COMSAT NEWS

January-February 1974
Vol. IX No. 1

FCC allows COMSAT-AT&T lease plan, participation in multipurpose system

New data service developed by Labs now in operation

Project Hope satellite link is a success

Worldwide audience views final lunar flight

Violet Cell license awarded Centralab

AT&T directors to be replaced at annual meeting

CML elects new president as three COMSAT employees join staff

Via Satellite: added security and reliability for Hot Line

People's Republic of China study group visits COMSAT for satellite discussions

INTELSAT approves IV-A satellites for $72 million

COMSAT to sell Bartlett Station to RCA Alascom

COMSAT satellites ready for AT&T use by end of 1975

Net income continues to rise

FCC acts on Navy-maritime system; additional filings to be made

COMSAT awards satellite contract, delivery of first spacecraft due in 1975

COMSAT birthday receives wide press coverage

Net income up, second quarter dividend increased

Signatories elect COMSAT's Charyk Meeting Chairman

Final series of demonstrations completes successful Project Hope-COMSAT program

COMSAT announces reorganization, names three senior vice presidents

Fifth anniversary for satellite support of NASA manned flight

New INTELSAT arrangements begin on February 12

Revenues up, net income of $2.50 per share reported

October the biggest for satellite TV

U.S. HOPE to use satellite link from Brazil

A first-hand report from Managua: earth station service survives quake

COMSAT General asks for proposals to construct earth station facilities

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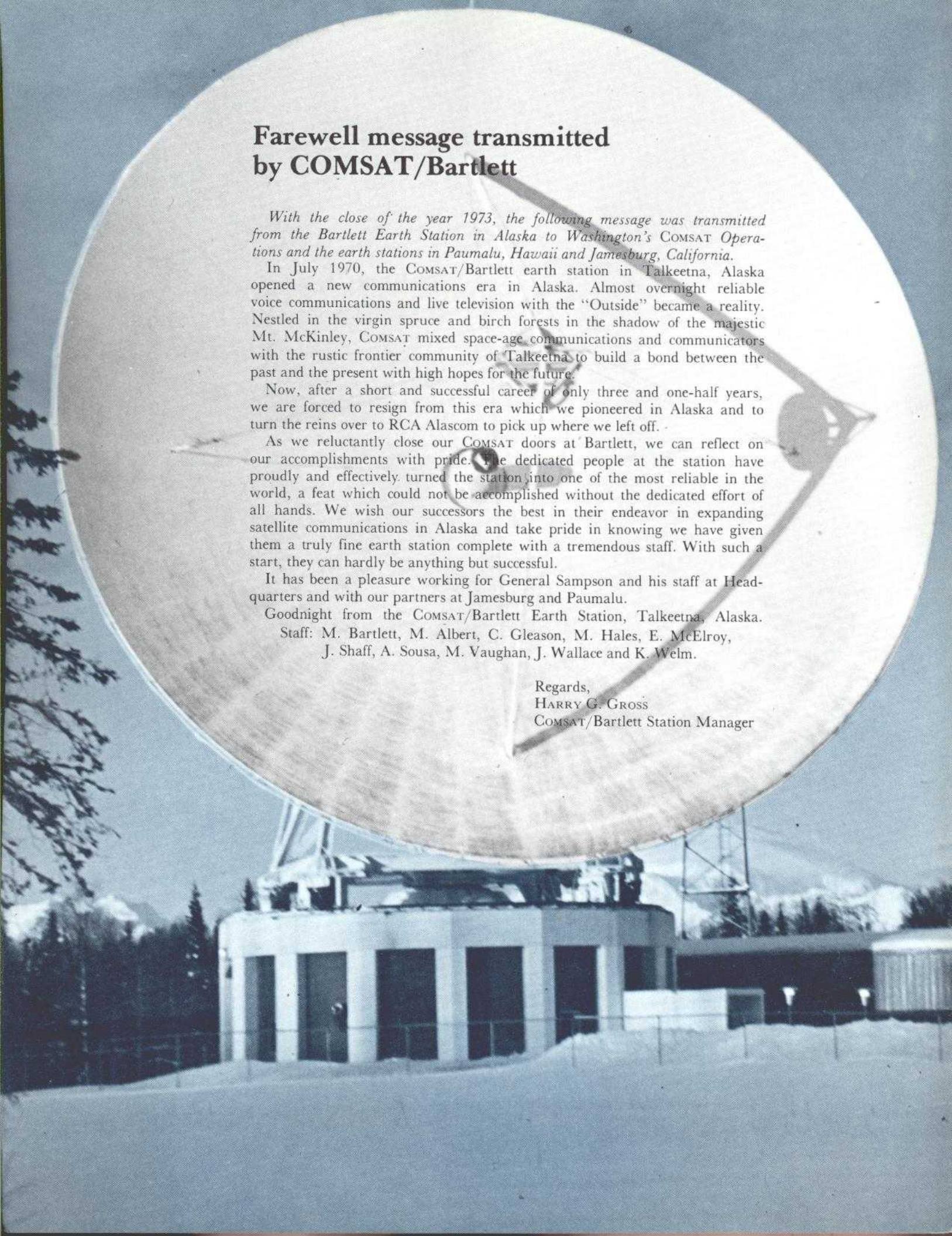

