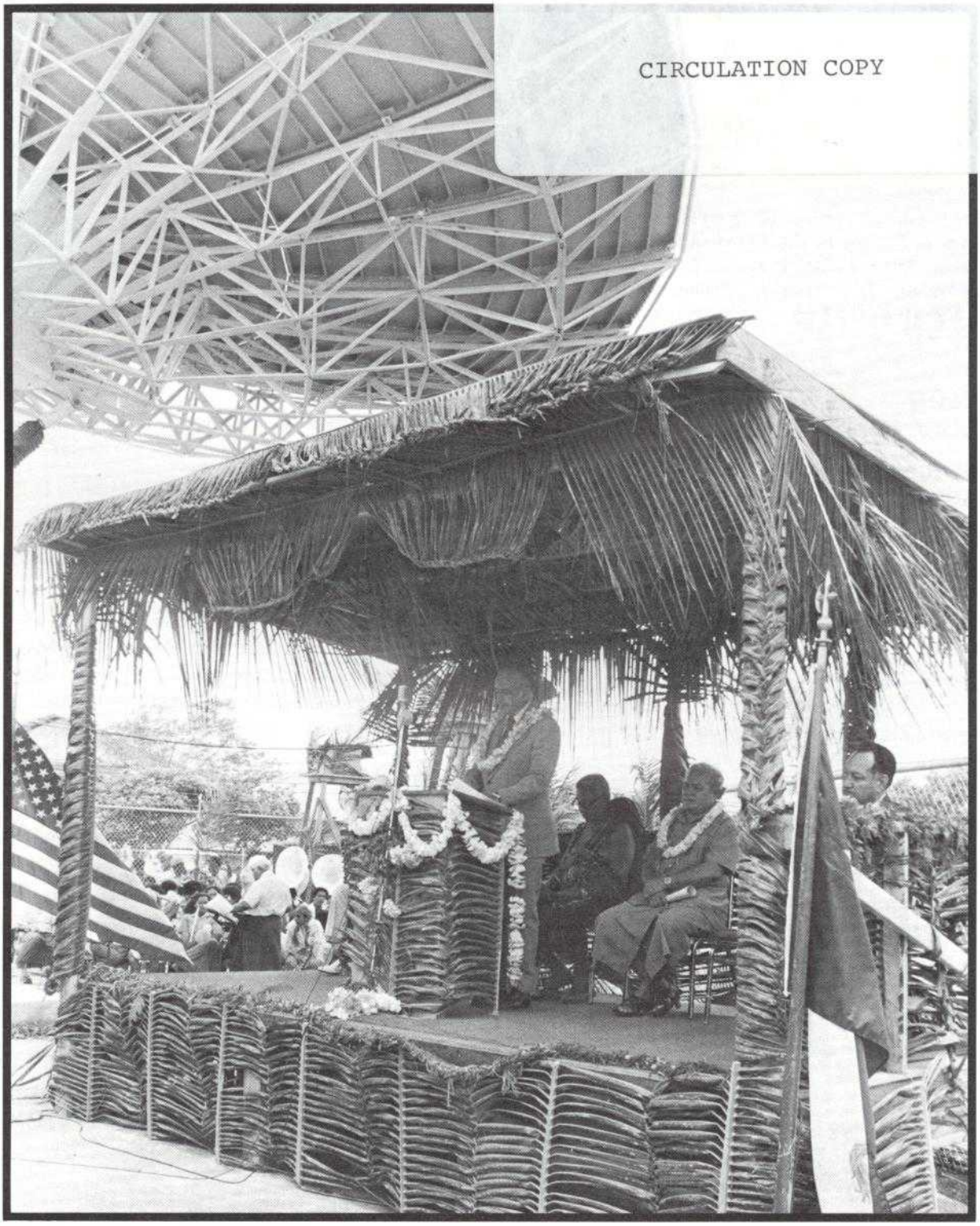
SATELLITE Pathways



COMSAT COMMUNICATIONS SATELLITE CORPORATION
COMSAT GENERAL CORPORATION

SATELLITE Pathways

September-October 1979
Volume 4 Number 5

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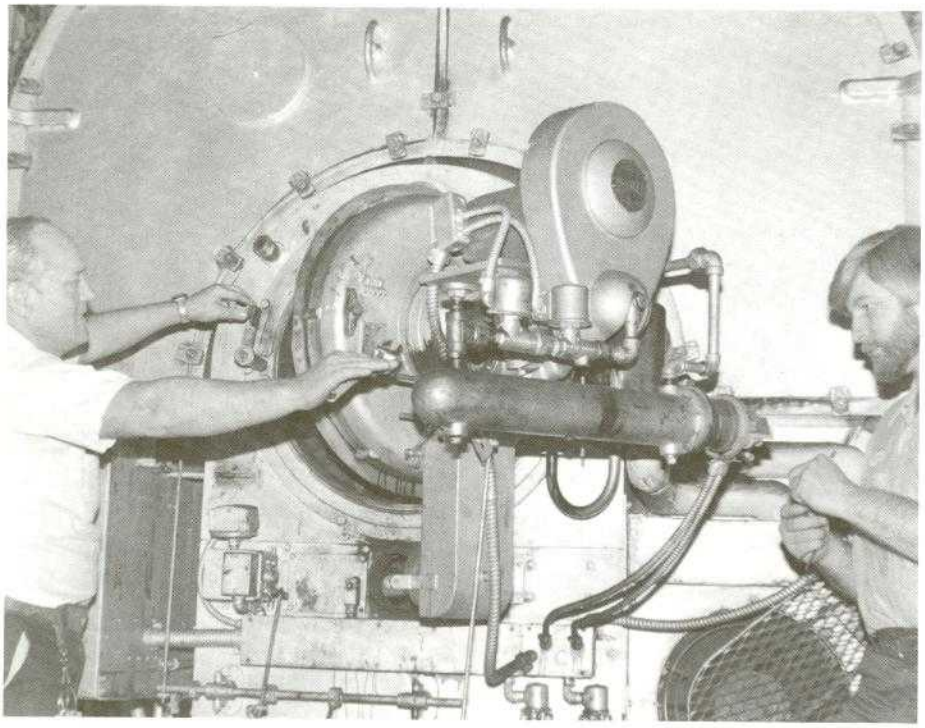
Cover. ***COMSAT President and Chief Executive Officer Joseph V. Charyk addresses the Governor of American Samoa and guests during ceremonies marking the dedication of the COMSAT earth station near Pago Pago. A special inaugural feature will appear in the November-December issue.***



As part of its continuing energy-savings program, COMSAT's General Services staff intends to replace the rotary cup burner system on its two boilers with the more fuel-efficient air atomizing type. Here Bob Hudspeth, left, and George Houchens of L'Enfant Plaza's Building Engineering staff are shown working on a rotary cup burner.

General Services Program saves energy

BY STEVE SAFT

The recent oil crisis, the second crisis of its type in the 1970s, has made the goal of reduced consumption of fossil fuels and the exploitation of alternative energy resources something akin to a national obsession. The articles that follow deal with two aspects of the involvement of the COMSAT family with the energy issue. The article beginning on this page focuses on COMSAT's own successful efforts to reduce the energy consumption at the headquarters building in L'Enfant Plaza, and the article which follows tells about the long-standing involvement of COMSAT's new subsidiary, Environmental Research and Technology, Inc., with matters concerning the clash of energy and environmental concerns.

PHOTOS BY MICHAEL GLASBY

A YEARLY SAVINGS EQUIVALENT to 122,000 gallons of oil or 723 tons of coal—that's what COMSAT has achieved as a result of a recently-completed change in the lighting system of the headquarters building in L'Enfant Plaza.

The program, proposed and carried out by the General Services Division, called for the replacement of approximately 28,000 fluorescent lamps with more energy efficient types in the close-to-14,000 lighting bays in the ceilings on nine floors of the building, the turning off of some bays completely, and the cleaning of all light diffusers.

The 122,000 gallons of oil or 723 tons of coal is what the Potomac Electric Power Company (PEPCO) figures the 1,756,650 kWh in annual electric-load reduction is worth to them in terms of fuel they do not have to burn to produce electricity. It's a significant savings and one of which employees can all be proud in these energy-short times.

For the Corporation, the reduction in the building's electric load shows up in reduced electric bills every month. Given the current cost of electricity in the Washington area, we're talking about an annual savings of $88,300. That averages out to $7,350 a month or per electric bill. For a frame of reference, look at a typical electric bill for the headquarters building. The bill for the period July 17 to August 15, 1979,

(Continued on next page)

Mr. Saft is Editor, External Publications, Office of Public Affairs.

(Continued from page 1)

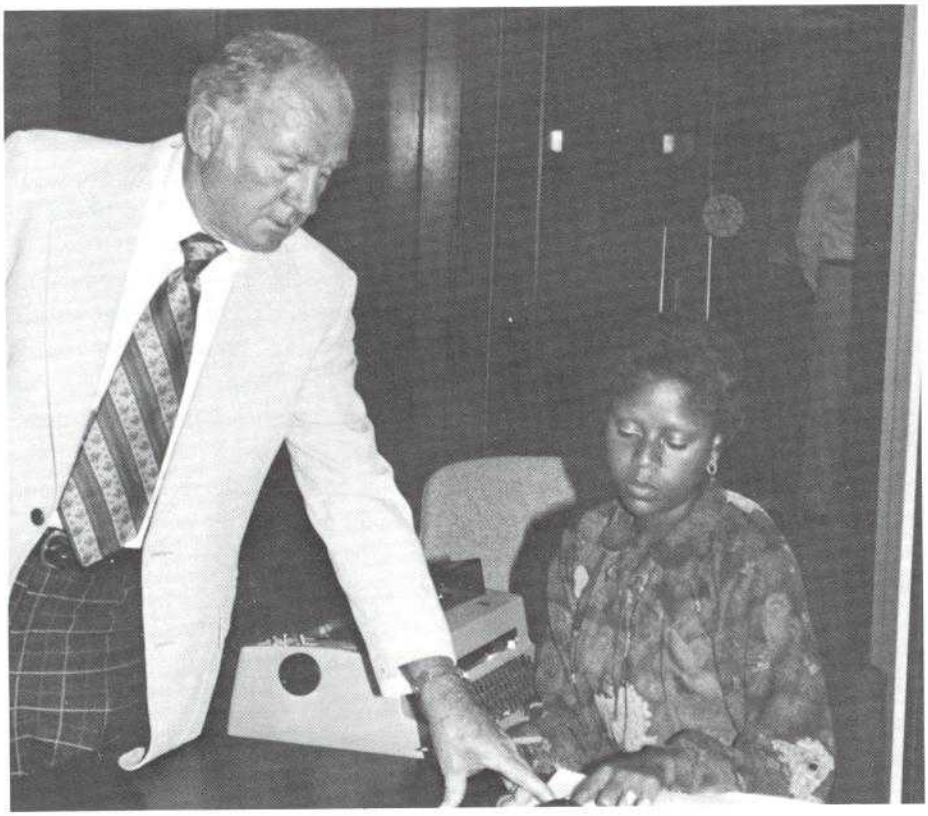
for example, was $64,829.60, of which $21,651.69 was fuel adjustment cost and $3,087.12 was sales tax.

It must be quickly added that the net savings in terms of either dollars or fuel is in reality not quite as high as it first appears. Lights produce heat, and in a well-insulated structure like the headquarters building, that heat helps to reduce the load put on the heating system in the colder months. The Corporation's new, more efficient lighting system produces less heat. Hence, the heating system must work harder than before to maintain an adequate temperature in the building. In fact, because of the lighting change, the heating system will now have to burn 30,000 more gallons of oil. At the current price of 60.41 cents per gallon—and still soaring—we're talking about an added annual cost of $18,123.

To be perfectly fair to ourselves, we have to balance the extra heating oil burned in the winter against the reduced load on the air conditioning system in the summer. The same lighting system that puts more of a strain on the heating system because it produces less heat is a boon to the air conditioning system for that very reason. Edward J. Sanderson, Director of General Services, computes the annual air conditioning load reduction as amounting to 100 tons or a savings of $10,044. A spokesman for PEPCO, power company for the city of Washington and its Maryland suburbs, says the 100-ton air conditioning load reduction means a savings of another 8,000 gallons of oil they don't have to burn.

Thus looked at from the point of view of total energy saved—and using oil as the standard—COMSAT's relamping effort amounts to an impressive 100,000 gallons and, in terms of cost, a more-than-respectable $80,204. (How the new 65-degree winter standard for public buildings will affect actual fuel usage for heating is still not known as of this writing.)

Edward J. Sanderson, Director, General Services, demonstrates the operation of a meter for measuring the light output of lamps to Valli M. Agent, Senior Clerk, Facilities and Office Services.



Begun in July 1979 on the eighth floor, the relamping effort took three months to complete. It involved replacing the two fluorescent lamps in each of the lighting bays on each floor. The greatest reduction in electricity load was effected in those areas where high light levels are not required on a continuing basis (for example, conference rooms and corridors).

In place of one of the conventional 40-watt, four-foot-long fluorescent lamps on a ballast, the relamping crew inserted either a Sylvania Thrift/Mate TM33 or Thrift/Mate TM50, depending on the lighting intensity required in the area. The other lamp was replaced by a standard type. Thrift/Mate TM33 and TM50 fluorescent lamps are the same length as their conventional counterparts, but three and a half inches at one end of the tubes consists of wattage-reducing circuitry in a cylindrical plastic housing. The Thrift/Mates require 33 percent or 50 percent less wattage than the conventional fluorescent lamp, hence the designations TM33 and TM50.

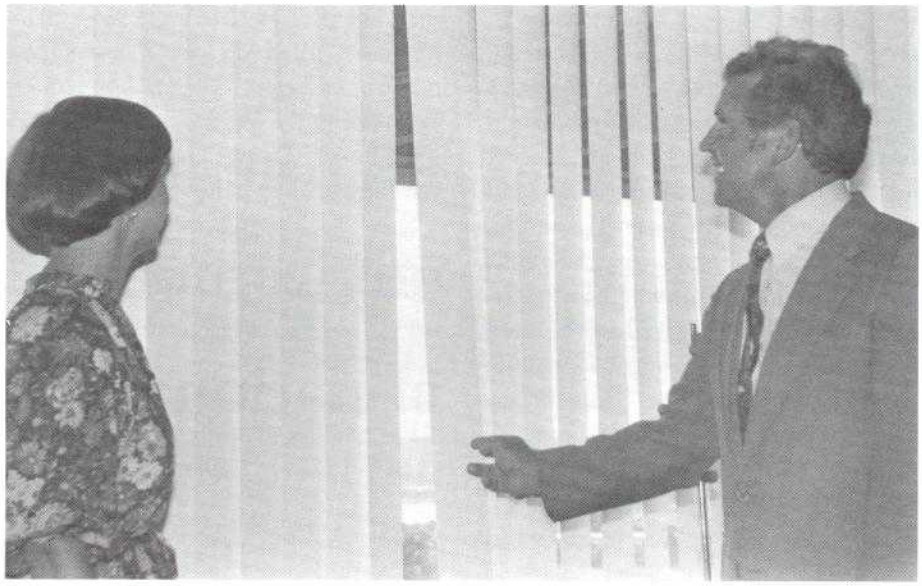
In some areas, ballasts have been turned off. For example, in the elevator lobbies on each floor, 13 ballasts are now no longer used. The areas are noticeably darker than they used to be, but these are not places where a lot of light is required.

An important part of the relamping effort was the cleaning of each of the close-to-14,000 light diffusers on the nine floors involved, a job that Mr. Sanderson says he intends to schedule approximately every four years.

The advantage of replacing all the lamps in one fell swoop is the sub-

stantial reduction it should bring about in the time required later for day-to-day lamp replacement. And, as Mr. Sanderson points out, the cost in terms of people's time for an activity like lamp replacement is not insignificant. "Labor for day-to-day relamping equates to one man-year," he explains.

In all, the effort cost $80,172, but in a memorandum sent to Donald E. Greer, Assistant Vice President, General Services and Headquarters Executive Officer—and the man who approved the relamping program—Mr. Sanderson shows that the expenditure was worth every penny. For the next four years, the energy savings resulting from the program will amount to $328,175, for a net savings of $248,003. In fact, it will take less than a year for the program to pay for itself.



Assistant Vice President Donald E. Greer and Rosemarie Haines, secretary to Senior Vice President Richard S. Bodman, demonstrate the use of new vertical blinds being installed in the headquarters building in COMSAT's energy-saving efforts.

In an interview, during which Mr. Sanderson provided details on the relamping effort, he also discussed COMSAT's overall energy-saving activities. The Corporation first instituted an energy savings program just after the first oil crisis in 1973. The headquarters building, a product of 1960s architecture (when oil was still cheap), was designed for 24-hour-a-day lighting and 24-hour-a-day heating or air conditioning. The General Services staff discovered, however, that by insisting that lights be turned off after the cleaning crews departed the building at night and by cutting off heating or air conditioning at 5:30 p.m. weekdays, substantial savings could be realized.

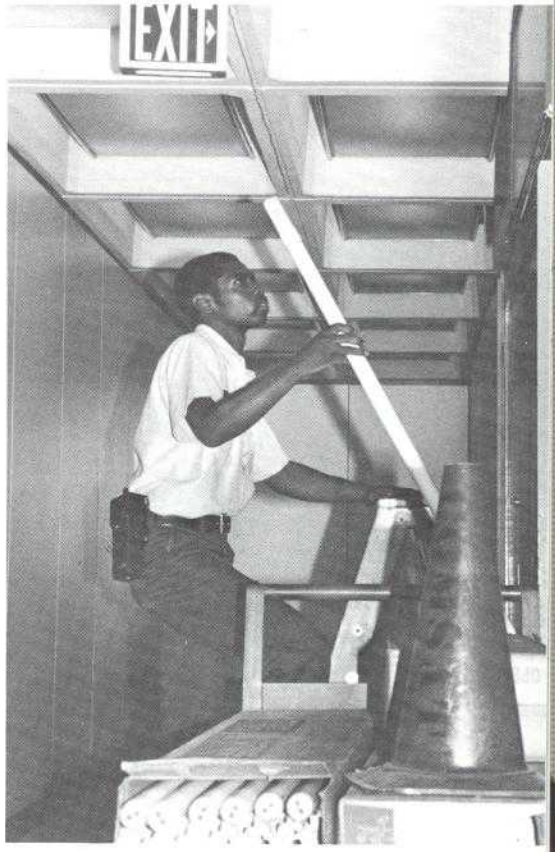
Since 1973, Mr. Sanderson estimates, the kilowatt consumption of the headquarters building has been reduced 24 percent and fuel oil consumption has been cut 46 percent. And, he asserts, new energy savings programs are being studied and will be instituted in the future.

For example, the General Services staff is planning to put three new programs into effect. The two boilers used to heat the building, which, along with the air conditioning system, are located in the penthouse above the eighth floor, will soon be getting more efficient burners. The old rotary cup burner system is being replaced by a new air atomizing type. Why? Because the air atomizing system has been found to be a much more economical user of fuel.

Another effort will involve painting the roof with an aluminized coating. The reflective surface will minimize heat absorption during the warmer months and hence should benefit the air conditioning system.

The third effort being planned also should take some of the load off the air conditioning system. Installation of vertical blinds on all the windows on the floors throughout the building will begin shortly. When closed, the blinds will substantially reduce the sun's heating of interior air. One of the interesting features of the blinds is their generous use of small perforations. Even when closed, the blinds still permit the outside world to be seen, thanks to the inclusion of these hundreds of tiny holes. *(Continued on page 6)*

Utilityman Curtis Lloyd installs a new energy-saving lamp. In the headquarters relamping effort, approximately 28,000 fluorescent lamps were installed.



ERT heavily involved with environmental assessments of national energy projects

By Barbara J. Goldsmith

Every energy development project has environmental consequences, and during the 1970s, a series of environmental laws has helped bring about a careful review of all major projects which are proposed throughout the country. These laws generally reflect the contention that the majority of development projects could be built as long as moderate environmental controls were included early in design, construction and operation plans.

Now, however, as President Carter signalled in his mid-July address outlining the oil import reduction program, the nation must face up to the difficult choices between energy and the environment.

The national policy question is not a simple tradeoff of "environmental quality for energy development", but can be phrased in two parts:

How much can we allow environmental controls to block energy development? For example, if a needed major power plant could be built in conformance with the primary air quality standards (designed to protect public health), but would exceed the secondary standards (designed to protect vegetation, property and other benefits), should the plant be allowed to be built?

How much energy use can we commit for environmental controls? For example, is a 10–20 percent reduction in gasoline mileage justified for all automobiles operated in the United States in order to meet air quality standards in certain major cities in the country?

Since its founding, ERT has been heavily involved in performing the preconstruction and post-construction environmental assessments for a large number of energy projects, including oil refineries, oil and gas pipelines, coal-fired electric power plants, surface mines, coal-hauling rail lines, synthetic fuel plants, coal slurry lines, and oil shale and mineral drilling operations. In most cases, permits to construct were successfully issued once it was demonstrated that the necessary controls would be adopted to ensure compliance with applicable federal, state and local environmental laws and regulations.

As environmental control requirements (particularly those embodied in the Clean Air Act Amendments of 1977) have become increasingly stringent, however, the cost of achieving the required levels of control (including the permit process itself and accompanying delays) has in some cases forced the abandonment of energy-related projects. In the case of coal projects in particular, the complexity of the procedures involved in obtaining permits, including the development of supporting data and public hearings, has created major planning uncertainties. Where the question of eventual compliance with environmental laws has introduced too great a risk, businesses have in some cases had to forego potential development opportunities. The President's proposed energy initiatives have greatly accentuated the interrelationship between environmental consideration and the objective of energy self-sufficiency. It is now clear that both these national goals will represent a directly conflicting challenge to this country over the next decade.

In the last few years, ERT has become increasingly involved in the national policy issues concerning tradeoffs of these goals. A recent project of the Policy Analysis Division required that ERT identify the principal provisions of federal environmental laws which could be viewed as candidates for substantive and procedural waivers under the proposed Energy Mobilization Board (EMB). The creation of an Energy Mobilization Board is a major component of the President's energy pro-

Ms. Goldsmith is Manager, New Program Development, ERT's Policy Analysis Division which has recently established an office in Washington.

gram. The purpose of the Board is to eliminate delays in the granting of permits for "critical" energy facilities by cutting through federal and state government red tape. This proposal recognizes that important constraints on expanding domestic energy production are the procedures required to receive government approval to proceed with a project and that many of the required approvals are associated with environmental laws.

ERT's Policy Analysis Division enlisted the assistance of experts throughout the company on each of the principal federal environmental laws: The Clean Water Act, The National Environmental Policy Act, The Powerplant and Industrial Fuel Use Act, and The Surface Mining Control and Reclamation Act. For each law, ERT briefly described the significant sections (or related groups of sections) which could affect construction of 10 different types of energy-related facilities: electric utility generators, coal gasification plants, oil ports, refineries, liquid synfuel plants, mining activities, pipelines, ground transportation systems (rail), hydro-electric plants and on-shore/offshore drilling.