Farewell message transmitted by COMSAT/Bartlett

With the close of the year 1973, the following message was transmitted from the Bartlett Earth Station in Alaska to Washington's COMSAT *Operations and the earth stations in Paumalu, Hawaii and Jamesburg, California.*

In July 1970, the COMSAT/Bartlett earth station in Talkeetna, Alaska opened a new communications era in Alaska. Almost overnight reliable voice communications and live television with the "Outside" became a reality. Nestled in the virgin spruce and birch forests in the shadow of the majestic Mt. McKinley, COMSAT mixed space-age communications and communicators with the rustic frontier community of Talkeetna to build a bond between the past and the present with high hopes for the future.

Now, after a short and successful career of only three and one-half years, we are forced to resign from this era which we pioneered in Alaska and to turn the reins over to RCA Alascom to pick up where we left off.

As we reluctantly close our COMSAT doors at Bartlett, we can reflect on our accomplishments with pride. The dedicated people at the station have proudly and effectively turned the station into one of the most reliable in the world, a feat which could not be accomplished without the dedicated effort of all hands. We wish our successors the best in their endeavor in expanding satellite communications in Alaska and take pride in knowing we have given them a truly fine earth station complete with a tremendous staff. With such a start, they can hardly be anything but successful.

It has been a pleasure working for General Sampson and his staff at Headquarters and with our partners at Jamesburg and Paumalu.

Goodnight from the COMSAT/Bartlett Earth Station, Talkeetna, Alaska.

Staff: M. Bartlett, M. Albert, C. Gleason, M. Hales, E. McElroy, J. Shaff, A. Sousa, M. Vaughan, J. Wallace and K. Welm.

Regards,
HARRY G. GROSS
COMSAT/Bartlett Station Manager

News in Brief

"Goodnight" from an old friend

A farewell "goodnight" was transmitted from the Alaskan earth station as Bartlett changed owners as 1973 came to a close.

Assembly of Parties meeting

Approximately 200 delegates from 84 nations attend five-day Meeting of The Assembly of Parties held at Washington's L'Enfant Plaza.

Contract awarded for new antennas

Two new 105-foot diameter antennas to be built at Andover and Etam COMSAT earth stations at cost of $3.16 million.

Board of Governors holds meetings

The Board of Governors representing a majority of Signatories meet in Washington and complete actions on busy agendas.

COMSAT reports 1973 earnings

COMSAT reports end of year earnings equal to $3.63 for past year as compared to $2.50 per share for 1972.

Rate Case discussions continue

Hearings in the COMSAT rate case by the FCC begun March 1972 and suspended in December 1973. Discussions continue.

A tour of the Canary Islands

Representatives to the Board of Governors Meeting take time to explore the historic and scenic Canary Islands.

COMSAT gets Minority Magazine Award

COMSAT was one of less than a score of major U.S. companies and organizations to receive the Creative Communications Award from Equal Opportunity Magazine.

Ten-Year Awards presented by Dr. Charyk

Service awards presented to 14 COMSAT "originals" by President Charyk for completion of 10 years with the company.

Incentive Awards presented at Labs

Thirteen engineers and scientists of the COMSAT Labs receive patent incentive awards during recent presentation ceremony at Gaithersburg.

Lab's Podraczky moves to INTELSAT

Ten-year veteran COMSAT employee departs Labs to take up new position with INTELSAT's Office of the Secretary General.

Space "buff" appreciates satellites

Dr. Paul A. Campbell, long-time advocate of manned flight and space exploration, manages to follow manned journeys "live via satellite" wherever his travels take him.

Cover

With the Annual Shareholders Meeting in May, the cover represents a montage of stories carried in the COMSAT News during the previous year.

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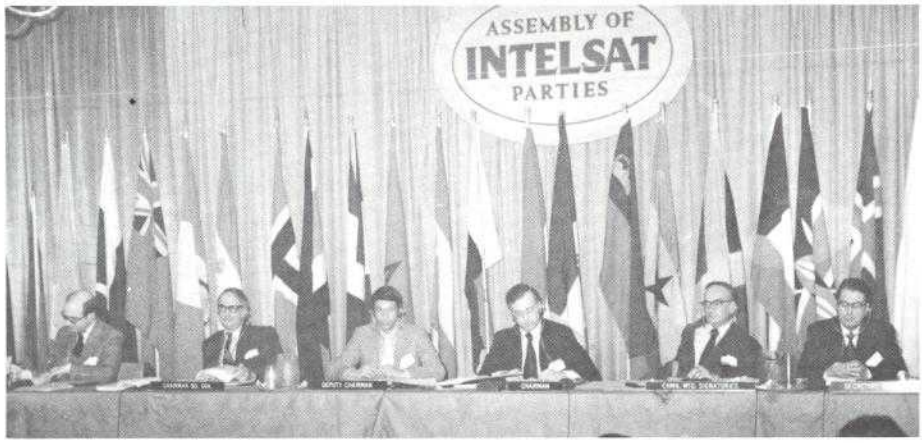


Pictured left to right: Harry M. Tollerton, rapporteur; Canada's Ernst Eliason, Chairman, Board of Governors; Osama Sh. Anani, Jordan's Deputy Chairman of the Meeting of the Assembly of Parties; Raymond J. Waldmann, State Department, Chairman of the Meeting of the Assembly of Parties; COMSAT President Charyk, Chairman of the Meeting of Signatories; and Intelsat Secretary-General Santiago Astrain of Chile.

Assembly of Parties concludes first meeting

By Larry G. Hastings and Harry M. Tollerton

The first meeting of the Intelsat Assembly of Parties was held in Washington, D.C., February 4 through February 8. 72 of the 84 governments which are Parties to the inter-governmental Agreement of Intelsat were represented at the meeting.

The Assembly accepted the invitation of the Government of Kenya to hold its second ordinary meeting in Nairobi, Kenya beginning September 27, 1976.

The Assembly elected Mr. Raymond J. Waldmann, the Representative of the United States, as its Chairman and Dr. Osama Anani, the Representative of Jordan, as Deputy Chairman. Elected as Vice-Chairmen were Ambassador Alejandro Orfila, the Representative of Argentina; Ambassador Adolfo Alessandrini, the Representative of Italy; Ambassador Leonard O. Kibinge, the Representative of Kenya; and Ambassador Motoo Ogiso, the Representative of Japan.

Mr. Santiago Astrain, Secretary General of Intelsat, opened the meeting and served as temporary chairman until the election of officers. Dr. Joseph V. Charyk, Chairman of the Meeting of Signatories, and Mr. Ernst Eliasen, Chairman of the Board of Governors, also attended the Assembly's meeting.

Although some representatives expressed reservations as to the credentials of certain delegations, the Assembly adopted the report of its credentials committee which found all 72 delegations attending the meeting to be properly accredited. The reservations expressed were ordered to be included in the record of the Assembly's discussions.

During its first meeting, the Assembly reached a number of decisions on matters of importance to Intelsat:

- The Assembly found that the proposed United States Geostationary Operational Environmental Satellite (GOES) System would cause no harmful interference with the Intelsat system, because the two systems have no frequency bands in common. The Assembly also found that the GOES system is technically compatible with the use of the radio frequency spectrum and orbital space by the existing or planned Intelsat satellites.
- The Assembly found that the proposed United States maritime satellite system will cause no harmful interference with the Intelsat system and that the provision and use of the proposed maritime satellites will not prejudice the establishment of direct telecommunication links through Intelsat satellites among all the participants. Although the Assembly recognized that the economic impact on Intelsat of the proposed U.S. maritime satellite system could not be precisely assessed in the absence of any firm plans as to how, when, and at what charge Intelsat would itself provide a maritime satellite service, the Assembly nevertheless found that no significant economic harm to the Intelsat system need be expected.

The Assembly's findings as to the U.S. maritime system were based upon the assumption that any significant extension of the system beyond 1979, or widening of its scope would be the subject of new coordination with Intelsat.

The Board of Governors was asked to make a further report on this subject to the Assembly's next ordinary meeting in 1976.