The significance of possible constraint of each environmental law on each of these energy production facilities was assessed. In determining the relative need for a waiver (for each section of the applicable law and for each facility type), ERT considered:

- *the magnitude of constraint* (the importance of the requirement, and the economic, time and/or technology resources needed to meet the requirement),
- *the frequency of imposition of the constraint* (the frequency with which the subject section would impose a significant substantive or procedural requirement) and
- *the energy use impact* (whether imposition of the subject section would create a significant demand for energy use in the respective facility type).

This comprehensive analysis, involving 11 senior professional staff members, is expected to serve as an important part of the information base while legislation to create the Energy Mobilization Board is under development.

Another example of ERT's work in the energy-environment policy area involves the Department of Energy (DOE). Since September 1977, ERT has served as a principal contractor to DOE in performing technical and policy analysis of national air quality issues which impact energy development and use. Each of the analyses that the staff of ERT has undertaken has involved the

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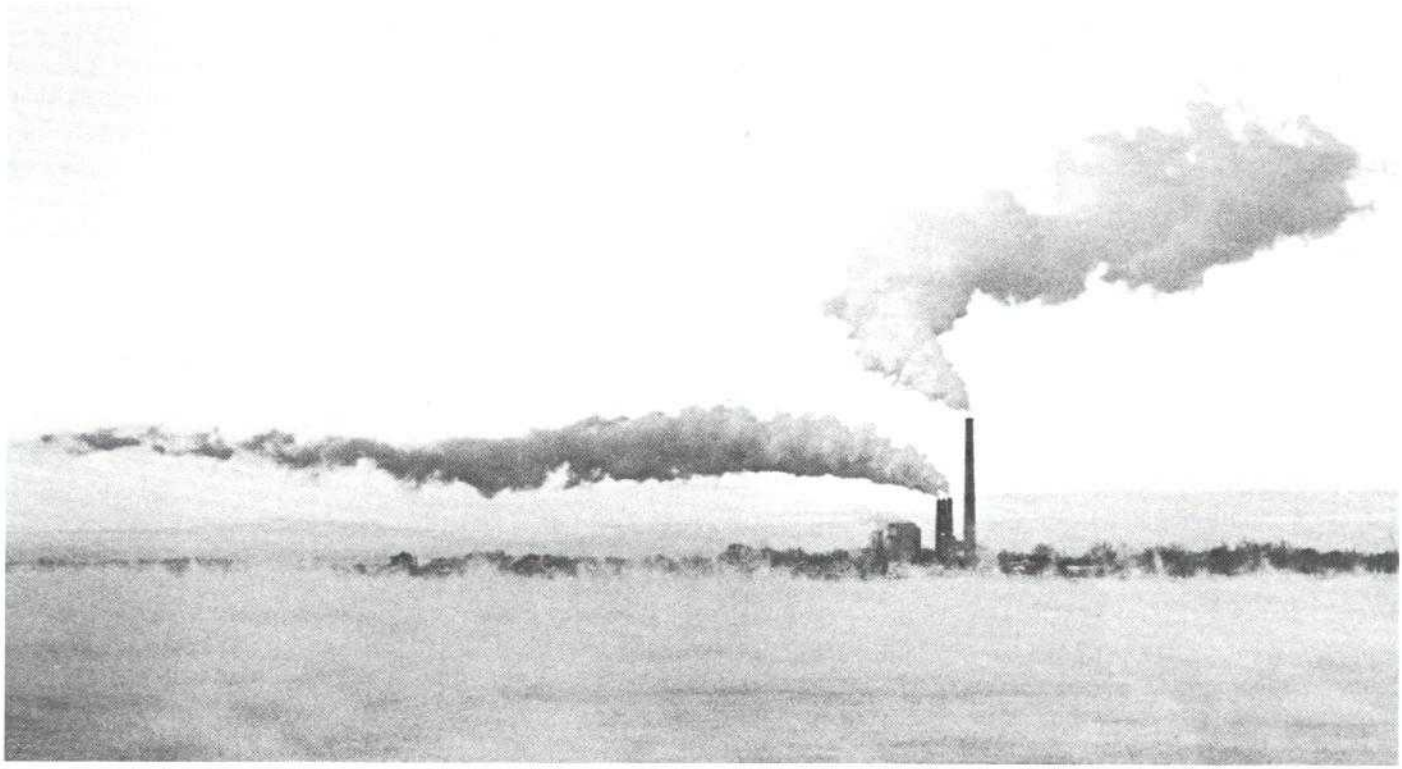
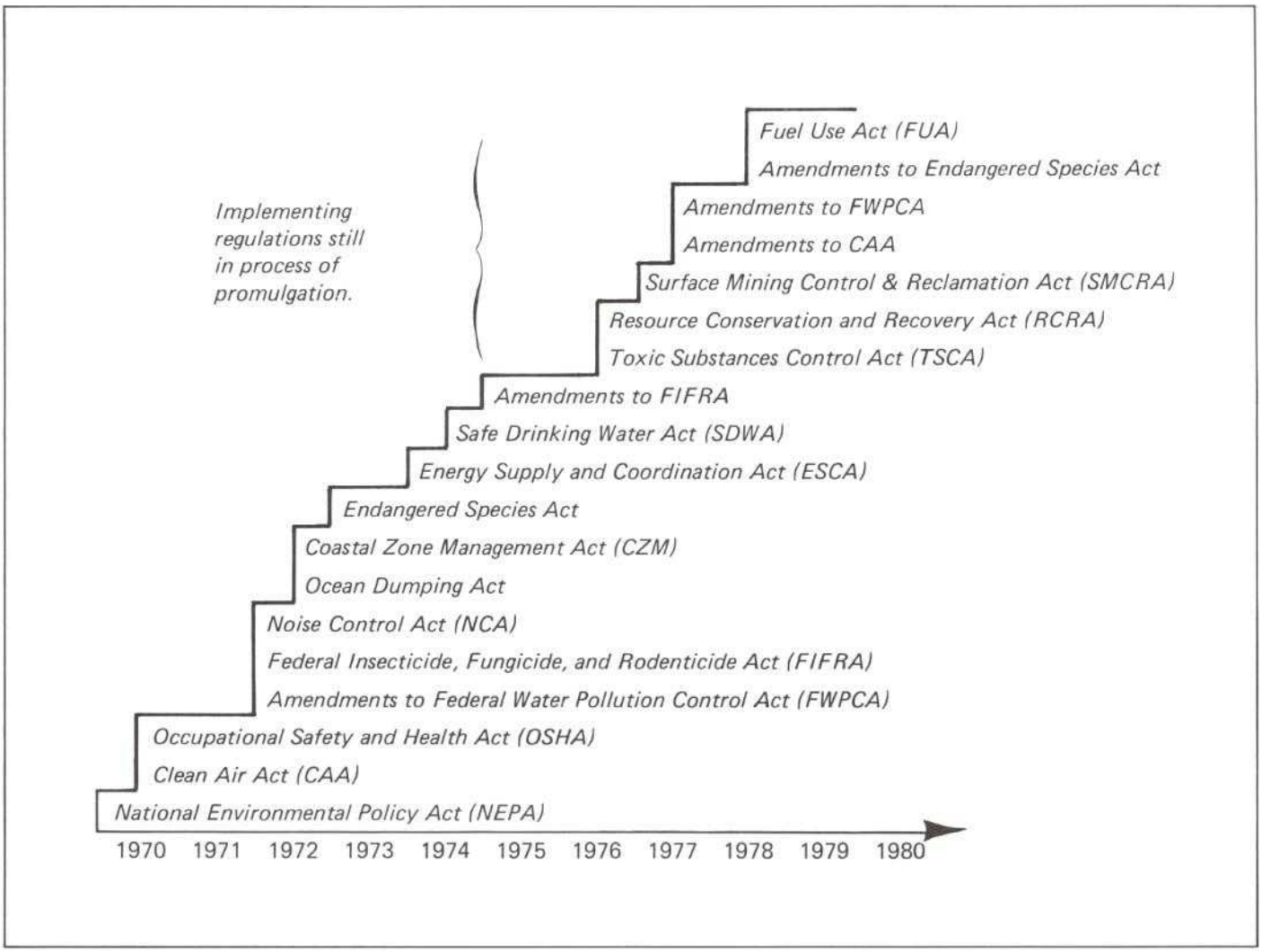
ERT studies the ways in which environmental laws, one of whose goals is the elimination of air pollution, clash with laws aimed at increasing the nation's energy output.





Major environmental legislation

ERT

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assessment of possible conflicts between DOE plans and programs and environmental control requirements.

ERT's projects for DOE have included: preparation of a briefing book (with periodic updates) on air quality regulatory issues for the assistant-secretary level Environmental Issues Committee; technical issues related to visibility protection under the Clean Air Act; assessment of air quality impacts associated with strip mining activities; and technical evaluation of the new source (emission limitation) performance standards for electric utility steam generators.

It is clear that a single solution to the energy-environment conflict will not be found. The issues will need to be carefully worked out through many analyses of the problems at specific sites and general policy studies over a period of many years. ERT will continue to be heavily involved in both types of activities.

During the next several years ERT expects to bring the resources of its extensive technical experience and its involvement in the regulatory process to bear on the national policy choices which must be made as efforts to develop energy resources in this country escalate.

ENERGY

(Continued from page 3)

Mr. Sanderson makes clear that the Corporation has no intention of ceasing its energy saving programs with the completion of these three new programs. As new energy-saving technology becomes available and is proven cost effective, it too will become part of COMSAT's continuing effort to keep energy usage and costs down.

With the second oil crisis in less than a decade behind us, all of us have come to realize that the world's supply of the precious hydrocarbon is limited and that energy conservation efforts must be made. Thus it should be reassuring to know that COMSAT has been aggressively pursuing an energy savings effort of its own for several years.

INTELSAT Board approves two-satellite Indian Ocean service; procurement of additional INTELSAT V spacecraft

The Thirty-ninth Meeting of the INTELSAT Board of Governors was held in September in Washington, D.C. Twenty-five Governors representing 69 of the 102 Signatories attended all or part of the meeting. Among its actions the Board:

Technical and Operations Matters

- Approved the introduction of full two-satellite operation (primary, major path, plus spare) in the Indian Ocean Region at year-end 1982, as recommended by the Director General.
- Authorized the Director General to exercise by September 21, 1979, the option to procure one additional INTELSAT V spacecraft (F-8) including a maritime communications subsystem and Ariane compatibility, at an estimated option price of $27,800,000.
- Authorized the use of an unconstrained trajectory for Atlas Centaur launches of INTELSAT V spacecraft, at an estimated additional cost of $500,000 per launch, in order to achieve the associated increase of approximately four months in each satellite's expected station-keeping lifetime.
- Requested the Director General to continue future system studies on the assumption that domestic services will be provided on a planned basis.
- Approved extension of the existing cost-reimbursement contract with the British Post Office for the provision of TOCC support services until end-1980 at an estimated cost of $220,000 in 1979 and $285,000 in 1980.
- Approved Brazil's request for lease on a preemptible basis of one global beam transponder, which may be converted during 1980 to a hemispheric beam transponder, and an agreement for the preemptible lease to Australia of an INTELSAT IV spot beam transponder, which will be converted when an INTELSAT IV-A becomes available in the Pacific, to two INTELSAT IV-A hemispheric beams, with a corresponding increase in space segment charges.
- Decided that INTELSAT would offer preemptible short-term transponder leases to meet domestic requirements, for a minimum period of three months, extendable in one month increments to a maximum of one year. The charge established is $450,000 for the initial three months, and $120,000 for each additional month for lease of a global beam transponder; twice these amounts for a spot beam; 1.2 times these amounts for a hemispheric beam; proportionate adjustments for half or quarter transponders; and appropriate charges for early termination. The Board approved short-term allotment agreements with Australia incorporating these terms and conditions for lease of one-half global beam and one-half spot beam in a Pacific Ocean Region satellite. Services are expected to commence in November 1979.
- Approved a Cameroon non-standard earth station for access to INTELSAT IV and IV-A satellites in the Atlantic Ocean Region, a Philippine non-standard earth station for access to INTELSAT IV satellites in the Pacific Ocean Region, and a United Kingdom non-standard earth station to be located in Hong Kong for access to INTELSAT IV satellites in the Pacific Ocean Region, each subject to specified operating conditions. These four stations will be used to provide service while standard A antennas are being retrofitted for INTELSAT V operation. The Board also approved the United Kingdom earth station for the purpose of conducting further cross polarization experiments and extended approval for the Liberian Sinkor non-standard earth station until January 31, 1980.

Organizational and Administrative Matters

- Decided that contributions to the INTELSAT retirement plan shall include provisions for full pre-funding of cost-of-living increases to pensions, and the employees' contribution shall be increased commencing January 1, 1980 from 6.5 percent to 7 percent of remuneration as defined in the plan with the employers' contribution increased so as to achieve full pre-funding.
- Authorized the Director General to adjust the INTELSAT salary structure effective January 1, 1980, to reflect the estimated increase in the Washington CPI to November 1979 and to adjust individual salaries to reflect a maximum of 90 percent of movement in this index.
- Approved urgently needed staffing for the Executive Organ, consisting of new positions in the Spacecraft Control Center, INTELSAT Operations Center, Planning and Studies Department, and Communications Engineering Department.

Financial and Legal Matters

- Authorized the Director General to obtain liability and launch failure insurance coverage for Atlas Centaur launches of INTELSAT V satellites.
- Established charges for provision of INTELSAT TT&C facilities to support non-INTELSAT launches of $180,000, $200,000 and $220,000 for each launch in 1982, 1983 and 1984 respectively.

The preceding report was prepared by Ingrid Kollist of the INTELSAT Affairs Division.

Satellites "talk to each other" through intersatellite links

A significant part of INTELSAT's Research and Development program is focusing on the technology of intersatellite links for satellite communication systems of the future.

"If you look at the global satellite network as a jigsaw puzzle, I would say that the use of intersatellite links is the last missing piece," said INTELSAT's Manager of R&D, Mr. D. K. Sachdev.

"Intersatellite links will allow satellites to 'talk to each other,' thus permitting a signal to be beamed from an earth station to a satellite and then routed through any number of satellites before being beamed back to earth. Of course, while parts of this technology may be in use by the late 1980s, it will take longer before it is in use on a worldwide basis," he said.

Within the intersatellite link category, there are four specific technologies that are currently under study: wideband FM modem, travelling wave tubes, tracking antennas and low-noise receivers.

In addition to this long-term project, INTELSAT R&D is covering a full range of research activities, from purely exploratory research and studies to specific, fixed-time development projects aimed at providing necessary technology for the next few generations of satellites. "The average R&D contract takes about three or four years to complete," Mr. Sachdev said, "so we are constantly involved in other near-term projects while keeping an eye on the future." In fact, INTELSAT's Research and Development team has already begun plans for its 1980 program. "We will be continuing intense activity on intersatellite links, while putting increased emphasis on technologies that could be applicable to INTELSAT VI and beyond," Mr. Sachdev said.

Among the projects being proposed for 1980 are studies on the use of multiple beam antennas for more extensive use of the available frequency spectrum as well as the development of larger spacecraft which could be accommodated by increased launcher capabilities.

"But the technology of the near future, say the next five to ten years, is the all digital network," Mr. Sachdev said. "We are currently working on hardware for both spacecraft and earth stations to adapt the existing networks to Time Division Multiple Access (TDMA), and eventually to Satellite-Switched TDMA. We hope to make digital technology development one of our prime objectives in our 1980 R&D program."

Architects to compete for INTELSAT building design

Architects from five countries have been selected to take part in a competition to design a new headquarters building for INTELSAT. Construction of the new building is scheduled to begin as soon as feasible after final architectural plans have been developed.

The six finalists, chosen from a total of 93 architects from 23 countries, are: John Andrews, International Pty., Ltd., Australia; Arthur Erickson Architects, Canada; Raili & Reima Pietila, Finland; Hellmuth, Obata & Kassabaum, P.C., U.S.A.; Holabird & Root, U.S.A.; and Hendrich, Petschnigg und Partner KG, West Germany.

INTELSAT will ask these architects to produce preliminary concept designs for its headquarters. The final architectural contract will be awarded on the basis of these designs, probably early next year.

New satellite to carry maritime packages

INTELSAT will order an eighth satellite in its next-generation INTELSAT V series to meet operational needs in the Atlantic Ocean Region.

The INTELSAT Board of Governors at its recent meeting in Washington, decided to go ahead with its option to place an order with Ford Aerospace and Communications Corporation for another spacecraft in addition to the seven already on order. It is estimated that the extra satellite will cost about $38 million.

The new satellite will provide more capacity in the Atlantic Ocean Region than the INTELSAT IV-A which it will eventually replace. Indications are that demand for satellite communications capacity in this region will increase by 114 percent by the end of 1983.

The eighth INTELSAT V will be one of four carrying maritime packages to perform ship/shore/ship communications in addition to their normal international communications roles, beginning in the 1981-82 timeframe.

The first of the INTELSAT VS is scheduled to be launched in 1980 over the Atlantic Ocean.

Zimmer appointed General Counsel for ERT

Thomas M. Zimmer, Esq., Assistant General Counsel of COMSAT GENERAL Corporation since July 1976, has been appointed Assistant General Counsel for Environmental Services Matters and will serve as the General Counsel for Environmental Research & Technology, ERT, located in Concord, Massachusetts.

Before joining COMSAT GENERAL in August 1974, Mr. Zimmer was Manager, Policy Development Department, COMSAT. Joining COMSAT in 1972, he had previously served in the Judge Advocate General's Corps of the U.S. Army in positions in Europe and the Far East.

New earth station proposed for Cayey

COMSAT has asked the Federal Communications Commission for authority to construct a new, $7.7-million earth station in Cayey, Puerto Rico, to operate with the INTELSAT international communications satellite system.

COMSAT pointed out in its application filed recently that Puerto Rico's international message volume unexpectedly shot up approximately 65 percent between 1976 and 1978 and that projected service will more than double from 1979 to 1985. It also noted that Puerto Ricans today have no direct access to the INTELSAT system, and that the new facility is required to assure Puerto Ricans the same benefits of direct access as mainland U.S. citizens now enjoy.

"There is an existing and growing need for an international communications earth station in Puerto Rico to provide residents with diverse, reliable and low-cost communications world-wide," said Joseph V. Charyk, President and Chief Executive Officer of COMSAT. "The earth station we propose will put Puerto Ricans in better touch with their neighbors around the world."

COMSAT previously had operated and had been part owner of an international earth station in Cayey. However, in the early 1970s COMSAT signed an agreement to transfer operation and ownership to All America Cable & Radio, Inc. after the FCC said traffic between the U.S. mainland and Puerto Rico could be carried via a domestic satellite system rather than via the INTELSAT system. That transfer was completed in March 1979.

When COMSAT signed the transfer agreement, it appeared that future traffic from Puerto Rico to international points would not justify continued operation of a Puerto Rican earth station as part of the INTELSAT system. But substantial international traffic has developed and COMSAT said in its application that "current analysis shows that an international station can now be justified."

In submitting its application, COMSAT proposed that it be "processed under the assumption" that other U.S. carriers would wish to share the ownership of the new station and that COMSAT would operate the station. Under this arrangement COMSAT would manage the day-to-day operations and own 50 percent of the station just as it does with the other international stations in Andover, Maine; Etam, West Virginia; Jamesburg, California; Brewster, Washington, and Paumalu, Hawaii. If other carriers are not interested in owning the remaining 50 percent, COMSAT would propose to assume full ownership of the new station.

The proposed international earth station, a Standard A type with a dish-shaped antenna 105 feet in diameter, would be built near the existing domestic earth station in Cayey, which is about 35 miles south of San Juan.

R&D Committee visits Labs

The R&D Committee of the COMSAT Board of Directors visited COMSAT Laboratories recently and was taken on a tour of research and development activities by Labs' Director John V. Harrington and Lou Pollack, Executive Director. Here the group is briefed on the communications system monitor test bed by Chris Mahle (right), Manager, Transponders, Microwave Lab. Interested listeners are: (left to right) Jerome W. Breslow, Corporate Secretary; Board Chairman, John D. Harper (partially hidden); Charles J. Pilliod, Jr.; John V. Harrington; Joan F. Tobin; Bruce G. Sundlun; Melvin R. Laird; Lou Pollack; and William W. Hagerty. Other Labs activities visited by the R&D Committee were: TDMA, digital television, regenerative repeater, microwave integrated circuit technology, bearing signature analysis, electronic mail test bed, multibeam antenna, nickel-hydrogen battery for space applications, optical fibre transmission link and the new IBM 3032 computer.

PHOTO BY BILL MEGNA

Engineers and scientists from more than 15 countries participate in INTELSAT Assignee Program

By Allan Galfund

The INTELSAT Assignee Program is an INTELSAT-sponsored program for Signatories to allow engineers and scientists an opportunity to work with the COMSAT staff, generally for a period of up to two years.

Since 1965, more than sixty assignees from fifteen countries have participated in the program: fifteen from Japan; eleven from France; eleven from the United Kingdom; five from Italy; four from Germany; three each from India and Spain; two each from The Netherlands and Sweden; and one each from Brazil, Denmark, Israel, Korea, Norway, and the United Arab Republic. While the majority (56) has been assigned to COMSAT Laboratories or other technical functions in COMSAT, five have been posted to Operations, and one to Finance.

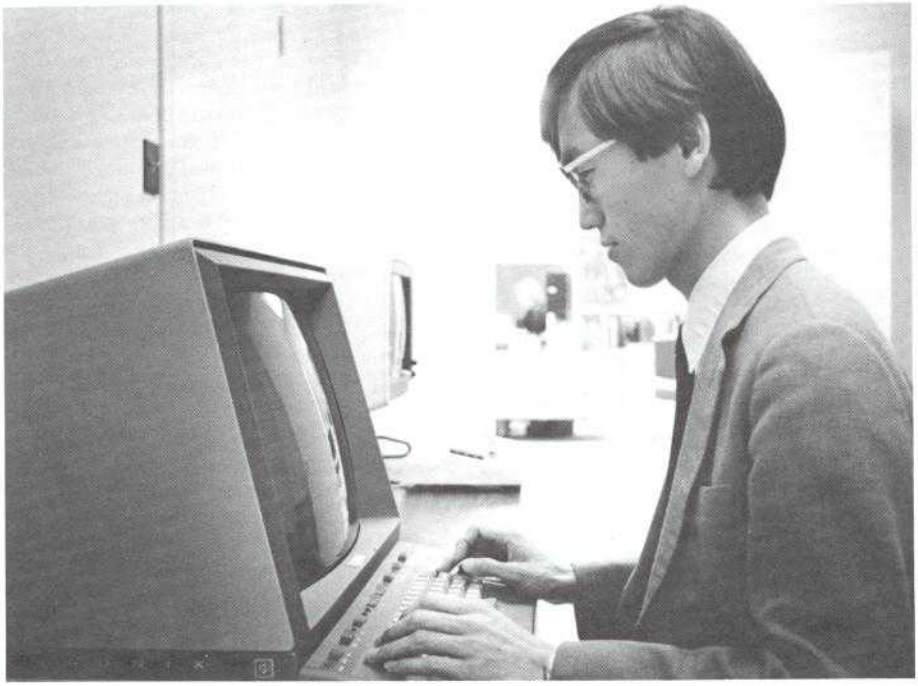
The assignees are detailed to perform their duties on INTELSAT-supported projects alongside regular COMSAT employees. Over the years, assignees have made notable contributions to the development of the INTELSAT system.

Luis Perillan, a nominee from the Compañia Telefonica Nacional de Espana, the Spanish Signatory, was assigned to the System Applications and Simulation Department of the Transmission Systems Laboratory. During the two years Mr. Perillan worked in the labs, he made significant contributions in the area of computer modeling of communications satellite systems, more specifically in the implementation of the Satellite Transmission Impairments Program (STIP). He also participated in the implementation of a computer program to assess television transmission performance. Mr. Perillan is now a full-time employee with INTELSAT.

Another nominee who received high marks during his two-year tour of duty at the Labs was Dr. Takuro Muratani of Kokusai Denshin Denwa Co., LTD., of Japan, who was assigned to the Communications Processing Laboratory. While in the Multiple Accessing and Digital Control Department, Dr. Muratani worked on the development of TDMA (Time Division Multiple Access) system concepts with particular emphasis on study and experimental evaluation of satellite-switched TDMA. He developed concepts important to routing TDMA traffic through the satellite and produced several technical papers on the subject.

Dr. Muratani organized and performed tests on synchronization of a TDMA earth terminal with a satellite switch; this involved two TDMA

Toshitake Noguchi, a nominee from Nippon Electric Company, Ltd., Japan, has been assigned to the Modulation Techniques Department since June 1977. He has been active in the study of the nonlinearities associated with the satellite transponder channel and with earth stations. His studies have contributed to the development of computer simulation of adaptive equalization, a technique which holds promise for reducing the effect of linear distortion on digital carriers.



Mr. Galfund is Manager, Technical Information, COMSAT Laboratories.

terminals, a model of the on-board satellite switch and an earth terminal to satellite and return path. He successfully completed this important experiment which established that accurate synchronization was achievable.

A nominee from France, Dr. Bruno Blachier, from Thompson, CSF, spent two years in the Microwave Lab and gained recognition for his outstanding work in microwave circuit design. He contributed significant knowledge to the design of phase-equalized microwave filters and initiated work in microwave integrated circuits.

During his assignment as a Staff Scientist on the Technical Project Staff at COMSAT Labs, Dr. Jonathan Mass, nominee from the National Committee for Space Research, Israel, was highly regarded for his work in the analysis of, and research into, the effects of rain on microwave propagation. To his assignments at the Labs he brought an excellent understanding of electromagnetic phenomena, and he contributed to the analysis of rain statistics.

Dr. Heinz Haeberle, a nominee from Germany's Standart Elektrik Lorenz A.G., made noteworthy contributions in the development of TDMA systems and scanning beam concepts at COMSAT Labs during the two years he was assigned to the Communications Processing Lab. He is now a member of the Board of Directors of the Deutsche Forschungs-und Versuchsanstalt fuer Luft-und Raumfahrt e V.

Dr. Ettore Fariello, an INTELSAT assignee from Telespazio, Italy, had a two-year assignment in the Modulation Techniques Branch of the Communications Processing Laboratory. During that time, Dr. Fariello made significant contributions to the advancement of digital satellite communications technology. He invented a digital speech detector which led to the development of a simple, low-cost and highly effective digital echo suppressor.

Roger Colby came to COMSAT Labs as a nominee of the United Kingdom from the British Post Office and has been assigned to the Communications Processing Labs' technical staff since early 1978. He was a major contributor to the INTELSAT TDMA field trials as the principal technical investigator responsible for analysis of field trial data. Colby also generated many of the recommendations which resulted in improved TDMA system performance.

The examples cited are typical of the high caliber of scientists and engineers who have taken part in the program. Unfortunately, space does not permit recording the individual accounts of all of those who have made meaningful contributions to the advancement of satellite communications technology.

Since January 1, 1979, the program has been administered by the Executive Organ of INTELSAT. Candidates meeting the qualifications for an assignee position may be nominated by their Signatory. The selection of individuals in the Program from available candidates is made by the Director General of INTELSAT with the concurrence of COMSAT. INTELSAT is responsible for the administration of the Assignee Program, including announcements of vacancies, liaison with Signatory organizations with regard to nominations for assignee positions, and extensions of assignments, payment of salaries and administration of benefits.

Benefits from the program accrue to all of the participants: INTELSAT benefits from the advances in the space segment capability made possible by successful research programs; COMSAT benefits from the new ideas and fresh talents each assignee brings to the Laboratories; the assignees' careers are enhanced by their work in the INTELSAT R&D Program and by their close association with the staff at the Laboratories. Additional benefits are realized from the continuing friendly associations of Labs personnel with assignees after they return to their home countries.

Illustrating the close associations which have developed among former assignees and Labs personnel is a letter from Pierre Neyret, a nominee from the French Signatory, who was assigned to the Microwave Lab from 1975 to 1978.

(Continued on next page)

NOMINEES

(Continued from page 11)

". . . I am happy to tell you that in my opinion, my own assignment has been a success, as well professionally as for my private life. It has been so because the people I had to work with are not only bright and competent, they are also very friendly, and they did provide me with all the help I could hope for.

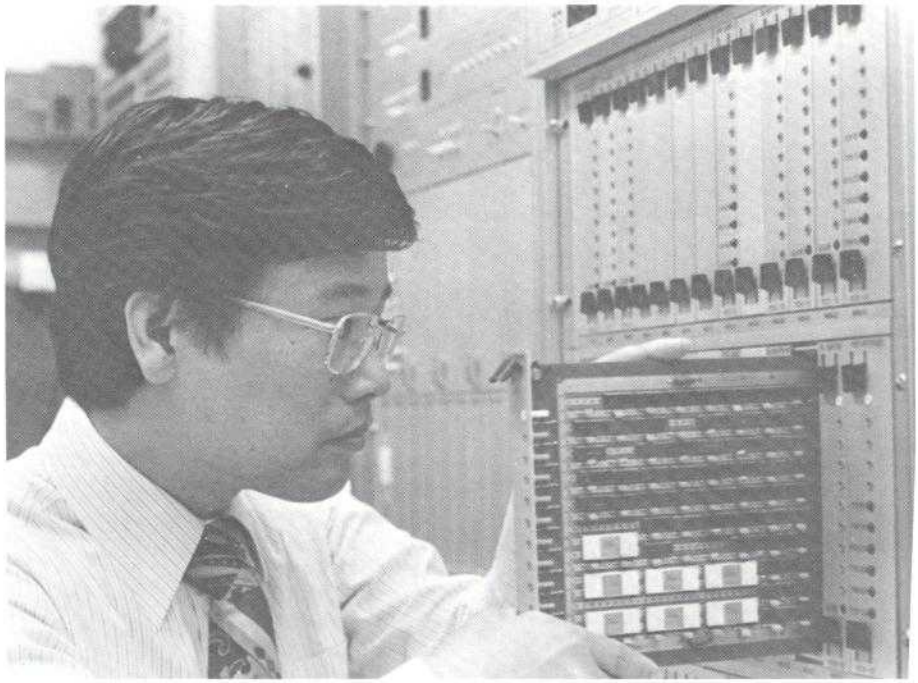
As a result, I was given the opportunity to learn a lot about reflector antennas for satellite and earth stations. This indeed filled a gap in my own experience, and I now have some background on almost all aspects of the RF portion of a communication satellite payload.

I hope that my contributions during these three years did result in some benefits for INTELSAT and COMSAT, but the people I worked for are in a better position than myself to evaluate them. My employer is making a good use of these contributions, since after participating for a while in the definition of a communication repeater for a proposed European Direct TV Broadcast Satellite, I am now participating in the design of a shaped beam antenna with high polarization isolation and low sidelobes.

As for my private life, these three years in the COMSAT Labs have been a very enjoyable time, and the people I had to work with soon became my friends. I was given the opportunity of a real life discovery of the United States, I could do some touring in your country and I was welcomed everywhere . . .

I do think that this program benefits everybody: INTELSAT, COMSAT, the Assignee himself and his employer, and that it contributes to give to the COMSAT Laboratories an open, international character which is a perfect illustration of the very purpose of international communication satellites . . . "

Who could say it better?



Yohtaro Yatsuzuka has joined the Signal Processing Department of the Communications Processing Lab as an INTELSAT nominee from Japan. He will be working on projects involving digital source encoding and multiplexing techniques. Prior to his selection as an INTELSAT assignee, Yatsuzuka was employed by Kokusai Denshin Denwa Co., Ltd., in Tokyo, Japan, as a research engineer.

Dr. Rene Bonetti, an INTELSAT nominee from Brazil, has joined the technical staff of the Circuits Department of the Microwave Laboratory. His assignment is the investigation of dielectric resonators and their applications to microwave filters. Prior to his selection as an INTELSAT assignee, Dr. Bonetti was employed at the Instituto de Pesquisas Espaciais (Space Research Institute), Sao Paulo, Brazil, as a research engineer.

By Holly Pryatel

Notes From Personnel

November is the time for Thrift and Savings Plan participants to decide if they want to take advantage of the partial distribution option of the Plan.

Once a year, in November, the Plan allows participants to withdraw the value of contributions (both yours and matching Corporate) that were made two plan years ago, without penalty of suspension of future contributions. The contributions are those made during 1977.

If you are a Thrift and Savings Plan participant, in October you should have received a statement of your account. The statement shows the value of your thrift and savings contributions as of September 30, 1979. The actual amount you can withdraw without penalty and normally without incurring an ordinary income tax liability will be valued as of December 31, 1979.

You can make this election any time in November, with the deadline being November 30, 1979. If you choose to make this election, send your Disbursement Form to the Director of Treasury Operations, fifth floor at the Plaza.

If you are not a participant in the Thrift and Savings Plan, you may want to think again about joining. Nowhere else will you have the amount you save matched by 50 percent. For every dollar you save, Comsat contributes 50¢.

You can invest in either Fund A, which is a guaranteed interest fund, or Fund B, which is a common stock fund, or a combination of the two. Last year each fund grew—Fund A by 8.7 percent and Fund B by 8.6 percent. As of August 1, 1979, Fund A has earned 7.2 percent interest, while Fund B has earned 6.6 percent.

For more explanation, read your Handbook Savings Section or ask your supervisor or Stephanie Smith in Personnel.

Ms. Pryatel is an Employee Relations Specialist in the Personnel Office.

A recent magazine article on health insurance stated that spending on health care goods and services has exceeded $200 billion a year in the United States. This averages to a health bill of $930 a person, or $3,720 for a family of four. The cost of health care services has increased since the late 1960s faster than any other type of personal expense—one and one-half times the rate of rise in our overall cost of living. Hospital charges alone jumped four times as fast as the consumer price index; physician's fees were three times higher.

Basically this means that you cannot afford *not* to have health insurance. Comsat provides coverage that is not available to you as an individual, at no cost to you for your coverage and at a minimal cost for your dependents. If you *were* able to obtain comparable coverage, it would cost you approximately an average of $56 monthly per person.

In 1978, medical benefits cost Comsat $1,108,000, and the cost for the entire employee insurance, including medical, dental, life, and accidental death and dismemberment, in 1978 was approximately $1,674,000, or 4.9 percent of payroll.

The total cost of *all* fringe benefits extended to you by Comsat for 1978 was $10,886,926, or 32 percent of payroll. This is expected to increase to 34 percent of payroll for 1979. On the average, the company spends almost $7,900 a year on each employee for all benefits.

A short note: According to an article in the August 19, 1979, issue of *Parade* magazine, medical bills for people who exercise are only half as much as those for people who don't exercise. A study showed that not only did physically active people have fewer medical bills, but also they were more emotionally stable and less tense. That might be an incentive to exercise after reading how high medical costs are!

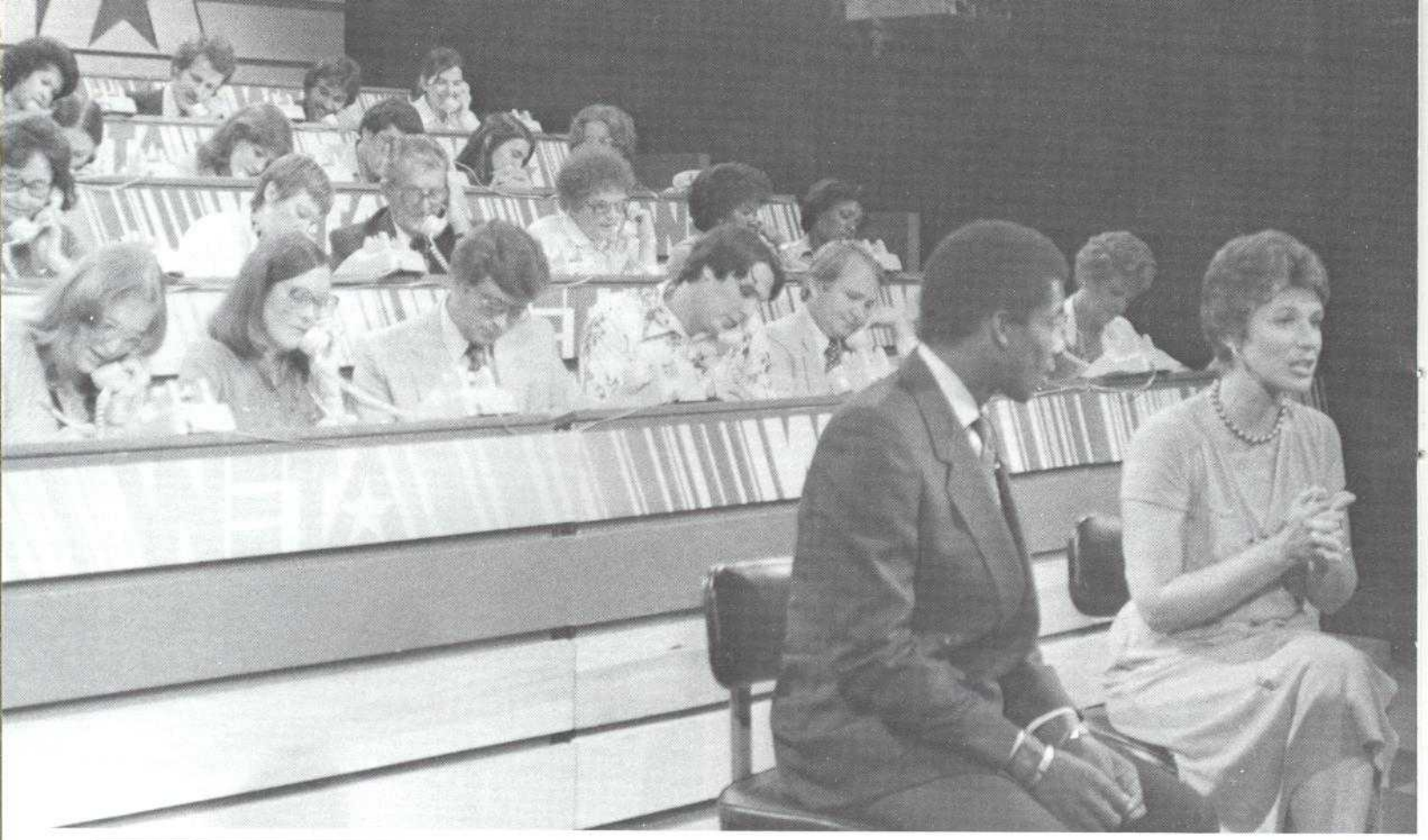
You may wonder why it takes a while for a decision to be made about closing the building during a snowstorm or at such times as when the air conditioner broke at the Plaza last August. Whenever the building is closed but salaries are being paid, the company is paying money but getting nothing in return. That is, your salary is paid in return for your efforts on the job. However, when you are out but still being paid, Comsat, or any company, is losing money. Last year, the total pay for time not worked (vacations, holidays, personal absences, etc.) was 12 percent of the payroll expense, or almost $4,100,000. This is the single highest cost item in the benefits program. The next two highest costs are pensions and employee insurance.

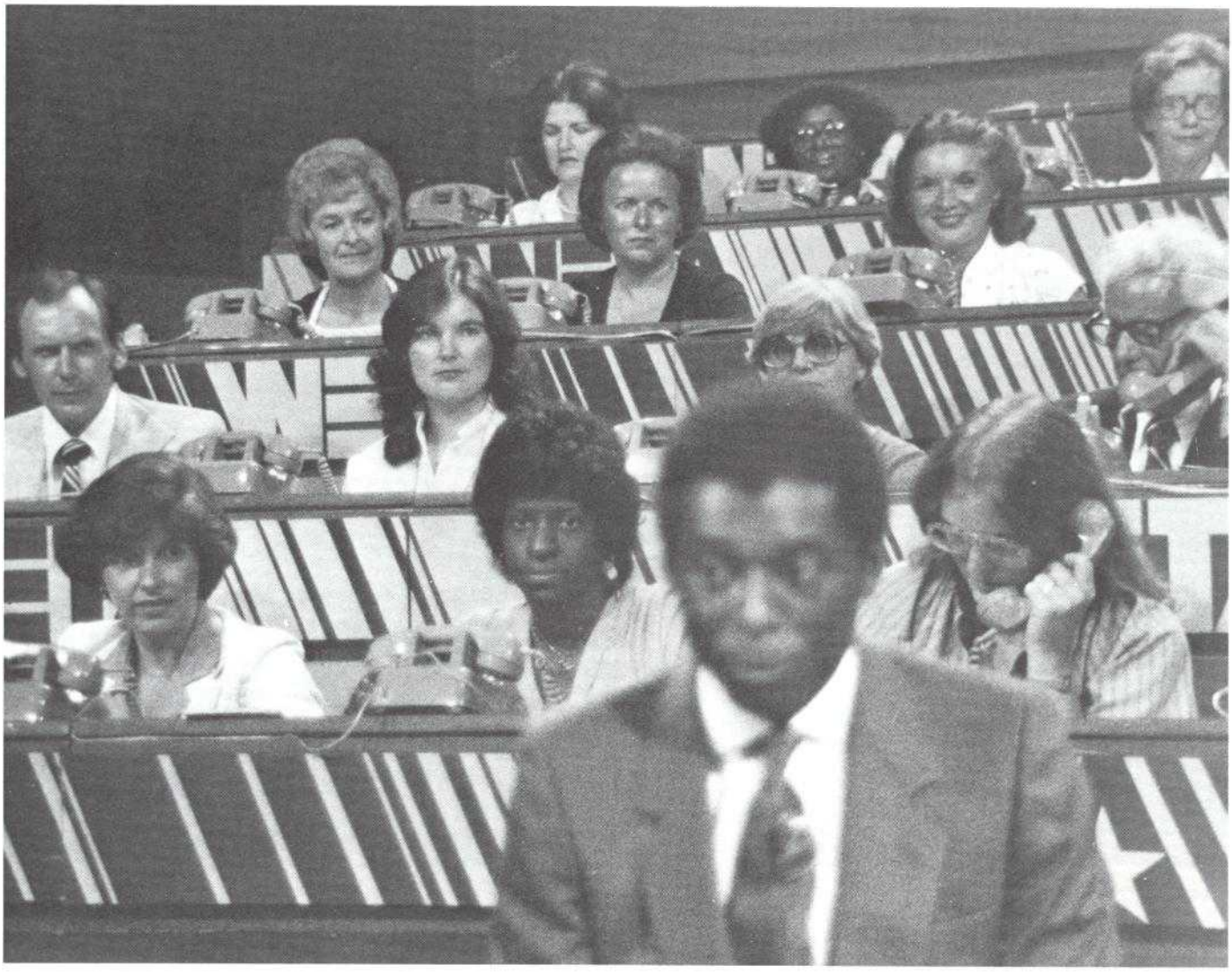
When you're suffering from heat exhaustion or worried about getting home safely in the snow, however, keep in mind that although the decision to close early is a costly one, employee health and safety is the major factor in making such a decision.

If you have a specific issue that you'd like to read about, feel free to send me your suggestion at Room 7199 at the Plaza. I'm sure you realize I may not be able to answer all questions, such as those dealing with salaries. But, if your question is of general interest to most employees, I'll see what can be written on the subject.

Labs Open House

COMSAT Laboratories in Clarksburg, Maryland, celebrated their Tenth Anniversary in September with an Open House for employees, their families and friends. The photos on these pages show some of the activities and events of the Open House.





COMSAT volunteers participate in WETA-TV fund drive

Forty-seven COMSAT volunteers participated in the recent WETA "on-air" Summer Membership Drive, manning telephones for four evening hours, and receiving 536 pledges for a total of more than $18,000. According to WETA officials, this represented a 33 percent gain over the average evening's pledges during the 10-day fundraiser.

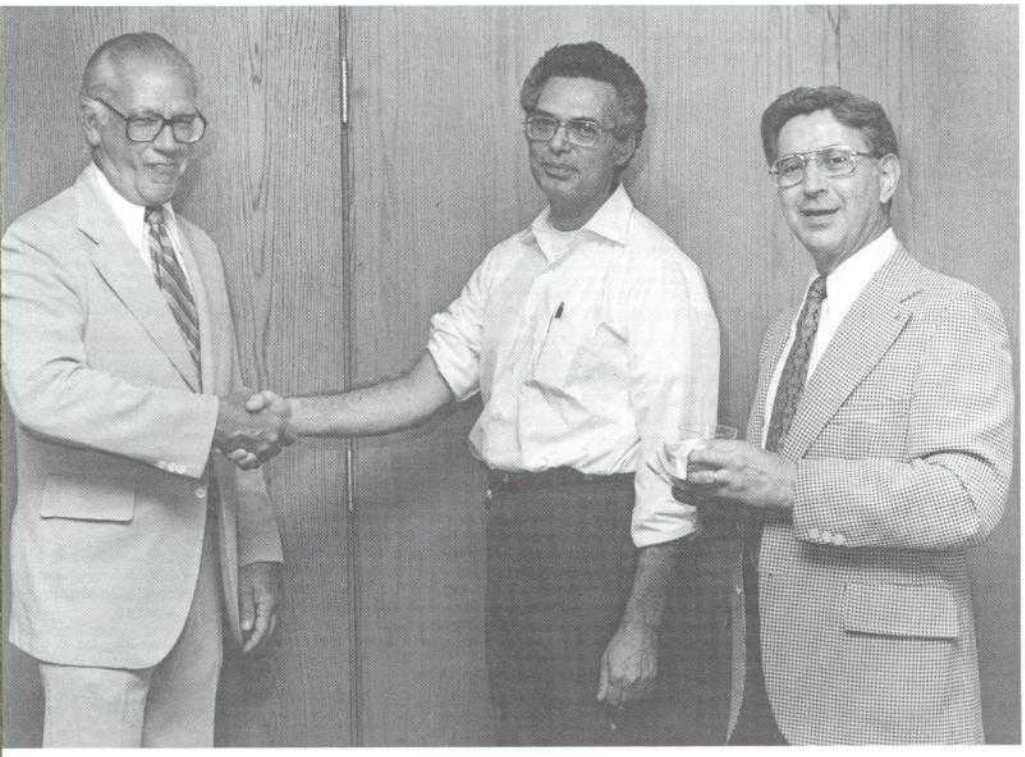
Mr. Lucius D. Battle, Senior Vice President for Corporate Affairs, presented the corporate contribution to WETA during the broadcast, along with his own personal pledge. He expressed the corporation's desire to be a responsible corporate citizen in its operating communities.