- While agreeing with the Board of Governors that a request by the United Nations for free use of the Intelsat satellites cannot be accepted, the Assembly expressed its view that the Board, with the assistance of the Secretary General, should work out

Pictured left to right: Alternate Representatives of the U.S. Delegation Richard R. Colino and Thomas Nelson, and Sidney Friedland, U.S. Delegation advisor.

Pictured left to right: Dorothy Kozman, secretarial and typing services, Sigrid Badinelli, rapporteur and Ruth Kupperschlag, conference coordinator.

an arrangement with the U.N. whereby INTELSAT would do its best to ensure priority access to INTELSAT satellite capacity, for periods normally not exceeding 90 days, during emergency peace-keeping and disaster relief efforts.

• The Assembly authorized the Board of Governors to establish formal relations through the Secretary General of INTELSAT, with the International Telecommunication Union (ITU), the International Civil Aviation Organization (ICAO) and the Inter-governmental Maritime Consultative Organization (IMCO). Any such agreement will be subject to ratification by the Assembly. The Assembly recognized, however, that the Board of Governors, through the Secretary General, may have working relations with international bodies.

• The Assembly selected eleven individuals nominated by Parties to the Agreement to serve as members of a panel of legal experts from which presidents of arbitral tribunals shall be selected. These tribunals will be competent to decide any disputes which may be submitted to arbitration pursuant to the inter-governmental Agreement and the Operating Agreement of INTELSAT. Selected as members of the panel were the following legal experts: Mr. Andres Aguilar M., Venezuela; Mr. Giuseppe Barile, Italy; Mr. Maurice Edward Bathurst, United Kingdom; Mr. Aldo Armando Cocca, Argentina; Mr. Franz Gamillscheg, Federal Republic of Germany; Mr. C. W. Harders, Australia; Mr. S. P. Jagota, India; Mr. Robert H. Knight, United States; Mr. Pierre A. Lalive, Switzerland; Mr. Ya-Rugango Nkubito, Zaire; Mr. Fujio Uchida, Japan.

The Assembly also selected an alternate for each panel member.

Earth Stations and Antennas come and go

New antennas for Andover and Etam

COMSAT has awarded a $3.16 million contract to E-Systems Inc., Dallas, Texas, for the construction of two new 105-foot-diameter antennas for international satellite communications on the existing earth station sites of Andover, Maine, and Etam, West Virginia.

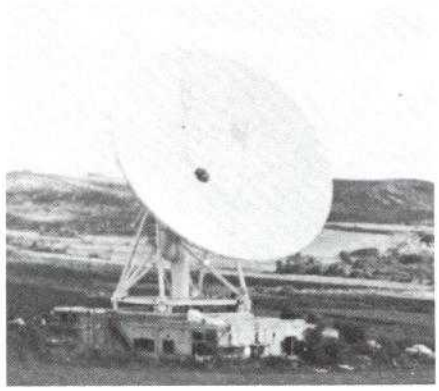
The contract is being awarded by COMSAT as manager on behalf of itself and the other joint owners which include AT&T, ITT World Communications, RCA Global Communications Inc. and Western Union International.

The antennas, of a new type, will satisfy certain operational requirements and provide restoration capability for satellite communications on the east coast of the United States. There are currently seven COMSAT-managed earth station antennas working in the INTELSAT global satellite system.

Each new antenna will be approximately 105 feet in diameter and have a minimum life expectancy of 15 years. Ground breaking for the new "dishes" will take place within the next four months at each site. While the new antennas are being built there will be no interruption in current communications satellite services, including the tracking, telemetry and command functions of the Andover station.

The new antennas will be capable of transmitting all forms of communications to INTELSAT satellites located in geostationary orbits over the Atlantic Ocean. Each antenna will incorporate the latest technical developments in earth station construction, including the placement of all electronic equipment in the base of the antenna. Additional contracts will be awarded later for electronic components and related facilities.

Today, the major part of all international transocean communication



New antennas to be built at Andover and Etam will be similar to the above pictured 105-foot "dish" at Sintra, Portugal. The new antennas will be built for COMSAT by "E" Systems of Dallas, Texas.

goes by the global satellite system. More than 85 antennas are in commercial operation worldwide. These earth station antennas are located in over 50 countries on every continent of the world.

Domestic satellite earth stations to go up

A $4,641,000 contract has been let to Philco-Ford Corporation of Palo Alto, California, for earth station installations on the east and west coasts for satellite communications.

The two stations will provide technical support services for the high-capacity domestic U.S. satellites whose capacities COMSAT GENERAL will lease to American Telephone and Telegraph Company. These satellites are now under construction.