According to Jacqueline Wakeling and Joyce McKenzie, who arranged for and coordinated employee participation with WETA, the enthusiasm of the COMSAT volunteers greatly impressed the station management with the volunteers expressing the desire that "COMSAT Night at WETA" become an annual event.

COMSAT volunteers recently assisted in a fund drive sponsored by Public Television Station WETA. Shown on these pages are the volunteers manning the banks of telephones accepting pledges from contributors. Seen in the photos on the opposite page in front of some of the COMSAT volunteers are Station WRC's Martin Wyatt and Gwenn Thompson. In the photo at right are COMSAT's Senior Vice President Lucius D. Battle and Ms. Thompson.

PHOTOS BY MICHAEL GLASBY

Service awards presented at Labs



Presenting the 15-Year Award to Arnold L. Berman (center) are John V. Harrington, Vice President, Research & Engineering, (left), and Louis Pollack, Executive Director, Communications Satellite Research (right).

PHOTOS BY BILL MEGNA

Receiving 10-Year Awards are, seated from left to right, D. Jones, B. Linthicum, and B. Hutchens; standing from left to right, D. Chontos, J. Kaiser, D. Van Der-Loo, J. Bowles, J. Molz, B. Agrawal, S. Jones, N. Morell, M. Grossman, W. Moore, R. Joyner, D. DiFonzo, R. Garlow, P. Stine and F. Esch; and award presenters at extreme right, J. Harrington, L. Bollinger, L. Pollack and E. Rittner.

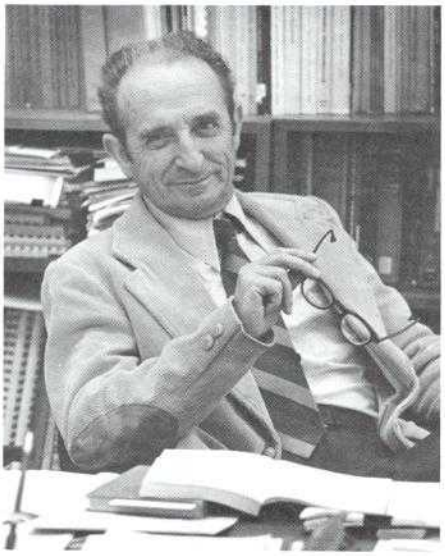
Receiving Five-Year Awards are, seated from left to right, I. Atohoun, K. Updike and J. Hsing; standing left to right, W. Chang, C. Barrett, R. Bass, J. Kasser, R. Kessler, R. Smith, R. Riblet, V. Riginos, E. Bainbridge, C. Jenkins, J. Harrington, M. Roberts, L. Pollack and L. Bollinger. Harrington, Smith, Pollack and Bollinger made the presentations.

IEEE exhibit

COMSAT Laboratories recently provided an exhibit at the IEEE International Conference on Communications held in Boston (ICC '79). The exhibit featured a demonstration of the high power switch and rotary combiner, a display of the Labs-developed echo canceller and advanced lightweight microwave waveguide filter technology developed by the Labs. Briefing visitors to the exhibit were Janakai Potukuchi of the Microwave Lab and Michael Onufry of the Communications Processing Lab.

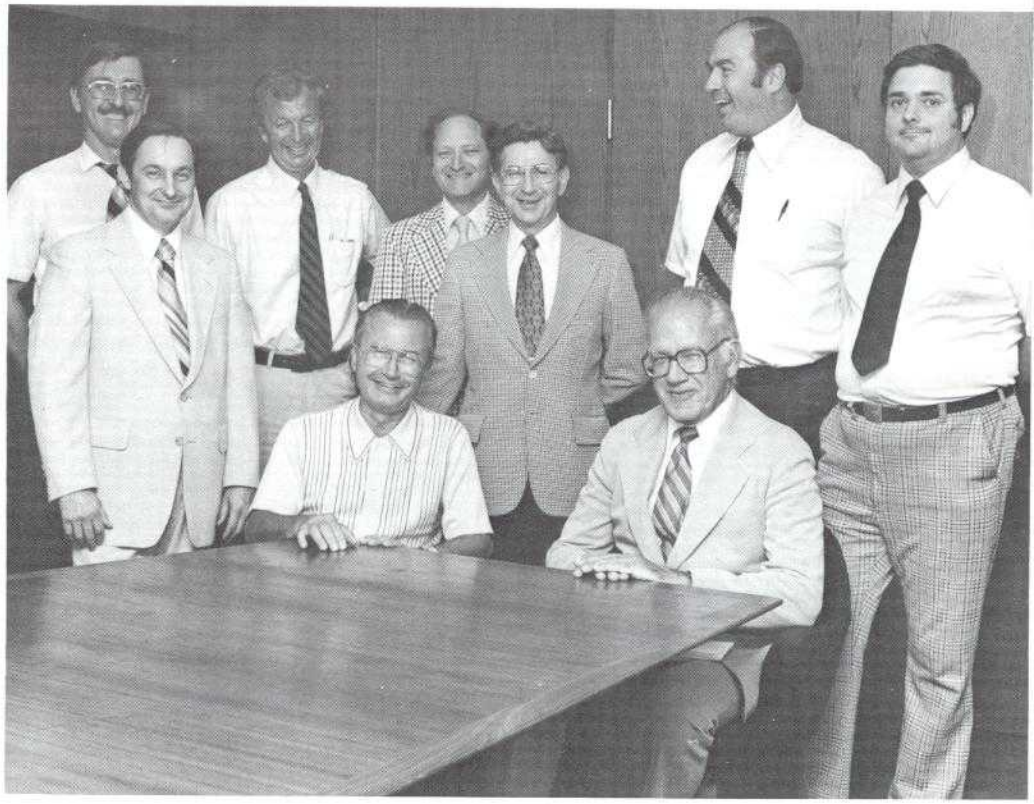
IEEE award

Dr. Pier L. Bargellini, Senior Scientist at COMSAT Labs, has recently been nominated to Life Member of the Institute of Electrical and Electronic Engineers. Dr. Bargellini became affiliated with IEEE as a Student Member in 1936, maintaining his membership through the years, progressing to Associate Member, Full Member and Senior Member and nominated to Fellow Member in 1975. Both the Fellow and Life Memberships are by election from the Institute and based on distinguished services and seniority respectively.



Patent awards

Patent Incentive Awards were recently presented to Labs' employees. Receiving the awards were, seated, O. Horna (left) and Vice President J. Harrington who made the presentation; and, standing left to right, C. Wolejsza, M. Onufry, R. Kreutel, P. Karmel, Executive Director Louis Pollack who made the presentation, S. Rhodes and K. Stuart.



By Bill Brobst

COMSTARS shine in '79

The COMSTARS, Comsat's women's softball team, had the best season in modern memory this year. They went undefeated in league play, and won two playoff games before losing in the city-wide competition.

They even beat Comsat's male-dominated legal department team. The COMSTARS' success was attributed to talent, hard work, brains and a little luck.

Co-managed by Bill Wannisky and Ann Younger the team was organized early last spring and practiced faithfully throughout the summer. The mixture of experienced and new players blended well, and they teamed up to beat opponents nine times in their Monday night league.

Due to a 10-run rule, COMSTAR games were usually over by the fourth inning. By then the slugging power of the COMSTARS had battered the opposing pitcher for at least a 10-run margin, while the COMSTARS had given up few runs behind the impressive pitching of Linda "Iron Arm" Kortbawi Rinker and the smooth catching of Mable "Daredevil" Vandergriff.

Other members of the team were Angie "Bruises" Contreras, Priscilla "Pegleg" Murphree, Cindy "100 Percent" Clarke, Harriet "Lefty" Biddle, Gail "The Lip" Dunagan, Ella "The Screamer" Owens, Pier "Popcorn" Porter, Claudia "Slugger" Toy, Ruth "Barefoot" Adams, Kathy "Pigtails" Miller, Nancy "Big Mitt" Weber, Yvonne "Hot Corner" Briggs and Dede "Sweet Sixteen"

Mr. Brobst is an Information Officer in COMSAT's Office of Public Affairs.

Priscilla and her supporting cast. ***Priscilla Murphree earned some well deserved sympathy for her season-ending injury when several COMSTARS (clockwise from left) Angie Contreras, Claudia Toy, Ruth Adams, Gail Dunagan, Nancy Weber and COMSTAR fan Marion Timmons autographed her cast.***

We'll make more next time. ***The COMSTARS bake sale in the Plaza lobby last spring was an appetizing and financial success. Angie Contreras, Debbie Fall, Gail Dunagan, Ruth Adams and Ann Younger (not shown) helped sell out the goodies before the lunch hour was over. More bake sales are planned to help cover expenses for the coming season.***

Contreras.

The coaching staff included John Berres, Bill Brobst, Dave Bushlack, Kent Linnebur and Fred Weber.

All of the above contributed to a successful season that continued into the playoffs with the COMSTARS blowing by the Bureau of Alcohol, Tobacco and Firearms and ACTION before bowing to an awesome group called "Satan's Children."

Highlights of the season included one 19 to 2 stomping in which every player scored at least once, a slick double play begun by a pirouetting Claudia Toy at second, a bruised eye for Charles Lewis after being hit in a pickup game by Pier Porter (by her batted ball, of course), the rantings and ravings of an unnamed coach who repeatedly threw his cap to the ground during a rainy practice and the never-say-quit spirit of Priscilla Murphree.

Priscilla was an improved player throughout the season. In the next to the last game she stepped in a hole and twisted her ankle in an early inning as she hustled off the field. Encouraged by her coaches to shake it off, Priscilla failed to let her painful injury force her out of the contest. It was only after the game, the last the COMSTARS were to win, that Priscilla found she could not stand on her "twisted" ankle. Later the ankle, according to an apropos analogy from Priscilla, swelled up to the size of a softball. It was then that Priscilla headed for the doctor's and was put in a cast up to her knee for a month with torn ligaments. Tough, those COMSTARS!

The COMSTARS will be starting early next year to build on this year's success. Because of the loss of some key players the COMSTARS encourage all interested women—rookies or experienced players—to contact Ann Younger at 6192 for information on next year's plans.

They play softball don't they?

The amazing COMSTAR team and coaches included (back row left to right) Bill Wannisky, Harriet Biddle, Ella Owens, Bill Brobst, Cindy Clarke, Ruth Adams, Gail Dunagan, Claudia Toy, Priscilla Murphree and John Berres; (front row left to right) Mable Vandergriff, Pier Porter, Linda Kortbawi Rinker, Kathy Finnegan, Angie Contreras, Kathy Miller and Yvonne Briggs. Other members of the team and coaches were Ann Younger, Nancy Weber, Dede Contreras, Dave Bushlak, Kent Linnebur and Fred Weber.

Labs Intramural Softball concludes enthusiastic season

By Henry Mueller

One of the CEA's most successful ventures, Labs Intramural Softball, was a big hit during this past summer; six teams with more than one hundred enthusiastic participants composed the ever-growing league this year.

John Gerace and his facilities team got the ball rolling again, early in the spring, with their minds and hearts bent on avenging last year's defeat by the Model Shop, and four other teams joined in with the same goal in mind: "Beat Bert Collins Shop Micros!"

Mary Penrose and Olivia Piontek formed the Spirited Sliders. Bob Cool and Pat Weaver brought on the Spacecraft Space Chargers while Doug Steward challenged with his strong Drafting team. And Dan McAuliffe entered one of the most fun loving and devil-may-care teams the Labs League has ever had, MCE's Choked Chickens.

The League was split into two divisions with three teams each. Each team would play every other team twice in the season that spanned June to late August. The division winners would play for the championship in late August.

The Shop Micros walked away with their division, going undefeated during regular league play. They appeared to be invincible. However, the other division was a very different story. The Facilities Blue Streaks struggled in the early going and in the final weeks a three-way tie was a definite possibility in that division. But the Blue Streaks made a late season surge, winning their division and heading into the trophy game with the momentum that could bring them final victory.

As the season progressed the Labs Co-ops formed a seventh team which, though unable to enter the league because of scheduling difficulties, provided the League teams with extra games.

Game spectators

The Blue Streaks

Mr. Mueller is a Technical Specialist at COMSAT Laboratories.

Championship Game "One Of The Best Ever"

The Facilities Blue Streaks came to play ball and one hundred plus spectators came to cheer them on. Clearly the underdogs, they were the crowd's favorites.

The Blue Streaks' determination and desire hung in the air as Bill Fallon threw out the honorable first ball. With the Shop coming to bat in the sixth inning, Facilities held a 2-0 lead and the feeling of an upcoming upset was in the minds of all at COMSAT Field.

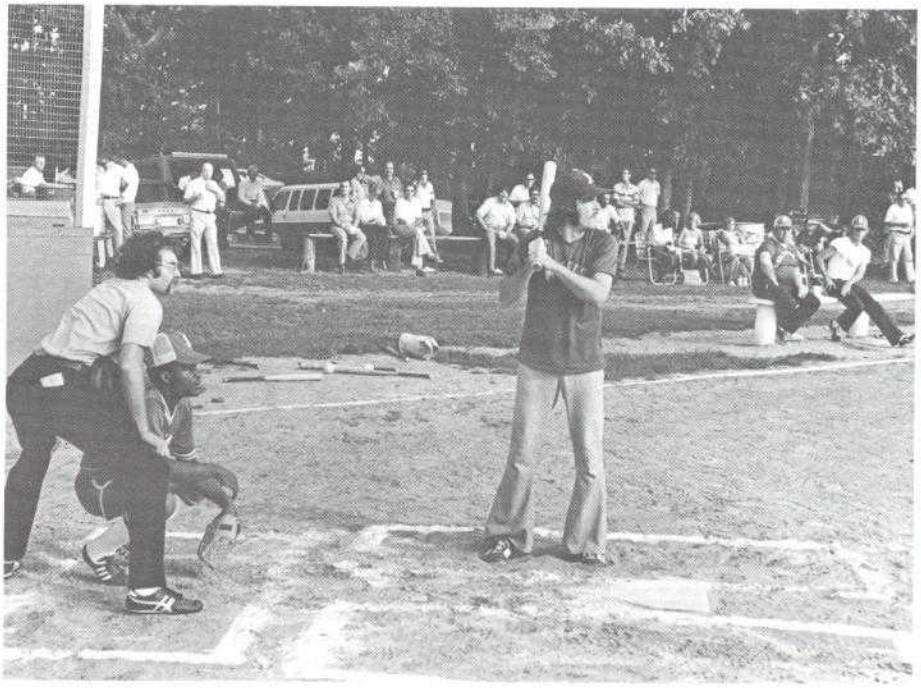
Two Blue Streak miscues allowed the first two Shop batters to reach base in the home half of the sixth, then John Kisner tied the game with a triple. Bert Collins sent a third run home with a sacrifice fly. With two outs Clagget Thompson hit his second triple of the evening, and Gary (Boomer) Zimmerman slammed a 280-foot drive over the left field fence, giving the shop a 5-2 lead. Facilities scored twice more in the seventh and eighth innings. With a 5-4 lead in the bottom of the eighth the Shop was breathing hard and knew it had better do something in a hurry. Bert Collins singled, Jerry Creamer doubled and Clagget Thompson capped a perfect batting night with an RBI-producing sacrifice fly. Clagget's father Jessie Thompson added another run with a single. With the Shop winning 7-4 in the ninth, Facilities got two men on base with one out and everyone was on his feet, but the game ended with them still there. Shop won 7-4.

Facilities had given it all they had and fought all the way giving the evening's crowd a thriller of a ball game. Not since Blaine Shatzer's Slammers battled Drafting to a 2-1 final in 1971 had a championship game this exciting been played at COMSAT field. Said Blaine of this game, "One of the best ever." Said Shops' Bert Collins "It was too !! close," but in the end the best team won. Congratulations to the Shop Micros.

As in other years the Intramural League invited all Labs personnel to the final championship game and provided lots of goodies to go along with the game, with funds collected from each League player at the season's beginning. There were lots of hot dogs, beans and potato salad along with an ample supply of liquid refreshment. Mary Penrose, Don Wenworth and Oliva Piontek prepared the food.

On behalf of all the Intramural League members I wish to express gratitude to the following people for their help during the year: Bill Fallon for his support and enthusiasm, Clarence Crane for providing the League with support and materials to keep COMSAT field an excellent ball park, and to Howard Haynes and Pete Dorsey for a fine grounds-keeping job.

Lots of Action



The Micros

Network Bits
Field Correspondents

Andover
Joanne Witas
Brewster
Dorothy Buckingham
Cayey
Elfren V. Castro
Etam
Bev Conner
Jamesburg
C. B. Marshall
Labs
Norma Broughman
Joan Prince
Blaine Shatzer
MCE Rockville
Shari Properzio
M & S Center
Darleen Jones
New York
Stephen Keller
Paumalu
Bob Kumasaka
Plaza
Mary Lane
Santa Paula
Terri Myers
Southbury
Eileen Jacobsen

ANDOVER. Congratulations to **Larry White** on his recent marriage to **Nancy Fusaro**. The marriage took place in Scottsdale, Ariz. **Nancy** is a graduate of Katharine Gibbs School of Business, Boston. **Larry** and **Nancy** will make their home in Andover.

Al Robichaud of the TTC&M function was recently promoted to Technician.

The CEAA held its annual picnic at Black Mountain during August. The weather was good and everybody enjoyed steaks with all the fixings.

Bobby Richardson is home recovering from a heart attack. We all wish him a speedy recovery.

The energy situation had its effect on the number of visitors who toured the site this summer. Through August 31 the total number was 10,658, a drop of roughly 3,000 from last year.

—Joanne Witas

BREWSTER. The last three months have certainly been a busy period of changes here. **Wally Lauterbach,** Brewster's original Station Manager, retired. **Jim Silvius** transferred from M&S to become our new Station Manager. **Wayne Colpitts,** Senior Technician, who joined COMSAT at Brewster in 1967, transferred to Samoa. **Darrell Nelson,** Operations Supervisor, who has been continuously at Brewster since he came to COMSAT in 1966, has resigned to take a position with SBS in McLean, Va.

The new security fence has been installed, as has the new COMSAT sign at the station access road.

Everyone was extremely busy and a bit edgy getting ready for the Jamesburg restoration. From all indications, the hard work and long hours paid off—everything went quite well.

Jim and **Jean Silvius** have purchased a home on River Plaza, Brewster, and are getting settled. Even though **Jean** has been very busy, she has found time to write several articles for the local paper—she says that, with all the wind, dust, spiders and rattlesnakes (which she hasn't seen), she loves it here.

—Dorothy Buckingham

ETAM. With the onset of fall, vacations have been numerous. **Mike** and **Elfriede O'Hara** journeyed to Knoxville, Iowa, to see the Sprint Car National Races; **Mike** and **Linda Britner** and son went to Nashville, where they visited Op'ryland and various other sites of interest; **Paul** and **Connie Mauzie** and daughter made a trip to Disneyworld, Fla., with stops at St. Augustine, Daytona Beach and Cocoa Beach; **Betty Bell** went to Saratoga, N.Y., to attend the races and spent some time at St. George and Ticonderoga.

Spencer and **Becky Everly** and boys relaxed at Myrtle Beach, S.C.; **John** and **Joan Formella** and family visited Canada where they were able to enjoy their boat, fish and relax; and your correspondent and her husband, **Leon,** made a trip to Ocean City, Md., and Nag's Head, N.C.

Bill Mayes was selected to represent the Moose Lodge of Grafton at the Northeastern Conference, held at Morgantown, W.Va.

We were sorry to lose **Paul Helfgott,** Station Engineer, to Headquarters, where he has accepted a position in the R.F. Earth Station Engineering Division.

Sam St. Clair, former Facilities Maintenance Supervisor, has been promoted to Station Engineer.

Jim Stout, our newest hire, is single and resides on a farm on the outskirts of Clarksburg, W. Va.

Etam employees are preparing for Fall Festival harvest events. One COMSAT family getting ready is the **Feathers—Ronnie, Marion** and **Lesa.**

Lesa (photo below) made her family very proud by being selected Queen's Train Bearer for the 34th Annual Preston County Buckwheat Festival, held September 27 through

Lesa Feathers

30. **Lesa** is seven. **Ronnie** is a Senior Facilities Mechanic. **Lynn Rector** and your correspondent will be helping prepare Buckwheat dinners. Last year COMSAT President **Charyk** crowned the Buckwheat Festival Queen.

—Bev Conner

JAMESBURG. The station has recently welcomed three new employees.

Stephan Lamont, formerly Chief Engineer at Monterey radio station

KIDD, is now Electronic Technician with Team C. He is a bachelor, resides in Monterey, and came originally from Antioch, Calif.

Jeffrey B. Johns, Facilities Mechanic, lives in Salinas with his wife, **Cindy.** A native of the Salinas Valley area, he was formerly Supervisor of Maintenance & Transportation, Gonzales High School, Gonzales, Calif.

Our most recent newcomer, Electronic Technician **Paul W. Linser,** is now working in the Electronic Maintenance Shop. He resides in Seaside with his wife, **Shirley.** They have three daughters, **Cynthia, Kimberly** and **Beverly. Paul** is an Army retiree with more than 21 year's service.

Roy Scheiter, Senior Facilities Mechanic, is retiring after more than ten years with COMSAT. At a retirement party for **Roy** and his wife, **Betty,** at the Rancho Canada Golf and Country Club, CEA presented Roy an electronic fuel consumption meter and a tune-up kit. **Betty** was given a three-in-one silver locket.

Senior Electronic Technician **David N. Bulk** and wife Victoria began their move to Washington on the Labor Day weekend, where **Dave** will become a Staff Engineer in COMSAT's U.S. Plant Department. **Marco Treganza,** Electronic Technician, received a five-year Service Award.

Jamesburg CEA held its annual Summer Picnic at Royal Oaks Park, near Prunedale. At a picnic drawing, **Thelma Neu,** wife of former Jamesburg Administrator, won a water filter. Facilities Engineer Walter D. Robinson demonstrated CPR procedures, aided by "Re-Susci-Anne." Other pastimes included horseshoe pitching and *petanque* (a French bowling game).

—Cambrell B. Marshall

LABS. Congratulations to **Bob** and **Lynn Gruner,** who were married August 12, and to **Fred** and **Brenda Frey,** whose wedding date was August 25.

Henry Williams and **Bob Sorbello** went on a CEA-sponsored white water raft trip down the Great Gorge of the Youghiogheny River in early September, and report the ride exciting but uneventful (except for **Bob's** falling overboard).

Charlotte Scott vacationed for a week at Deep Creek Lake in August and for two weeks in Pensacola, Fla., in September.

Brenda Gray joined the Personnel Office on September 4. New employees at the Labs included **Dana Cheney, Herbert Ingraham, J. Mark Kappes, Thomas Inukai, Prabha Kumar, Richard Lindstrom, James Trennepohl, David Quinones, Joseph Walker, Andrew Spencer, Dennis Fruhwirth** (a rehire), **John Kisner, Debbie Moore** (a rehire), and **David Mowen** (M&S Center).

Clarissa "Cris" Inman, Metallographer in the Applied Sciences Laboratory, recently retired from COMSAT. She was one of the first to leave COMSAT after passing her sixty-fifth birthday. **Cris** now resides in Cape Cod, Massachusetts. **—B. P. S.**

MCE Rockville. The MCE softball team munched its way through the August 29th picnic following the world championship series playoffs of the COMSAT softball league (see photo). Although our team has progressed from amateur to professional quality status over the weeks of playing, now that winter approaches, Team Captain **Danny McAuliffe** says he has instituted a winter training program to combat the blahs and ensure that the team maintains its current dignity. Details of the program are classified.

Hank Schutzbier will be leaving us to begin working for INTELSAT as a Senior Engineer/TTC&M Supervisor at the Yamaguchi Earth Station in Japan. Hank has worked for COMSAT for over 13 years and his cheerful personality will be missed. **Terry McCollough** is the newest member of MCE, although he is not new to COMSAT, having spent 12 years at a variety of earth stations.

Other new personnel joining us recently are: **Paul Blough, Dick Rose, Don Hessler, Bob Johnson, Jim Williams, Bill Nallo, Darrell Riddle, Chris Arant, Robert Wilson, Vicki Harner and Terry McCollough.**

—Shari Properzio

MCE Rockville softball team players include from left to right: front row, Paul Coelho and Tim Deblois; center row, Don Hessler, Roger Miner, Rich Thorne, Bob Pritchard, Ron Kuenzli, Carolyn Faulkner and Larry White; and back row, Frank Dabrowski, Danny McAuliffe and Lew Parker.

M&S. Five year awards have been presented to **Charles Jenkins, Robert Riblet** and **Michael Roberts.** Ten year awards went to **Pierce Stine, Darleen Jones,** and **Barbara Hutchens.**

Vacationers this time of the year are **Pierce** and **Ann Stine,** on a trip to Hawaii, and **George Robertson** and family on a camping jaunt through Tennessee.

Paul MacGranahan became a proud grandfather on the arrival of granddaughter **Heather Lynn.**

Our Calibration Team of **Frank Sandel** and **Charles Andersen** are completing the Eastern U.S. stations of Poughkeepsie, N.Y.; Southbury, Conn.; and Andover, Me.

M&S Center welcomes **David Mowen** to the Supply Section as a Material Controller.

—Darleen M. Jones

PAUMALU. The Station hosted one INTELSAT and five KDD personnel for on-site TT&C training for a three week period in August. The training program was under the direction of **Ken Yamashita,** Station Engineer, assisted by Senior Technician **Tim Kolb.** The training consisted of an intermix of classroom work and OJT sessions. Paumalu employees assigned to the TT&C section assisted in the training during the OJT sessions. Photo shows a classroom session with **Tim Kolb** conducting the class for the six trainees.

Paumalu employees who took out-of-state trips in recent months included: **Joe Chow,** to Toronto, Canada, to visit with his parents; **Eddie Miyatake** and **Paul Koike,** to Rockville, Maryland, for TT&C training session; **Bob Kumasaka,** to California, in connection with his son's enrollment in college; **Lily Miram,** to Las Vegas, for a high school class reunion; and **Charles Wong** covered the East Coast on his vacation with his family.

Station Manager **Glenn Vinquist** spent a few days in the hospital in August, and following a brief recuperative period at home, returned to work in good health and spirit.

—Bob Kumasaka

PLAZA. COMSAT employees in El Segundo contributed to a benefit softball game held on the evening of June 4th to raise money to help **Chris Barrett,** husband of COMSAT secretary, **Kathy Barrett. Chris** was shot while on duty with the El Segundo Police Department. The bullet caused extensive injury to his abdomen and he is now paralyzed from the waist down. Their home will have to be modified to accommodate **Chris'** wheelchair. We all hope that **Chris** will make a good recovery.

Nancy Cavallo of Marketing entered a "Bowl for Muscular Dystrophy" contest on August 5 and donated the pledges to the Muscular Dystrophy Association. All of the pledges were from COMSAT employees for varying amount of five or ten cents per pin. Nancy bowled three games with a grand total of 401 points. Thus far Nancy has collected $840.

Congratulations to Mr. and Mrs. **Terrence Powell** on the birth of their son, **Terrence, Jr.,** on August 5. **Terry** works in the COMSAT GENERAL Control Center.

Keith Dorrell, first son of Mr. and Mrs. James Randolph, weighed 7 lbs. $4\frac{1}{2}$ oz. when he arrived July 29, 1979.

Frank Graves recently hosted a department picnic at his new home. Present were **Billie Martin, Lorrin Rodgers, Carol Smith, Gayle Garrett, Butch Kehl, Bob Farrell, Ron Jennings, Terry Lowe, and Beazie Keebaugh,** along with their families. A great time was had by all, what with the crabs, keg of beer, chicken, hot dogs, and so on. **Bob Farrell** and **Frank Graves** visited Andover Earth Station in August on a familiarization program involving tracking and telemetry procedures. **—Mary Lane**

SOUTHBURY. Senior Electronics Technician **Bruno Sadys** recently took a position with SBS as a Field Engineer. We would like to welcome **Ann Mattrella** to our staff. **Ann**'s M.A. in the Romance languages will be a plus in her position as a MARISAT Communications Operator.

Danny C. Heath—our bachelor of the month—recently joined our staff. **Danny** has spent the last 12 years in the USAF.

Memories of our summer vacations are still vivid: **Annabelle Lyle,** our most optimistic motorist during the gas squeeze, traveled to Disney World in Florida. **Eileen Jacobsen** spent some time in Washington, D.C., including a visit to Headquarters. **Richard Vasko** did some sunning at Musquamuit Beach, R. I. **Larry Cohen** soaked up his rays on the beaches at Cape Cod. **Dennis Bouchard** visited relatives in Michigan. **Jim Nelson** toured the Hudson Valley and the Connecticut shore. A broken leg cancelled **Gary Firtick**'s annual New Hampshire vacation. We're happy to see the cast finally off and **Gary** back on station.

The 4th Annual SESEA picnic finally was held after four rain dates. **Frank Makray**'s team lost the volley ball tournament again. **Agnes Tomlinson** and **May Scott** visited the QE2 this summer and were given a royal tour. **—Dolores R. Raneri**

Celebrating COMSAT anniversary dates in September 1979 were:

10 years

Hqtrs. John J. Peterson

Labs. James F. Allison, John A. Allison, Raymond A. Curtis, Edith G. Ford, Brent Jacocks, Rockwood E. Lee, Young S. Lee, Bernard A. Schmell, Istvan Szabo, Richard C. Trushel.

Choke Cherry. John W. Ehrmann

5 years

Hqtrs. Byron L. Brooks, Margaret Conkling, Nicholas D. Diavatis, Louise W. Langley, Pearl B. Lucien, Alfred G. Meyer, Sandra L. Morton, William P. Newman, Jr., Rosa M. Stone.

Labs. Karen A. Crook, Joseph H. Deal, Dickson D. Fang, Hing-Loi A. Hung, Smith A. Rhodes.

Choke Cherry. Roger S. Miner

Houston. Robert L. Eichberg

Celebrating COMSAT anniversary dates in October 1979 were:

15 years

Hqtrs. Alexander Yenyo

10 Years

Hqtrs. Allen E. Flower, Francis M. Klisch.

Labs. Granville L. Albright, Alfred J. Barnes, Norma N. Broughman, James H. Buzzelli, Charles E. Dahl, Hayes W. Huffer, Jr.

El Segundo. Joseph W. Ouellette

5 years

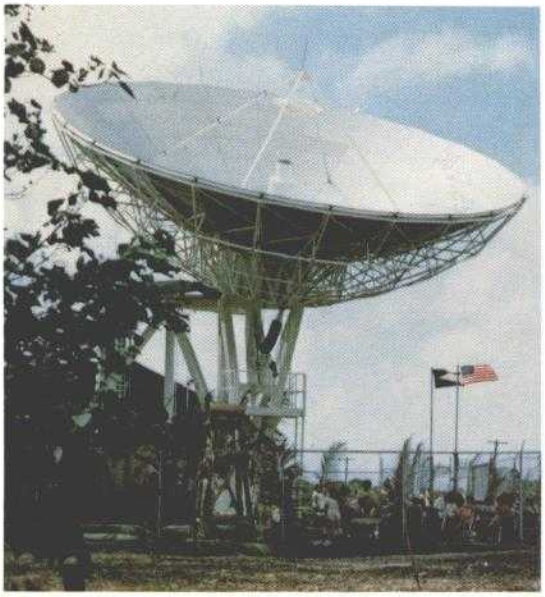
Hqtrs. Michael L. Alpert, Carolyn C. Billy, John F. Capossella, Letha W. Hays, Young L. Park, Violet M. Sepper, Brenda M. Williams, Katherine K. Wise.

Labs. Betty D. Hall, Sheldon H. Lebowitz, Wanda V. McKinley, Phillip J. McNally, Larry C. Palmer, Fredric J. Rieger, James L. Simpson

Southbury. Eileen O. Jacobsen

SATELLITE Pathways

November-December 1979
Volume 4 Number 6



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Cover. The look of American Samoa now that COMSAT is there. With the exception of one on page 2, all photographs of American Samoa and the earth station at Tafuna in this issue are by James T. McKenna, Manager, Marketing Support Services, Office of Public Affairs.

The old and the new in American Samoa: The specially-designated village maiden prepares the ceremonial Kava drink as elders on either side of her chant. The Kava ceremony opened the day's earth station dedication festivities.

COMSAT IS IN SAMOA

Dr. Joseph V. Charyk, COMSAT President and Chief Executive Officer, left, and Irving Goldstein, Vice President and General Manager, International Communications, right, chat with Mulitauaopele Tamotu, member of the American Samoan Senate.

BY STEVE SAFT

Talofa Kovana. Talofa ali'i mah tama'ita'i. Talofa Samoa uma.

With these words in the Samoan language, Dr. Joseph V. Charyk, President and Chief Executive Officer, opened his speech at the dedication ceremony for the COMSAT earth station at Tafuna on American Samoa. To translate: "Greetings Governor. Greetings Ladies and Gentlemen. Greetings to all Samoans."

Thus with these words the era of modern electronic communication was introduced to a lush outpost 4,500 ocean miles southwest of San Francisco and 2,000 ocean miles southwest of Hawaii—a place truly meant to be captured in that once overused phrase from travel books, magazine articles

(Continued on page 3)

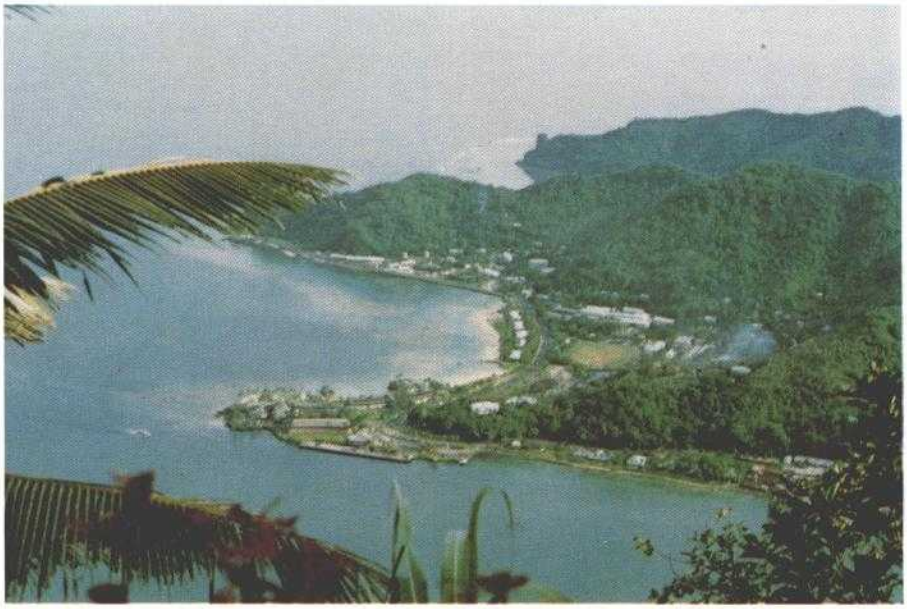
Mr. Saft is Editor of Pathways

Staff members of the new American Samoan earth station stand with Dr. Charyk in front of the station building. From left, Dr. Charyk, William J. Surber, station manager, Feodor Gebauer, Otto Haleck, Terry Pullman, Wayne Colpitts, and Michael Walker. Staff members missing from the photograph are Lotomau Mauga and Tala Taumua, part-time secretary.

PHOTO BY IRVING GOLDSTEIN

Governor Peter Tali Coleman makes the first ceremonial long distance phone call to Leo Krulitz of the Interior Department.

A brief look at the geography



The village of Pago Pago (pronounced Pango Pango with the "a" sounding like the "a" in "father") and part of its harbor as seen from Mount Alava. On the point of land in the lower left center of the photograph is the Rainmaker Hotel. Pago Pago Harbor is the largest protected harbor in the South Pacific.

To locate the Samoan Islands, draw a line on a map of the Pacific Ocean from Hawaii to New Zealand. Two thirds of the way down the line from Hawaii are the Samoan Islands, an island chain 290 miles long and consisting of nine main islands with an east-west orientation. The western portion of the chain is Western Samoa, an independent country which maintains an affiliation with New Zealand. The eastern portion of the chain, and the smaller of the two in terms of land mass and population, is American Samoa, a territory of the United States.

What follows is a brief history of the Samoan Islands in general and American Samoa in particular, as published in a booklet entitled "American Samoa" by the Office of Tourism of the Government of American Samoa.

The exact date is unknown and will

(Continued from page 1)
and movies, "tropical paradise."

Burdened by a high frequency communication system in which six-hour delays, frequent interruptions and poor communications quality have been the rule, not the exception, on long distance telephone conversations, American Samoans now find themselves able to make calls all over the world almost as easily as those of us on the mainland can. And with more American Samoans living in places like Hawaii and California than in American Samoa itself—population 30,000—the ability to call long distance with the assurance the call will get through when the caller wants it to, could not be more important.

Specifically, what makes this new aspect of American Samoan life possible is the presence in Tafuna—about six road miles south of Pago Pago on the main island of Tutuila—of a $1.4 million Standard B earth station with 42-foot diameter antenna.

Under the direction of William J. Surber, formerly based at COMSAT headquarters, the station has a total of seven full-time employees.

According to George Lawler, Assistant General Manager, International Communications, and a member of the delegation from headquarters that attended the dedication, the earth station is operating with six telephone message circuits to the U.S. mainland, five message telephone circuits to Hawaii, one leased alternate voice data (AVD) circuit to New Zealand plus one record circuit to the mainland.

The dedication ceremony, at which

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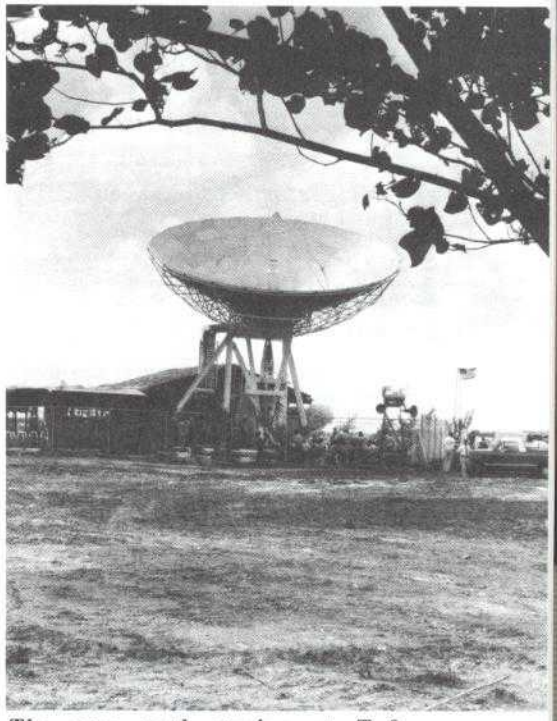

The new earth station at Tafuna, American Samoa, as it appeared on the day of the dedication ceremonies.

and history of a 'tropical paradise'

probably remain so forever. But sometime around 600 years before the birth of Christ, Polynesians had already established themselves on the eastern tip of the island of Tutuila near the present day village of Tula. Linguistic and cultural evidence suggests that the first inhabitants came from the west, possibly by way of Indonesia, the New Hebrides, and Fiji before they sailed eastward to Tonga and Samoa.

Dutchman Jacob Roggeveen happened upon the islands in 1722. Samoa's long isolation from the modern world ended at that moment, though there had been constant contact with Fiji and Tonga for at least eight hundred years prior to Roggeveen's arrival. Roggeveen, however, fixed the position of the island group inaccurately and sailed away without landing. The Samoas remained hidden for forty years until they were rediscovered in 1761.

Out of the way of heavy shipping traffic which traversed the Pacific in the early 19th century, Samoa escaped official European interest until the 1830s. Then, suddenly, as if its potential was realized overnight, Samoa became enveloped in a final wave of colonial expansion. European powers and the United States began to barter among themselves for the last few pieces of colonial wealth and power. The United States, though officially opposed to colonization, was nevertheless looking for suitable harbors in the area. Finally, in 1900, Samoa was annexed by two colonial powers. The U.S. took Tutuila, specifically to use Pago Pago bay as a coaling station, and the islands of Manu'a—though Manu'a didn't officially become ceded until 1904—while Germany annexed the rich islands of Savai'i, Upolu, and outlying islands.

It was in 1831, however, that the first real influence from the outside world sailed into Samoa. A home-built ship, the Messenger of Peace, *arrived carrying John Williams of the London Missionary Society along with eight Tahitian teachers. Williams left behind his Tahitian missionaries as well as the first influenza virus. The islanders took to Christianity with the greatest enthusiasm. Paramount Chief Malietoa adopted the new religion, and within forty years Samoans were sending missionaries to Melanesia.*

While German-controlled Western Samoa reeled under political power struggles and ensuing bitter and bloody civil wars, American Samoa remained quiet. Once the wars had ended and Germany officially became the colonial mother-country on the

(Continued on next page)

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Dr. Charyk was one of several speakers, was only part of the day-long festivities, Saturday, October 27, that centered around the new earth station. Beginning at 9:00 a.m., Dr. Charyk and other members of the COMSAT delegation gathered at an open ceremonial building, known as a *fale*, of the American Samoan Speaker of the House Tuan'itau F. Tuia for a traditional *Kava* Ceremony. The *Kava* Ceremony begins with the making of a special drink, whose ingredients include a coconut extract and taro, a native starchy vegetable, mixed together by a specially-designated village maiden. Sitting cross-legged on the floor of the *fale*, the participants make appropriate toasts and drink from hand-carved wooden *Kava* bowls.

Some of the American Samoans attending the ceremony in addition to Speaker Tuia were Governor Peter Tali Coleman, President of the Senate Galea'i P. Pomele, and Aleki Sene, American Samoa Director of Communications.

Representing the Department of the Interior, which is charged with the responsibility of administering American Samoa, was Dr. Gordon Law, Assistant and Science Adviser to the Secretary of the Interior. Other members of COMSAT in addition to Dr. Charyk taking part in the ceremony were Irving Goldstein, Vice President and General Manager, International Communications, and Donald E. Greer, Assistant Vice President, General Services. (The delegation from COMSAT headquarters also included Robert N. Yamazaki, Assistant Director, Customer Relations, and James T. McKenna, Manager, Marketing Support Services, Office of Public Affairs, as well as George Lawler.)

About 1,500 people attended the dedication ceremony itself, which started at 10:30 a.m. and which took place on the earth station grounds. Representatives of communication companies in Japan, Fiji, Western Samoa, and Tonga as well as from Hawaii and the U.S. mainland attended, and here souvenirs such as frisbees, balloons, raincoats and "COMSAT Is In Samoa" buttons were distributed. The Arts Council Choir and Leone High School band performed, and then, introduced by High Talking Chief Paopaoailua Meko, master of ceremonies, the speakers for the occasion came each in turn to the podium. (In American Samoa, the title of High Talking

(Continued on page 19)

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western side, they very quickly imposed a no-nonsense order. But in Tutuila, that was not the case. Since the Americans had no official colonial machinery, President McKinley declared the islands the responsibility of the Department of the Navy. Commander B. F. Tilley formally accepted the Deed of Cession from all the principal chiefs except Tuimanu'a, who refused. Tuimanu'a, one of the most powerful chiefs in Samoa, resided on the island of Ta'u. He finally did sign five years later, but only so that his people might obtain the privileges of Eastern Samoa's new association with the United States. Before he died, Tuimanu'a willed that his title die with him. To this day, the title has not been revived.

With the Japanese empire flexing its muscles in the Pacific during the latter half of the 1930s, the quiet Naval station at Tutuila suddenly acquired a new strategic importance. In 1940, the port of Pago Pago and the Samoan Islands became an advanced training and staging area for the United States Marine Corps prior to the major advance against Japan during World War II. For four years, much of the quiet, undisturbed lives of the Samoan people was interrupted by the presence of such a large force of American military. It was during the war years, however, that Samoa got its first taste of the American way of life. Roads, airstrips, docks, and modern medical facilities were built. Samoans enlisted in the Marine Corps, establishing a home-guard unit which instilled an immense amount of pride in the island people. It was these early enlistments and keen interest in the Marine Corps during the war that eventually led to a major outmigration by the American Samoans to the United States.

In 1945, the Marines left as suddenly as they had arrived, and once again Samoa returned to the quiet, peaceful place it had been before the war.

With the end of World War II came a major administrative change in the territory. In 1951, President Truman declared that the Department of the Interior was to replace the Navy as the agency responsible for the administration of American Samoa. Initially, however, there were few changes other than the appointment of the Territory's first civilian governor, and a period of relative quiet and slow development followed for almost ten years.

The scene changed almost overnight in 1961. President John F. Kennedy sent a new governor, H. Rex Lee, to American Samoa with a directive: get it moving. Get it moving he did, and American Samoa quickly emerged into the 20th century.

A protective shelter for water-height recording equipment by the Meduxnekeag River near Houlton, Maine. Gus S. Souris, Jr., of COMSAT General checks shelter position with a compass.

PHOTOS BY ELI WACHSBERG

Water information service is COMSAT General goal

In 1977 and 1978, COMSAT General in a six-month program demonstrated the feasibility of gathering water resources data from 11 remote sites using data collection platforms (DCPs) and a communications satellite as the transmission medium.

Now, in a new 18-month $2.2 million program, COMSAT General engineers working in conjunction with Environmental Research and Technology (ERT) staff will put together a satellite-based hydrologic information service involving 75 remote sites.

The 75-site effort is being implemented for the U.S. Geological Survey (USGS) of the Department of the Interior, for whom the earlier six-month evaluation program was performed. Under the contract to USGS, COMSAT General will install and maintain water stage sensors and the small self-powered data collection platforms.

Presently, USGS in conjunction with almost 600 cooperating federal, state and local agencies gathers water resources information from approximately 9,000 sites throughout the country. Instruments located in protective dwellings beside streams make continuous recordings of the water height of the streams. Periodically, an employee of USGS or of one of the cooperators visits the site, collects the information as recorded on

(Continued on next page)

(Continued from page 5)

the instruments and then mails in a report to USGS.

It is as a result of such a process as this that USGS is able to provide the information necessary for the annual assessment of the nation's water resources.

By transmitting the information gathered at the 75 sites automatically via satellite to a central data collection point, COMSAT General in conjunction with ERT will be able to establish a near real-time hydrologic information service. DCPs set up at the remote sites will periodically query the stream sensors, then collect, arrange and transmit the resulting data via commercial communications satellite to an earth station in New Jersey for retransmission to ERT headquarters in Concord, Massachusetts. ERT will then put the data into an informational format useful to USGS and transmit it to USGS headquarters in Reston, Virginia.

The 75 DCPs will be powered by batteries which will be charged by solar cells. Their transmissions will be from 4-foot diameter dishes. Of the 75 sites, 20 are in New England (Massachusetts, Vermont, New Hampshire and Maine), 20 in Pennsylvania and 20 in Colorado, and 15 in Arizona. The whole system is to be in place and operating by the last half of 1980.

One of the benefits of the system is that it will aid in the forecasting of floods.

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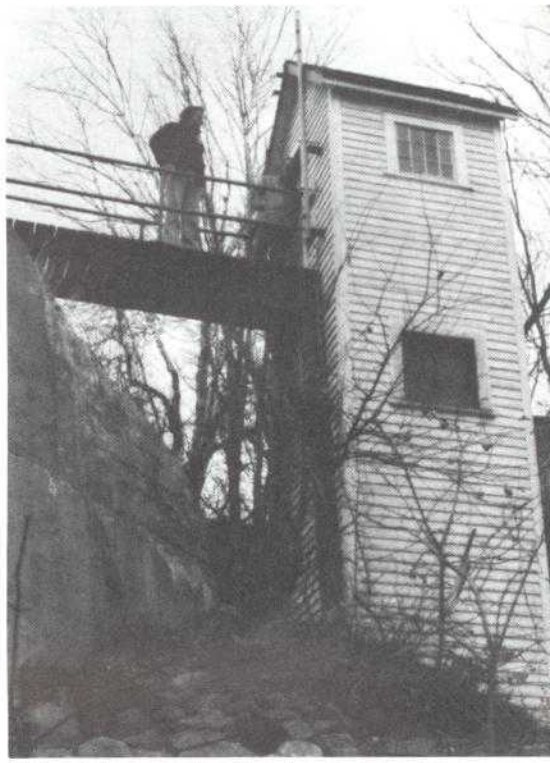
No, these three aren't lost and trying desperately to figure out where they are. They're taking position information on a shelter along the Mad River in Vermont.



This shelter on the Penobscot River in West Enfield, Maine, has the appearance of a lighthouse.

One of the most remote water-height sensing shelters in New England is at Nine Mile Bridge on the St. John River in the Allagash Wilderness of Maine.

After the initial 18-month period, USGS will have the option to extend the service with COMSAT General for up to 18 additional months. COMSAT General and ERT staff members are presently investigating the feasibility of including the gathering of rainfall, water quality and solar intensity information at the 75 sites as well as water height data.

In a press release that it issued on the granting of the contract to COMSAT General, the USGS pointed to the future that might lie ahead for the system in this way: "Following the pilot program, an analytical study will be made to determine the feasibility of eventually integrating virtually all of the Survey's 9,000 continuous monitoring hydrologic data collection stations into a satellite data retrieval system."

During the six-month evaluation program back in 1977 and 1978, the DCPs transmitted their data via the Anik satellite, operated by Telesat of Canada. For this project, RCA's SATCOM II domestic communications satellite will be used.

At the present time, a team made up of members of the USGS, COMSAT General and ERT is surveying sites to determine their feasibility for DCP installations. In New England, for example, the USGS preselected 36 sites as possible candidates for the installations. It is up to the team to narrow down the number to 20.

In making the selection, the team has three considerations:

- ability to establish a line of sight with the satellite,
- frequency coordination problems,
- ease of implementation.

Some of the sites are not just remote. They are *very* remote—for example, 80 miles from the nearest town as in the case of one site in Maine—and team members have had a variety of interesting experiences trying to reach them. The photographs that accompany the article provide a good idea of what the sites are like.

NEWS

Saipan in Northern Mariana Islands is next candidate for satellite service

The Northern Mariana Islands in the western Pacific Ocean will soon be in touch with the world via satellite as a result of an agreement signed recently by COMSAT and the Micronesian Telecommunications Corporation, a subsidiary of Kentron International Inc.

The agreement calls for COMSAT to build and to own and operate an earth station on Saipan to bring a wide range of satellite communications services to the Northern Marianas, located about 1,700 miles east of the Philippines.

COMSAT will provide its communications services to MTC, the authorized international communications carrier serving the Northern Marianas.

As soon as possible COMSAT will file an application with the Federal Communications Commission for approval to proceed with earth station construction. The Saipan earth station with a large dish-shaped antenna would be similar to the COMSAT owned and operated earth station recently put into service near Pago Pago in American Samoa.

The new earth station will operate with an INTELSAT satellite over the Pacific Ocean to provide the Northern Marianas with modern, high quality telephone, telex, data and television services. The station will begin communications with Hawaii and the U.S. mainland, with direct service to other Pacific points to follow.

The Northern Mariana Islands will become a United States Commonwealth in 1981.

"We welcome the opportunity to bring improved communications to the Northern Marianas through the construction of this earth station in Saipan," said Joseph V. Charyk, President and Chief Executive Officer of COMSAT.

"The introduction of full-time satellite communications services should answer the Northern Marianas' need for improved communications," said Lincoln Brown, Kentron President and Acting President of MTC.

An overseas phone call from the Northern Marianas, for example, will be relayed by the MTC ground network from a home or office to COMSAT's Saipan earth station. From there it will be automatically routed via the Pacific satellite to a receiving earth station anywhere in the entire Pacific region, including Hawaii, Japan or the U.S. mainland.

MTC is a corporation located in Saipan whose majority stockholder is Kentron International Inc., based in Dallas, Texas.

In addition to its earth station in American Samoa, COMSAT has an interest in an earth station in Guam near Saipan.

IMMARSAT ownership shares are made known

COMSAT has a 23.5 percent ownership interest in INMARSAT, the International Maritime Satellite Organization, as a result of action by the INMARSAT Council, which concluded its second session on November 6 in London.

COMSAT is the sole U.S. representative in INMARSAT. INMARSAT is expected to begin providing maritime satellite communications service in the early 1980s in a transition from the present MARISAT system, devel-

(Continued on next page)

NEWS

INMARSAT

(Continued from page 7)

oped and managed by COMSAT GENERAL Corporation, COMSAT's wholly owned subsidiary.

Once the INMARSAT system becomes operational, the investment shares of all members will be adjusted periodically to reflect each country's use of the global system.

Twenty-nine countries now belong to INMARSAT and 26 of these are represented on the Council. The Council, the governing body of INMARSAT, first met in July after INMARSAT officially came into being. During the second session, held from October 30 to November 6, the Council, in addition to the decision on investment shares, took the following other actions:

—elected Olof Lundberg of Sweden as Director General, the executive head of the entire INMARSAT organization.

—concerning the space segment, decided to discuss with the MARISAT Consortium—COMSAT GENERAL, RCA Globcom, Western Union International and ITT Worldcom—appropriate transitional arrangements from the MARISAT system to the INMARSAT system, and to seek a lease proposal from the MARISAT Consortium for MARISAT satellites. Discussions will be held with INTELSAT and the European Space Agency concerning their space segment offers. The INMARSAT Technical Advisory Committee will develop technical and operational requirements of the INMARSAT system which could be used in a possible Request for Proposals for satellite capacity.

—elected Luis Perrone of Brazil as Council vice chairman. A.R.K. Al-Ghunaim of Kuwait assumed the chairmanship after being elected at the first session.

—admitted France and the Federal Republic of Germany as members of the Council. The two countries joined INMARSAT in mid-October.

—admitted Algeria, Argentina, Bulgaria and China as members of the Council elected by the INMARSAT Assembly.

—accepted COMSAT's offer to host the Council's fourth session in Washington, May 7 through 14, 1980. The next session, the third, will be held in London, February 6 through 13, 1980.

—set January 9 to 16 in London for the next meeting of the Council's Advisory Committee on Financial and Marketing Matters, and January 17 to 25 in London for its Advisory Committee on Technical and Operational Matters.

John Peterson relinquishes glue pot, blue pencil

John J. Peterson, editor of this magazine for six years, has passed his blue pencil and his glue pot—symbols of the editor's trade—to Stephen A. Saft, another member of the Office of Public Affairs.

Pete, as he is known to most of the people who work with him, first joined the Corporation in September 1969. In January 1980, having completed over ten years of service, he retires.

During Pete's tenure with the magazine he oversaw its transformation from *COMSAT NEWS* into *SATELLITE PATHWAYS* or just *PATHWAYS*, as it is most often called.

Prior to joining the Corporation, Pete spent several years with the National Aeronautics and Space Administration, first as Chief of the News Bureau, then as Special Assistant to the Chief of Astronauts at the Manned Space Flight Center in Houston, Texas. His last job, just before joining COMSAT, was as Executive Director of Big Brothers of the National Capital Area.

Pete says he will keep active during his retirement years by pounding typewriter keys—in other words, freelance writing.

INTELSAT, COMSTAR results buoy performance

COMSAT has reported consolidated third quarter Net Income of $10,139,000 or $1.27 per share, an increase of 13 percent from $8,959,000 or $1.12 per share for the third quarter of 1978. The increase is attributable primarily to greater earnings from INTELSAT system services and INTELSAT-related services, and from COMSTAR system services after a third COMSTAR satellite was placed in service in September 1978.

Although Net Operating Income for the third quarter of 1979 exceeded that for the second quarter of 1979, third quarter Net Income decreased by $467,000 or 5 cents per share from the second quarter. The 4 percent decrease is attributable primarily to an increase in the Corporation's share of losses relating to Satellite Business Systems, which is described below, and to a decrease in income from temporary cash investments.

A quarterly dividend of 57.5 cents per share, payable on December 10, 1979 to shareholders of record on November 9, 1979, was declared by the COMSAT Board of Directors at its recent monthly meeting.

Operating Revenues for the third quarter of 1979 totaled $69,471,000, an increase of $16,346,000 or 31 percent from the third quarter of 1978 and $5,765,000 or nine percent from the second quarter of 1979.

Operating Expenses for the third quarter, including income taxes, totaled $60,062,000, up $14,625,000 or 32 percent from the third quarter of 1978, and $5,535,000 or 10 percent from the second quarter of 1979.

Net Operating Income for the third quarter totaled $9,409,000, up $1,721,000 from the third quarter a year ago and up $230,000 from the second quarter of 1979.

Other Income for the third quarter of 1979 totaled $730,000, a decrease of $541,000 from the same quarter a year ago. Reflected in Other Income is the Corporation's share of

losses of—and amortization of certain costs relating to—Satellite Business Systems, which reduced Net Income for the third quarter of 1979 by $1,409,000; the reduction attributable to SBS for the third quarter a year ago was $872,000. SBS, which is in a preoperational phase, is the partnership formed by Aetna Life & Casualty, IBM and COMSAT GENERAL Corporation, COMSAT's wholly owned subsidiary, to establish a domestic communications satellite system.

ERT opens Washington office with McNeal as head

ERT has opened an office in Washington, D.C., from which Dr. Robert J. McNeal will manage the company Policy Analysis Division. This division provides ERT clients with regulatory updates, conducts technical analyses of the effects of environmental regulations on client operations, and evaluates the costs and benefits of environmental regulations.

The location of the new office at 1919 Pennsylvania Avenue, N.W., convenient to the federal government and its agencies, assures clients that ERT can provide timely services relating to environmental policy issues, according to an ERT press release.

Dr. McNeal comes to ERT with an extensive background in science and in technical management. He was formerly the first Program Director for Atmospheric Chemistry at the National Science Foundation, where he was involved in identifying, planning, and monitoring significant research projects in atmospheric chemistry, and where he was closely involved in coordinating the NSF's atmospheric chemistry program on several critical environmental issues with other federal agencies. Previously, he was involved in research and development in atmospheric science at the Aerospace Corporation, where he served in increasingly responsible technical and management positions, most recently as head of the Chemical Physics Department of the Laboratory Operations. Dr. McNeal received a Ph.D. in chemistry from Columbia University and served as an NSF post-doctoral research fellow at Harvard University. He is the author of numerous publications in chemical physics and environmental science, is a fellow of the American Physical Society, and is a member of the American Geophysical Union.

Juanita Iwamoto

Wife of Senior Technician 'outstanding young woman'

Juanita Ann Iwamoto, wife of **Tamotsu Iwamoto,** Sr. Technician at the Paumalu TTC&M station, has been named Hawaii's Outstanding Young Woman of 1979. She is now being considered for one of 10 Outstanding Young Women of America awards.

Mrs. Iwamoto, mother of two children, is Hawaii State Department of Health's Program Coordinator of services for mentally disabled children.

She was nominated by a state legislator for selection as the 50th State's outstanding young woman for her civic and professional achievement. The program to recognize Hawaii's outstanding young women is sponsored by leaders of various women's organizations and honors women between ages 21 and 36.

In addition to her professional achievement, Mrs. Iwamoto is active in community affairs. She is a member of the board of the Kailua Christian School, and a group leader and coordinator for the Missionettes Girls Club. She has served as secretary for the National Association of Social Workers and is a volunteer with the Hawaii Heart Association.

Mrs. Iwamoto is a graduate of the University of Hawaii with a Master's Degree in Social Work. The Iwamoto family resides in Kailua, Oahu.

Last of the INTELSAT IIIs is put into retirement orbit

In mid December, after more than ten years of operation, F-3, the last of the INTELSAT III series of satellites maintained in orbit, will be retired.

To put F-3 into retirement, two altitude-raising maneuvers, about twelve hours apart, will move the satellite into near-circular orbit about four to five thousand kilometers above synchronous orbit, with a resulting westward drift rate of 60° to 70° per revolution. At the above-synchronous altitude of the retirement orbit, the decay rate is estimated to be one meter per year. Four to five million years would thus have to pass before the satellite returns to synchronous altitude.

The major consideration in raising F-3 above synchronous orbit is that the remaining on-board propellant is not sufficient to cause re-entry and destruction in the atmosphere. While the possibility is remote, it is conceivable that at a lower altitude, a retired satellite such as F-3 could collide or interfere with newly launched spacecraft in transfer orbit.

F-3 was launched February 6,

(Continued on page 18)

Notes From Personnel

On maternity benefits, patents and other matters of vital concern . . .

By Holly Pryatel

By now everyone should know that maternity expenses are handled like any disability under our insurance plan. This covers the mother, but what about the baby?

Our insurance does not cover a new-born while it is in the hospital unless it is ill. This means that you must handle all well baby hospital expenses such as nursery care and the new-born exam. A sick baby's expenses are covered immediately.

If you have dependent medical coverage already, once the baby is home it is automatically covered when an illness occurs. If you do not presently have dependent medical coverage, see Personnel before the baby is born to fill out an Insurance Coverage and Benefits Summary form. The cost for dependent insurance is seven dollars per pay period. The deduction will start after the baby is born.

If you want to add the baby as a beneficiary to your other benefits, such as ESOP or life insurance, see Stephanie Smith or Glenda Cooper in Personnel at the Plaza, or your local Personnel representative at other locations.

For women employees with normal pregnancies, disability (sick) leave may start at the beginning of the eighth month and end six weeks after the baby's birth. If you sign a medical release, and management concurs, you may work during the eighth month. If your doctor determines that your or your baby's health is in jeopardy if you continue to work, advise Ms. Smith, who will explain the leave procedure under these circumstances. Any unauthorized disability leave that begins prior to the eighth month of pregnancy must be discussed with Ms. Smith as you may risk losing your insurance coverage. Ms. Smith can be reached at 554-6353.

If you are unable to return to work six weeks after the baby is born, contact both your supervisor and Ms. Smith in Personnel before that six-week anniversary date. If you are planning on quitting work altogether, insurance coverage stops at the end of those six weeks, which will also be your termination date.

Disability leave due to pregnancy is charged to sick leave. If you don't have any more sick leave, or when it runs out, the leave is charged as either vacation or leave without pay.

One of the many forms that all of us signed on our first day of work with Comsat is the Employment Application. On the back of this form is a two-part employment agreement that deals with rights in inventions and patents, and with protection of corporate proprietary information.

To refresh your memory as to what you agreed to, the first part states that you will grant to the Corporation ownership rights in any discoveries, inventions, and improvements made during your employment which relate to the company's business or result from tasks assigned to you. Because you are being paid for performing the work that may lead to a patent, and may use Corporate facilities in that work, Comsat assumes ownership of the invention. I'll say more about patents later.

The second part of the agreement deals with corporate proprietary information. You have agreed not to divulge any information you have obtained regarding the Corporation's business that is not public knowledge. Upon termination of your employment, you may not take with you any drawings, documents, or reproductions of corporate proprietary, confidential, or secret information that had been in your custody as an employee. Of course, there may be exceptions given to these obligations when the written consent of an authorized official of the Corporation is obtained. This section deals not only with technical developments, but also with information regarding finances, customers, or fellow employees. You have a responsibility not to disclose this information in any way beyond what is required by your Comsat duties.

To return to the subject of patents, Comsat realizes the value of all patentable inventions, whether or not they are directly related to satellite communications. Patents can establish an exclusive right, enforceable by law, to new ideas or technology which prevents the unauthorized use, manufacture, or sale of related inventions. This can generate income for the company through royalties received by licensing patent rights to others, or Comsat can bargain with other patentees for the right to use their protected technology.

Because patents are valued by the company, an Inventions Incentive Program was established to encourage development and disclosure of ideas to Comsat, and to reward employees for those ideas which are patentable inventions. A cash award of $100 is made to an inventor when a patent is applied for, and another $100 is made if and when the patent

(Continued on page 12)

Ms. Pryatel is an Employee Relations Specialist in the Personnel Office.

Transponder built at Labs continues to function well

By Chris Mahle
and Allan Galfund

As part of the NASA ATS-6/ Comsat Millimeter Wave Propagation Experiment, a 13-18/4 GHz transponder was designed, fabricated, and tested at Comsat Labs during 1971 and 1972. ATS-6 was launched in May 1974. Recent in-orbit tests of the transponder were performed and the transponders functioned flawlessly.

The ATS-6/Comsat Millimeter Propagation Experiment was designed to gather statistical data on the attenuation caused by rain at millimeter wave frequencies. These data are required to determine system design parameters for communications satellite systems operating at frequencies above 10 GHz. The experiment had 39 ground terminals transmitting at 13.2 or 17.8 GHz to the transponder on board the ATS-6 satellite. The satellite retransmitted these signals at 4 GHz to a central earth terminal which recorded their amplitudes once each second.

Several novel features were incorporated into the transponder design, including six MIC 3-stage tunnel diode amplifiers (total of eighteen stages), which provided the major

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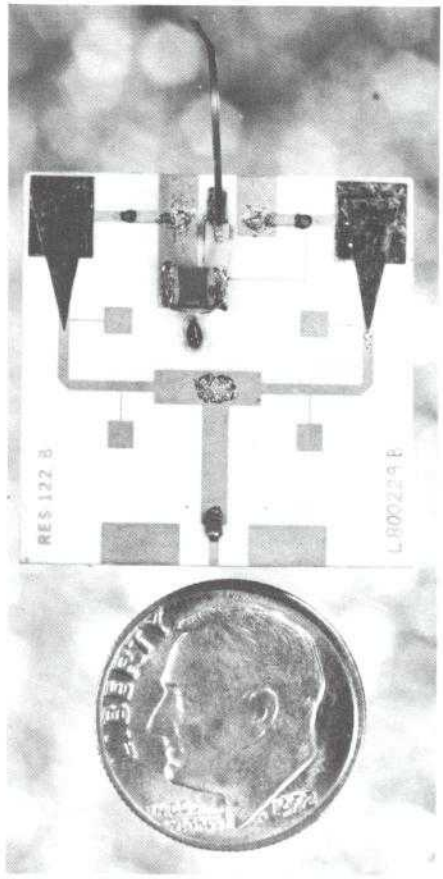
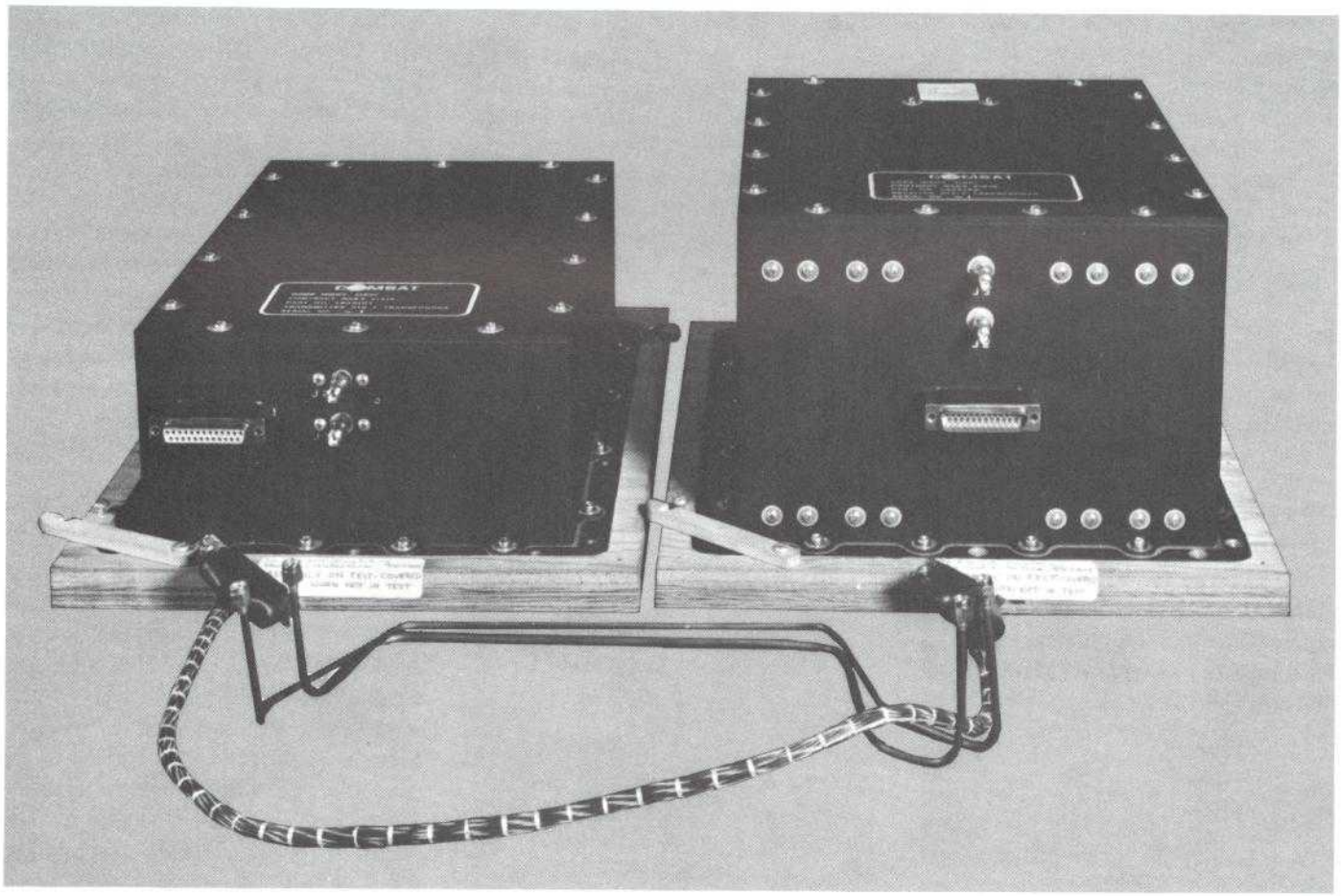


Below, the transponder used on the ATS-6 satellite. Right, the MIC tunnel diode amplifier.



(Continued from page 11)

portion of the repeater gain. Image-terminated frequency translation mixers incorporating dual-mode filters to minimize weight and size were also employed.

Following the launch of ATS-6 in May 1974, the transponder was operated continuously for two years and subsequently activated for 1- and 2-day periods every few months. Telemetry data obtained during these periods demonstrated that the transponder continued operating normally. NASA provided an opportunity to perform final testing of the transponder before the spacecraft was deactivated in July 1979.

The Rosman, North Carolina NASA earth station was utilized during the test; COMSAT Labs provided the up-link signal source, transmitter, and antenna mounted on a trailer. A frequency synthesizer was used as a signal source, and a 1.83-m dish with exchangeable feeds was used for the up-link. The downlink used was a 25.9-m dish provided by NASA in conjunction with receive, calibration, and signal analysis.

The measured data indicated that the transponder remains fully functional. Transponder gain may have decreased 2 to 3 dB compared to prelaunch. Measurements were limited by inclement weather and the lack of detailed calibration at Rosman. A similar trend is also apparent from the power monitoring telemetry gathered during periodic turn-on which shows about 1 dB of power output degradation from 1976 to 1979.

The equipment developed in 1971 at COMSAT Laboratories has survived the orbital environment for five years without serious degradation. This represents the first MIC amplifier at 4 GHz to be successfully flown.

(Continued from page 10)

is issued. If there is more than one inventor, they will share equally in a $200 filing award and a $200 issuance award. As of June 1979, 402 patent awards totalling $565,000 have been issued on 260 inventions.

A Patent Committee determines if an idea is a patentable invention that merits the filing of a patent application. The Patent Committee consists of employees knowledgeable in the legal, technical, and financial fields.

If you believe you have an invention that may be patentable, have your records witnessed and dated by fellow employees who can understand the idea. Then prepare an invention disclosure form CSC 392, "Invention Disclosure Data," and send it through your management to the Patent Staff in the Office of General Counsel on seventh floor at the Plaza. Avoid any external disclosure, use, or publication before submission of a disclosure to the Patent Staff and consult with the Patent Staff for clearance.

Because your knowledge of the Corporation's business could give you an advantage in the buying and selling of COMSAT stock, corporate policy forbids the purchase by employees of company stock for speculation. Purchase of shares of stock for investment purposes is acceptable.

Employees or members of their immediate families must not buy COMSAT stock on the margin and must not sell any shares within less than six months from the date they were acquired. Immediate family includes spouse and minor children of an employee, and any other person related to the employee directly or through marriage whose financial affairs are substantially guided by the employee or are significantly subject to the employee's advice and recommendations.

This does not mean that you or your family can never sell your shares of COMSAT stock. It does mean that you should hold the stock at least six months, even if it was purchased before you began employment with the Corporation. If there were to be an unanticipated and material change of circumstances in your financial affairs that would cause a need to sell your stock before six months have elapsed, notify the President and Chief Executive Officer by filing in duplicate with the Corporate Secretary a statement setting forth all purchases of shares of stock of the Corporation made by you and/or members of your immediate family during the preceding six month period, the number of shares proposed to be disposed of, and the nature of and the reasons for the proposed disposition.

And don't forget . . .

Some year-end reminders: send medical and dental claims and bills for 1979 to Lincoln Insurance as soon as possible (make sure to include the COMSAT policy number G-19502); send Fall semester grades to the Human Resources Department to be processed for education reimbursement; get expense vouchers in; we return to our regular 10-day holiday schedule in 1980.

The presence of an elephant at Serena Lodge was not exactly welcome.

Wild elephant at the lodge and other interesting adventures on a VISIT TO AFRICA

This past October, Vasil Uzunoglu of COMSAT Laboratories in Clarksburg, Maryland, had an opportunity to travel with a friend to Kenya. While in that country, Mr. Uzunoglu, a COMSAT employee for over six years, went on several photographic expeditions or safaris. The article that follows is his account of the trip. We invite other members of the COMSAT family to feel free to send us directly or through your designated PATHWAYS Field Correspondent accounts of interesting trips or other unusual experiences. THE EDITOR

BY VASIL UZUNOGLU

We left New York on Thursday, October 18, at 8:30 p.m. on a Boeing 747. First stop was Dakar, Senegal, a trip that took us six hours and 40 minutes. Second stop was Monrovia, Liberia, third stop Abadjan, Ivory Coast, and fourth stop Lagos, Nigeria. We arrived at Nairobi, Kenya, at 2:00 a.m. Saturday morning. The trip was a long one, lasting 23 hours.

In less than half an hour we were cleared through customs and took a taxi to our hotel in the center of the city. It was 3:00 when we arrived at the Intercontinental Hotel. We paid 100 shillings for the ride ($1 equals 7.25 Kenyan shillings), which lasted less than half an hour. Next morning we woke up at 7:30 and after a nice breakfast for 30 shillings we joined the crowd outside to celebrate Kenyata Day.

Kenyata was the first president of the republic. He died a year ago. We saw the new president of Kenya in the parade, various military units, students from high schools, nurses, and natives in their national uni-

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forms. It was a very pleasant and enjoyable day.

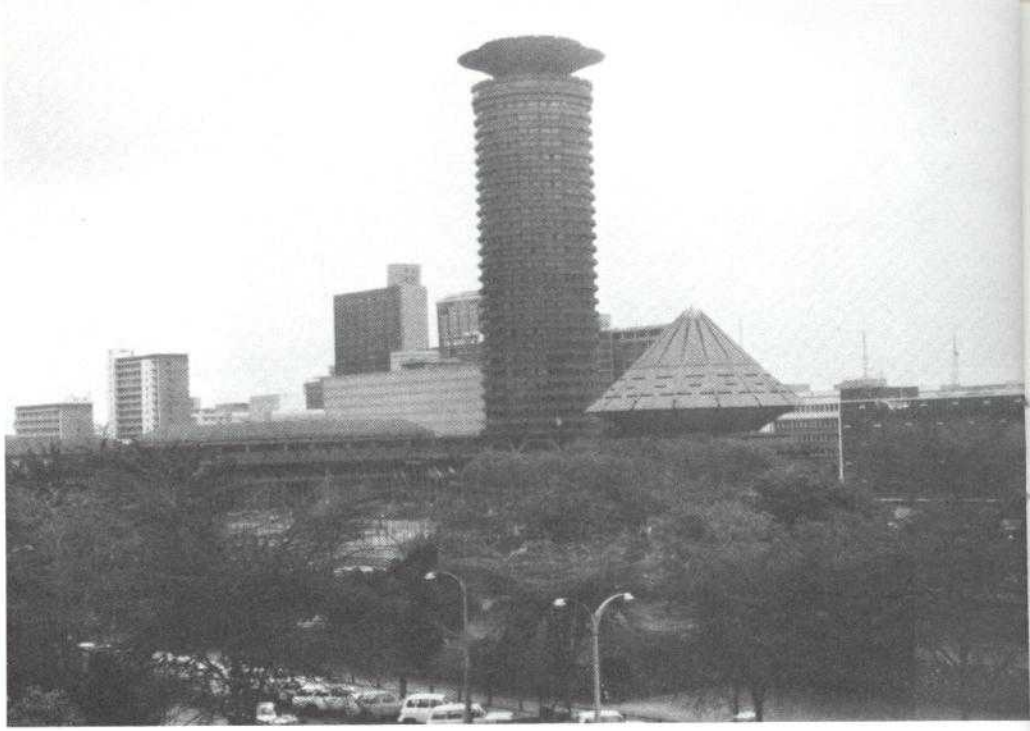
Our first impression of the city was very favorable. Nairobi is a clean, modern and beautiful city. After taking pictures and walking through the city and buying a few souvenirs, we started feeling the effects of our long journey. That night we had a nice dinner at the hotel for 60 shillings and were offered a wide selection of fruits and French pastry. Our room service was excellent, and we had an ample supply of fresh fruit in our room all the time.

Next day we arranged a tour to the Nairobi National Park for 85 shillings per person. The park was only 10 km away from the city. The tour lasted around four hours, and it was worth it by all means. We had the first glimpse of wild life. We saw giraffes, zebras, monkeys, ostriches, wildebeests and, finally, two female lions. The lions just had a fresh kill and were waiting for us to leave the area so that they could complete their meal.

It is interesting to note that only female lions kill and the males help themselves. Also, we noted that the lions had already eaten the ears and the eyes of the kill. We learned that this is how they start their meals. Next they eat the hips, and the rest of the body is left to the birds and hyenas.

That night we arranged a picture-taking safari to the Masai Mara area, approximately 300 km southwest of Nairobi. We were told by various groups who visited different areas that at this time of year the Masai-Mara area contains most of the wild life, whose pattern is to migrate to Tanzania, south of Kenya.

Next morning we took off at 8:00 a.m. heading towards Masai-Mara country on a minibus with five passengers. Our first stop was Norak, a small primitive village about 100 km south of Nairobi. As far as Norak, the road was paved and was in very good shape. After Norak, we drove on a dirt road for about three hours.



The skyline of downtown Nairobi is impressive and leads one to the conclusion that this is one of the most modern cities on the African Continent.

Clouds of dust filled the air behind the vehicle.

In Norak, we stopped for about 15 minutes to buy gasoline. There were a few shops in shacks scattered around the village, a well-built school and post office, a bookstore, and a hotel. We were warned not to take any pictures. While there, a native woman with rings in her nose and ears and carrying a spear and an arrow approached our minibus and asked in English for 350 shillings to allow us to take her picture. The price seemed too high, and we did not take advantage of her offer.

Heading toward our destination, we saw some beautiful houses outside Norak which we were told belonged to the schools of the missionaries. At 1:30 p.m., we arrived at Serena Lodge, a beautiful motel in the middle of the jungle, which was going to be our home for the next two nights. The lodge, consisting of a main building with a beautiful restaurant and 25 cabin-like buildings, was surrounded by lions, elephants, and water buffalos. After a marvelous lunch including Ouzo (a Greek drink), we left at 3:00 p.m. for the safari.

Our driver, David, was a very energetic ranger, who knew well the hide-outs of the animals. He has been in this business for over 10 years. That afternoon, we drove for about three hours watching the elephants strolling around in herds, a dozen hippopotamuses lying along the creek, several rhinoceroses running around, and giraffes curiously watching our minibus. Zebras, wildebeests, grand gazelles and water buffalos were all over the place. Our desire to see lions, leopards and cheetahs was not fulfilled.

We took many pictures, mostly at distances of 15 to 30 feet. That night, we had a wonderful dinner, one of the best I remember, among the roaring of lions, crying of water buffalos, and coarse sounds of elephants. Tea was served after dinner. Right after dinner we had a most unusual experience.

An elephant walked by the front of our lodge while eating all the flowers and branches of the newly-planted trees. As the main building of the lodge was separated by 50-100 feet from the rest of the cabins, we had to remain in the main building until the elephant decided to leave. The next day, right after lunch, we had the same visitor, and I took some very beautiful pictures from as close as 10

Vasil Uzunoglu is second from the left. Third from the left is David, a Kenyan ranger who led the group on its photographic safaris through Masai-Mara country.

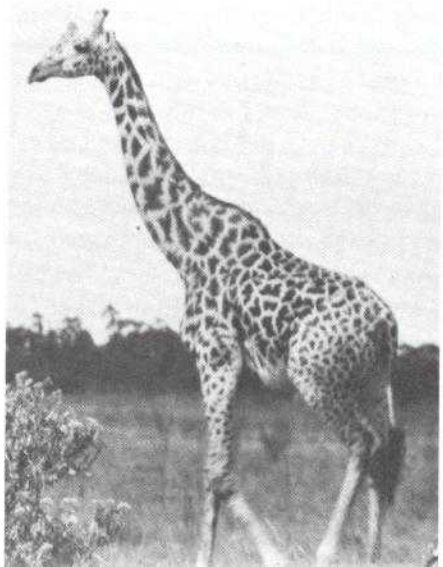
feet. We discussed with the manager why the elephant was not hindered from coming so close to us. We were told that the manager and his assistants did not intend to harm the elephant by any means. If they did, they may have a serious consequence, as elephants have very good memories and may harm them at an unexpected time. One night the elephant walked by where other visitors were having a picnic and ate all the food on the tables. Even big fires outside the lodge did not prevent his visit. Once, he was taken 50 miles away, but he returned after a few days, we were told.

Next day, Tuesday, we set out for another safari. After enjoying the view of more wild life and taking more pictures, we were determined to search for lions, leopards, and cheetahs. After an intensive search for three hours, we finally discovered four lions—three females and one young male—resting under trees near a creek. We approached them to a distance of almost 20 feet and watched them for almost five minutes, taking a dozen photographs.

Inspired by the beauty of the lions, one is tempted to open the door of the minibus and approach them and pet them. To avoid any such temptation, the doors of the minibus are locked and opened only by the driver.

Satisfied with the results of the day, we had another delightful dinner. Next day, Wednesday, we set out for another safari. This time we were determined to discover leopards and cheetahs. We were lucky to see one leopard who ran away much faster than our minibus, and we were not able to take any pictures. Later, we discovered a cheetah under an isolated tree waiting for prey. We drove as close as 25 feet and took a dozen pictures. I have to admit that I have not seen a more beautiful animal in my life. I could have watched him for hours.

Giraffe was photographed in Nairobi National Park.



Pleased with the results of our trip, we headed toward Nairobi on Wednesday around 10:00 a.m. The total safari trip, including lodge and meals cost us $205 per person, but was worth much more.

Another animal which impressed us was the giraffe. Whenever they saw our minibus, they stopped and, in many instances, approached our minibus, thus making it easy for us to take pictures. The giraffe is very majestic and peaceful.

Wednesday, late afternoon, we completed our souvenir shopping and were ready to leave Nairobi on Thursday. Bargaining is a way of life in almost every store. Reducing the original listed price by 50-60 percent is considered a fair deal. There are beautiful wood carvings of lions, elephants, zebras and giraffes, which sell between $2-$40 depending on the size and type of wood. They are very decorative items. Shopping in the hotel proved to be as economical as anywhere else in town. Interested in their native language, I tried to find out its roots during my short stay in Kenya. To my surprise, I found out that many words are derived from Arabic and some from Greek. When I read the signs at the airport "Mahalli pa Mawarecki" and "Magari," I knew what they meant. "Mahalli" in Arabic means "space, area," "Mawarecki" means car, and "Magari" means "cave" or "tunnel." I discovered also the meaning of "pa" which related to a word in Greek which means "where." By the way, the official language in Kenya is English.

We left Nairobi on October 25, and after 26 hours of air travel, we arrived in New York at 9:00 Friday morning, on October 26. We will always remember the beautiful scenery of the jungle, the majestic look of animals and, last but not least, the wonderful reception we had everywhere we went.

Network Bits Field Correspondents

Andover
Joanne Witas
Brewster
Dorothy Buckingham
Etam
Bev Conner
Jamesburg
C. B. Marshall
Labs
Norma Broughman
Joan Prince
Blaine Shatzer
MCE Rockville
Shari Properzio
M & S Center
Darleen Jones
New York
Stephen Keller
Paumalu
Bob Kumasaka
Plaza
Mary Lane
Santa Paula
Terri Myers
Southbury
Eileen Jacobsen

ANDOVER. Congratulations to **Stan** and **Donna Morse** on the birth of their first child, a daughter, **Darcy,** weighing in at 8 lbs. 3 oz. **Bruce Nelson** has joined us as Junior Tech for TTC&M. **Bruce** and his wife **Pauline,** along with their three children, reside in Mexico, (Maine, of course). **Bruce** was formerly employed by Measurex and was on contract to the local paper mill Bosie Cascade.

Employees of Andover are busy in local community affairs. **Chuck Lepage** is on the Board of Directors for the Rumford High School Athletic Boosters; **Charlie Jaros** is Chairman of the Andover Recreation Dept.; **Ken Dixon** is on the Board of Directors for the Andover Water District and is President of Western Maine Firemen's Association; **Bruce Nelson** is Registrar (voter's registration) for the Town of Mexico; **Jack Conner** is on the board for the Rumford Public Service Commission; **Larry Wood** and **Joanne Witas** are on the Board of Directors for Northern Oxford Vocational Area; **Art Haseltine** and **Larry Wood** are on the Board of Directors for School Administration District #43; **Don Verrill** is a Selectman for the Town of Minot; **Neil Merrill** is Chairperson of the Bethel Municipal Facilities Committee; **Sven Engblom** is the instructor for the Basic Electricity course offered by NOVA for adult education; **Shaun Arness** is on the Volunteer Fire Dept. for Rumford Point.

Not to be outdone is the COMSAT and AT&T Wives' Club. This group of enthusiastic volunteers once again took part in the annual Rumford Community Hospital Fair which was held recently at the Rumford Armory. The Wives' Club had a booth which housed a bean bag toss and sold raffle tickets for a bike. It is expected that this year's "Fair" will net $20,000. Our congratulations to all employees and wives for their time and effort to get involved in local activities.

Chet White, Security Guard, is retiring after many years of service. **Chet** is over 70 and has been here since the "Early Bird" days. Technicians/Engineers at HQS will remember **Chet** as the gentleman with the kerosene TV to sell (??). Old time employees of Andover can remember more than one person being taken for a ride by Chet's story of the TV. At times it was hard to stand by and listen without breaking out with laughter and giving Chet's story away. Chet is retiring, not because he wants to but because of health reasons.

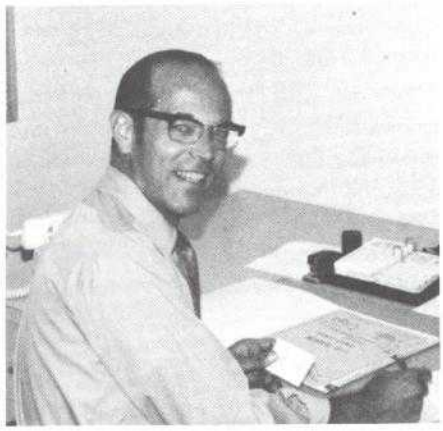
—**Joanne Witas**

Ralph Summerton, Station Engineer, died suddenly on December 5.

LABS. **Shirley Taylor** and son **Steve Miller** appeared recently on WHAG TV in Hagerstown in cooperation with the police in a crime-prevention series. **Shirley** played a greedy elderly lady who gets "taken" for her life savings by a con artist. **Steve** played a burglar who breaks into a house and "cleans it out." **Steve** also just finished a successful run in Cole Porter's musical *Kiss Me Kate* in Hagerstown in which he sang the show-stopper tune "Too Darn Hot."

Marge Moser retired as Word Processing Specialist on December 1st. **Debbie Widerman** is being promoted to her position. **Cindy Miller,** a former Labs employee, is filling in until a new operator is hired. Bye **Marge,** Congratulations **Debbie,** and Hi **Cindy!**

Francis X. Coffey recently accompanied his daughter to Mt. Kilimanjaro, Tanzania, in Africa for a two-week, all-expense-paid trip she won, in a contest sponsored by Pan Am. (His daughter is Director of Admissions of American College of Cardiology in Bethesda.) F. X. can tell you about touring the Greater Rift Valley and game preserves and flying over the countryside in a private plane.



Carl Wenrich, Labs Procurement Office, has the unusual distinction of having visited *all* of the 40 National Parks in the United States. This has taken him to every state. His next ambition is to visit all of the 28 National Parks in Canada, of which he has been to 10-12 so far. His most recent vacation pursuing this end took him to Manitoba, Ontario, and North Dakota.

Danny Forrester arrived at work sporting a new sweatshirt, "World's Greatest Grandpa," after the proud arrival of **Lauren Elizabeth,** 5 lbs. 10 oz., on November 2nd.

To add a little excitement to an

otherwise routine day, **Teresa Magaha,** a semi-professional dancer from Hagerstown, was "caught" giving disco lessons to **Dirk Van DerLoo.** You just never know what you'll run into in the Spacecraft Lab.

John and **Karen Hsing** announced the birth of a second boy, **Stanley,** on November 19, 1979, at 7:30 a.m. Both are doing fine. **John** works in the Stabilization and Structures Dept. of the Spacecraft Lab.

Earl Main, Spacecraft Laboratory, participated in the John F. Kennedy 50-mile hike held November 17th. 409 participants competed in the event. Earl finished the rugged course in 13 1/2 hrs. 312 entries finished. Earl finished 299th.

Congratulations to **Sharon** and **Jim Draper** on the birth of their daughter **Erin Elizabeth** August 10 and to the proud grandfather **Bud Bell;** and also, on the purchase of their home.

Mr. & Mrs. **Steven B. Gray, Sr.,** announced the birth of a son at the Frederick Memorial Hospital on Friday, November 2. Both **Steve** and **Brenda** work at COMSAT.

There was a surprise Baby Shower for **Karen Updike** on November 8th at the Labs.

We would like to thank COMSAT for putting lights in the over-flow parking lot at the Labs.

Recent new hires include: **James Thomas, Robert Wilson, R. Gene Autry, Chaim Zaks, Bill McGrady, Alethia Woodfield, Jethro Shedrick, Russell Eicher, Susan Derrick, Vic Schreffler, John Urciolo, Steven Scolnik, Teresa Eppley, Thomas Acuna, Chris Lester, Broma Bare, Ed Eiser, John Wingert, Michael McCracken, James Campbell, Bernard Geller, Carole Stitely, Bob Kroll, William Nallo (MCE), Don Hessler (MCE), William Dahlberg (MCE),** and **Mary Emmell (M&S).**

The following have left COMSAT: **Ed Richards (M&S), Jimmy Su, Joe Jerome, Michael Curtis,** and **Ralph Burall.** —**B.P.S.**

M&S CENTER. Among the new employees at M&S Center are **Skip Stanton, Mary Lou Emmell** and **Jim Travis.** Welcome aboard, gang.

Leaving the M&S is our Supervisor of Technical Services, **Ed Richards,** who has rejoined his old company, Bendix, in West Virginia. **Patricia Ross** has transferred to the Labs and **Bob Pitta** has taken a position with the Technical group under **Howard Reagan** at the Plaza; we wish them the best of luck. A luncheon honoring the three was held at the Germantown Inn on Thursday, October 25th.

Our Calibration Team comprising **Donald Rounsaville** and **Frank Sandel** did their AT&T Wheeling, W. Va., and Etam earth stations' test equipment calibration during the latter part of October and first week of November.

On November 14th **Frank Sandel** and **George Robertson** will be presented their 10-year service awards, and **Betty Hall** will receive her 10-year award. —**D. Jones**

PAUMALU. **Lynette Daikoku,** daughter of Mr. & Mrs. **Yoshiaki Daikoku** of Kailua, Oahu, Hawaii, was recently chosen Homecoming Queen of Kalaheo High School, and reigned over homecoming activities of the school. Proud father, **Yoshiaki,** is a Sr. Electronic Tech in our TTC&M station. **Tom Ota** and **Bill Osborn,** Sr. Techs, both spent time recently in American Samoa, assisting with installing and testing of communications equipment at the new Pago Pago Earth Station. "No luck with the slot machines," said **Lily Miram,** Accounting-Personnel Clerk, upon her return from her vacation in California, Nevada, and Texas. Station Manager **Glenn M. Vinquist** and wife journeyed to Paradise, California, to visit with their daughter, **Karen,** and their son-in-law, over the Thanksgiving holiday.

The Paumalu CEA is sponsoring a gala Teahouse Party for station employees and guests to greet the holiday season. Actually there will be two parties in order to take care of shift workers—the first on November 30, and the second on December 14. The parties will be held at the Natsunoya Teahouse in Honolulu and will feature the traditional Japanese dishes with guests sitting on mats on the floor. Exchange of gifts and games are on the program. **Robert Makizuru,** President of the Paumalu CEA, along with **Lily Miram, Eddie Miyatake,** and **Ken Yamashita,** are planning the parties.

—**Bob Kumasaka**

Lynette Daikoku
Homecoming Queen

SOUTHBURY. Celebrating anniversaries with COMSAT GENERAL recently are **Ron Hicks, Eileen Jacobsen,** and **Jim Nelson,** 5 years; **JoAnne May, Agnes Tomlinson, May Scott** and **Dave Parsons,** 1 year.

Congratulations to **JoAnne May** on her recent marriage. While **JoAnne** and **Bill** were honeymooning in Bermuda, they visited on board the **S.S. Rotterdam.**

Trips to warm tropical climates seem to be currently in fashion as **Rose Marie Eureka's** daughter, **Deborah** and husband **Jeff Lawler,** also honeymooned in the Islands.

Ron and **Faye Hicks** have a new addition to their family—a girl, **Katherine Charlie. Frank** and **Josephine Makray** Also added to their family—a boy, **David.**

We've weathered our first snowstorm of the season; on October 9 we had 9 inches of snow dumped on our antenna.

Our most sincere good wishes go

with **Eileen Jacobsen** who has taken a position at the Plaza in the STS, Marketing Department. Southbury's loss is definitely a gain for Washington. —**Dolores R. Raneri**

TELESYSTEMS. Our new facilities in Merrifield, Virginia, are almost ready for occupancy and we look forward to all being together by the first of the year. One of our buildings will contain administrative, marketing, financial and engineering facilities, and the other building will contain manufacturing space, as well as production support offices such as Production Control, Manufacturing Engineering, Procurement, Test, and Quality Assurance.

We have grown to 90 employees and continue to add more. Among our newest employees are **Pam Drumm,** Marketing; **Ismael Melendez,** Personnel; **Gary Richard,** Finance & Administration; and **Theresa Zipfel,** Manufacturing. Welcome Aboard!

A late summer picnic at Lake Braddock, Va. got many of the Tele-Systems people with their families together for the first time. Approximately 140 people were present to enjoy the food, swimming, dancing and getting acquainted. Special raves went to **George Glass's** wife, **Sue-lon,** who created delicious egg rolls that were the hit of the food line.

George Corbin, Manufacturing, is telling everyone about his 14-yr. old son **Patrick,** who will be dancing a substantial role in the Washington Ballet's rendition of Tchaikovsky's "The Nutcracker" during December. Patrick is a scholarship student at the Washington School of Ballet, and has been performing for the Rockville Civic Ballet for the last three years.

Bill Voss, of Information Systems, recently honeymooned with his bride **Terry. Mike Hofe,** Manufacturing, wedded **Kendra Smith** Nov. 3 and they reside in Virginia. And more wedding bells will soon ring for **Pam Drumm,** Marketing, who will be married to **Rod Richardson** on Nov. 24.

A new son was recently welcomed by **Rogers Glenn** and his wife, while Accounting's **Pramod Gupte** and his wife have a new daughter.

—**Barbara Maddox**

The following employees have celebrated five, ten, or fifteen-year anniversaries with COMSAT:

In November

FIFTEEN YEARS

John P. McCusker (Labs), John H. Heck, and Richard L. Hammerly.

TEN YEARS

Richard J. Porter (Labs), Frank J. Sandel (Labs), Margery G. Moses (Labs), Ralph T. Ambrose (Labs), George A. Robertson (Palo Alto), Franklin B. Graves, Albert C. Walle, and George H. Wootton-Wooley.

FIVE YEARS

Barbara M. Hayden (Andover), Emma J. Kennedy (Labs), Frank E. Cole (Labs), Ronald D. Kuenzli (Labs), Gilmore W. House (Labs), Elizabeth A. Christie (Labs), Ashok K. Sinha, John S. Fagan, Ronnie L. Hicks (Southbury), and James W. Nelson (Southbury).

In December

FIFTEEN YEARS

Lawrence M. Devore.

TEN YEARS

William V. Reece (Brewster), Allanina G. Cramer (Labs), Marvin D. Ginsberg (Labs), Henry L. Parker (MCE), Carolyn M. Van Der Weele (Labs), Walter L. Morgan (Labs), and Charles E. Johnson (Palo Alto).

FIVE YEARS

Alan T. Gerace (Andover), Mary L. Penrose (Labs), Dilip D. Thakkar (El Segundo), Thomas W. Black (El Segundo), David J. Lee, Patricia A. Carlton, Karl H. Jesinghaus, Leo Millstein, and Tattamangalam S. Chidambaram.

NEWS

INTELSAT III

(Continued from page 9)

1969, and served as Pacific Ocean Primary from February 15 to June 2, 1969, when it was replaced by the INTELSAT III F-4.

The satellite was then relocated to serve as Indian Ocean Primary from July 1, 1969, to July 30, 1972, when the INTELSAT IV F-5 was introduced as the primary. F-3 then served as contingency satellite in the region until July 13, 1975.

For some six months in 1975 and for two months in 1977, the satellite carried Algerian lease service.

McKenna and Luper take honors at golf tournament

In spite of a postponement due to rain, the CEA Fall Golf Tournament was held at Bretton Woods with 42 players, including 12 guests, competing under sunny skies on a well cared-for course.

Telesystem's J. McKenna took low men's gross with an 82 while Paulette Luper took low women's gross with 101. Paul Fleming claimed the shot of the tournament, holing out a 60-yard wedge shot on Number 17 for a birdie.

Prizes were awarded to the men for Low Gross (J. McKenna), First Net (A. Cornfield), Second Net (J. Hall), Third Net (R. Redick), Fourth Net (E. Knopick), Fifth Net (P. Fleming), Longest Drive (D. Ruggori) and Closest to the Pin (R. Waldt).

Prizes were awarded to the women for Low Gross (P. Luper), First Net (M. Penrose), Second Net (D. Bennet), Third Net (P. Ruddiman), Longest Drive (P. Luper) and Closest to the Pin (M. Penrose).

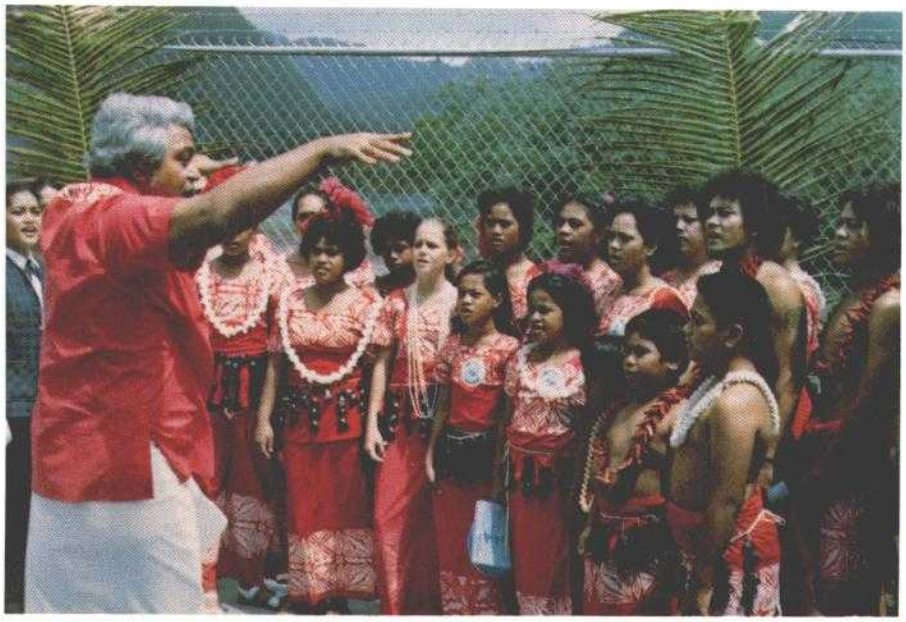
Joe Donnelly and Bud Bell organized and coordinated the tournament. Jim Hall handled the computer scoring.

(Continued from page 4)

Chief is one of several indigenous titles of distinction.) In addition to Dr. Charyk, the speakers included Mr. Surber, earth station manager, Director of Communications Sene and Governor Coleman.

In his speech, Dr. Charyk pointed out that American Samoa "now joins 25 other points throughout the Pacific and more than 100 nations around the globe which enjoy clear and efficient communications by satellite." Dr. Charyk then addressed himself to the special significance of the earth station to American Samoans. "The family plays an important role in every society," he said, "but the family tradition in Samoa is something more.... We believe satellite communications with the mainland and other points can bring Samoan families closer together."

Then he stated, "Starting today satellite communications will give you the ability to talk directly, instantly and clearly with your children and loved ones anywhere in the world. In a blink of an eye you will be connected with friends and relatives in Hawaii and on the Mainland, proving once again that the shortest distance between two points is by satellite."



The Arts Council Choir performed at the dedication ceremonies. Also performing at the festivities was the Leone High School band.

Dr. Charyk added, "The improved communications via satellite can only strengthen the Samoan family. No longer will family members be out of touch. All those Samoan sons and daughters, uncles and aunts, grandmothers and grandfathers will be in touch via satellite. Satellite communications will bring them home quickly and clearly."

Gov. Coleman, the final "live" speaker at the dedication, completed his talk with a first ceremonial long distance telephone call to Washington, D.C.—to Leo Krulitz, Solicitor of the Department of the Interior.

The ceremony then switched to a television presentation from Washington, D.C. and Hawaii, which was arranged by Dan Karasik, Director, TV and Customer Service, International Communications. On eight television monitors placed at various locations at the earth station site, the audience of 1,500 watched a live, closed circuit telecast from CBS Studios in Washington in which four speakers greeted them. The four were Fofo Sunia, Delegate At Large, U.S. Congress, from American Samoa; Eni Honkin, Assistant Counsel, House Committee on Interior and Insular Affairs; Senator Spark Mat-

A Sunday outing near Pago Pago for an American Samoan family involves swimming and washing clothes in a mountain-fed spring.

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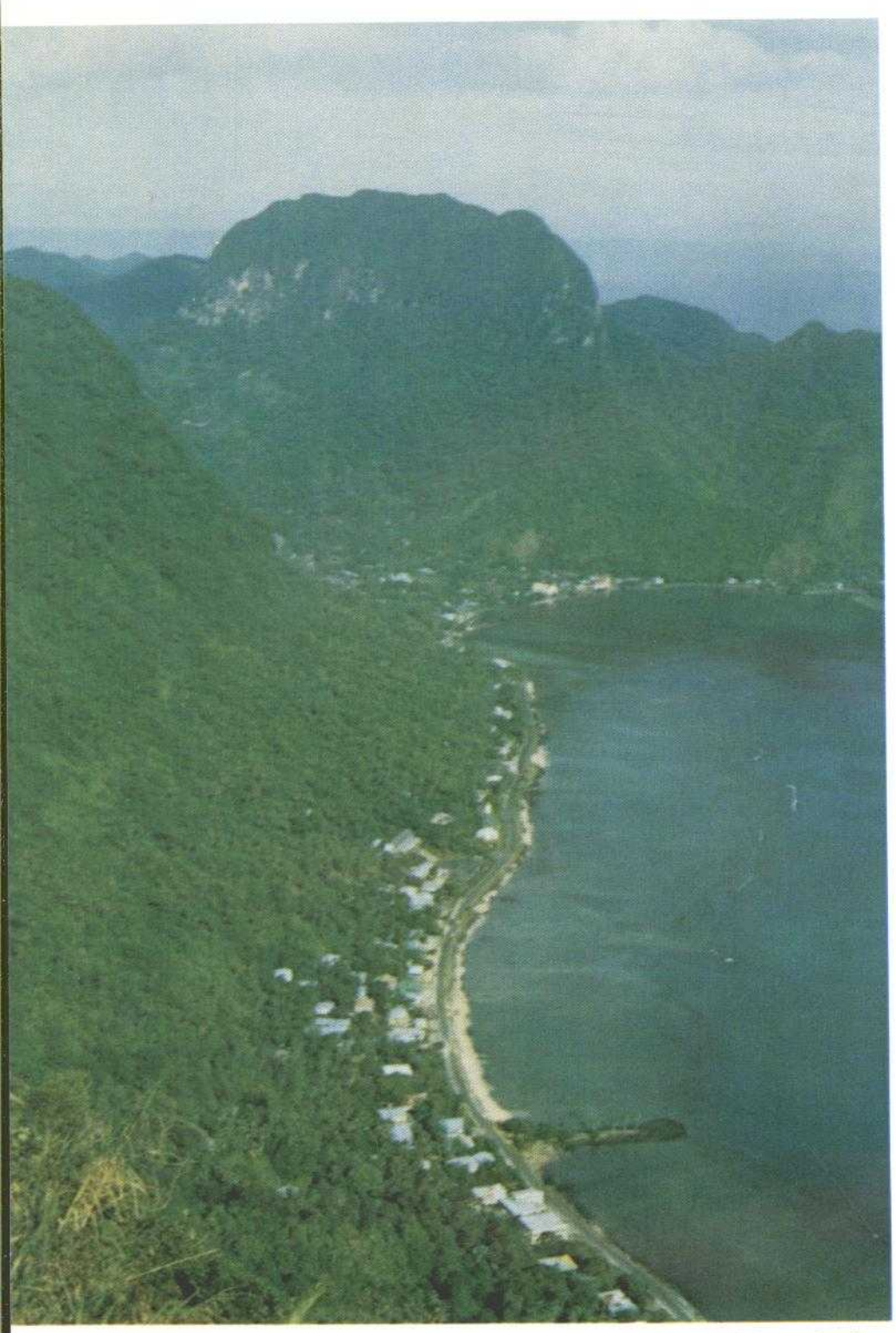
(Continued from page 19)



A view of Rainmaker Mountain, elevation about 1,600 feet, from Mount Alava. The English writer William Somerset Maugham (1874-1965) did much to implant the mountain in the minds of Westerners through his short story "Rain."

sunaga (D-Hawaii); and Senator Henry M. Jackson (D-Washington). During this segment of the telecast, viewers were also shown the principal sights of Washington such as the White House and the Capitol.

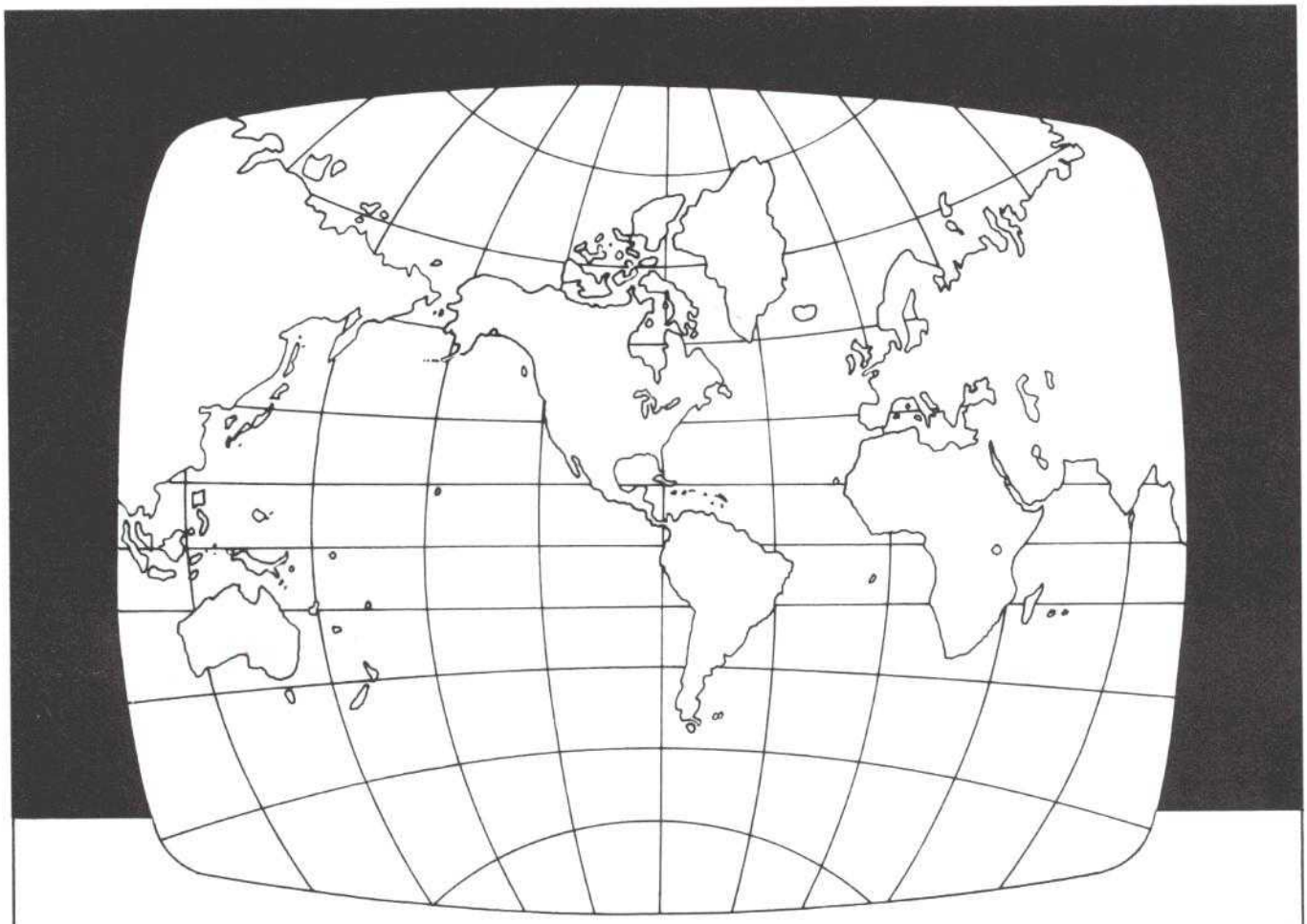
The next segment was a live television presentation from Hawaii. Speakers were Dr. Hideto Kono, Hawaiian Director of Economic Development, and Reverend Pita Malae, a prominent clergyman in Hawaii who was born in American Samoa.

The third and final closed-circuit segment also came from CBS Studios in Washington—a slightly delayed airing of the Saturday Evening News with Bob Schieffer.

The U.S. common carriers in addition to COMSAT providing the television segments were ITT World Communications, Inc.; Hawaiian Telephone Company; RCA Global Communications, Inc.; and Western Union International, Inc. The entire proceedings, both live ceremony and telecasts, were recorded by the Samoan Television System for rebroadcast Saturday evening to viewers throughout American Samoa.

Later that same, quite-busy day about 250 invited guests including Dr. Charyk and the rest of the delegation from COMSAT headquarters gathered at Solis, a restaurant in Pago Pago, for good food and a Polynesian floor show.

There is probably no more fitting way to end this account than by using the Samoan words that Dr. Charyk himself used in ending his speech at the dedication. *Fa'afetai tele lava. Manuia Amerika Samoa. Manuia COMSAT. Soifua.* To translate: "Thank you very much. Viva America Samoa. Viva COMSAT. May you live long."



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