The proposed station sites are at Santa Paula, California, about 50 miles northwest of Los Angeles, and at Southbury, Connecticut, about 60 miles northeast of New York City.

The contract covers construction and installation of complete facilities, including site preparation, roads, utilities, a 4,000-square-foot central control building at each site, and two

"Pioneers of satellite communications;" Dr. Charyk congratulates originals

PHOTO BY ALLAN GALFUND

Pictured are (standing, left to right) Joseph R. Worthmiller, John A. Johnson, Simon B. Bennett, William L. Callaway, James B. Potts, Dr. Charyk, Martin J. Votaw, Louis B. Early, Emeric Podraczky, Lewis Meyer and Sidney Metzger; (seated, left to right) Josephine P. Chapman, Matthew Gordon, Ruth M. O'Donnell and Jeannette M. Loomis.

A small group of employees were the recipients of awards and certificates of appreciation at the first ten-year award presentation held recently at COMSAT.

Dr. Joseph V. Charyk, COMSAT President, made the presentations to the 14 "originals" and spoke on the accomplishments and contributions of each during their tenure with COMSAT.

Reminiscing on the early days at "Tregaron", he reminded the group that during those days the total population of COMSAT was not much greater than the number assembled to be recognized for their service.

"Those of you gathered here today became the foundation of COMSAT and the pioneers in the new venture of satellite communications," Dr. Charyk told the group.

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antennas at each station plus associated electronic equipment.

Each station will be equipped with 42-foot and 32-foot diameter antennas and related facilities. They will be capable of providing continuous tracking, telemetry and command (TT&C) functions, and communications monitoring.

Under an option in the contract, an additional 42-foot diameter antenna, plus all associated electronic equipment, may be built at each site to serve the planned Maritime satellite system (MARISAT). The option will be exercised upon approval of the Navy/-Maritime system applications pending before the Federal Communications Commission. The price for these additional facilities would be $1,645,000.

A separate contract for the satellites for the MARISAT system was let by COMSAT last May.

The contract with Philco-Ford provides that COMSAT GENERAL Corporation, a wholly owned subsidiary of COMSAT, will be substituted for COMSAT as the contracting party upon approval by the Commission.

Board of Governors holds sixth meeting . . .

The INTELSAT Board of Governors held its Sixth Meeting in Washington, D.C., in December with nineteen Governors, representing 45 of the 84 Signatories, present.

Among its actions, the Board of Governors:

- Approved the nominees of the Secretary General for the top four positions of the Executive Organ: Mr. Andrea Caruso of Telespazio, Director, Administration and Conference Affairs; Mr. Reginald C. Westlake of COMSAT, Director, Finance; Mr. Emeric Podraczky of COMSAT, Director, Technical/Operations; and Mr. David Leive of the American Society of International Law, Senior Legal Advisor.
- Approved salaries of $31,000 for the three Directors of the Executive Organ, and $28,000 for the Senior Legal Advisor, all on a net-of-taxes basis.
- Noted the accession of Ghana to the Agreement and its signing of the Operating Agreement on December 12 as the 84th member of INTELSAT.
- Agreed to report favorably to the Assembly of Parties (which met in Washington in February) on coordination of the U.S. maritime satellite system with the INTELSAT system, and also to suggest to the Assembly that it authorize the Board of Governors to establish provisional relationships with international organizations in those situations where the Board decides that the timely establishment of relations is necessary to achieve benefits for INTELSAT, conditioned, of course, on subsequent approval by the Assembly.
- Initiated the technical coordination process between the INTELSAT system and two proposed Japanese systems (a Japanese domestic experimental communications system and a Japanese domestic experimental broadcasting system) by referring the technical information submitted by Japan to the Advisory Committee on Technical Matters and the Manager.
- Decided that the next INTELSAT IV should continue to be programmed for launch as the Pacific spare at Lat. 179° E. but that decision would be reviewed on the basis of INTELSAT IV satellites in orbit.
- Accepted a Hughes Aircraft Company proposal to allow the flexible switching of some INTELSAT IV-A transponders from a spot beam to an earth coverage since that change should provide greater ease of transition between satellite generations and make the INTELSAT IV-A satellite better suited to Indian Ocean coverage without a performance penalty or cost increase.
- Instructed the Manager to prepare an INTELSAT V request for purchase for review by the Advisory Committee on Technical Matters at its February Meeting and consideration by the Board of Governors at its March meeting. The RFP is to include work statement, proposal guide and specifications, and various options, including an option for maritime services. The Manager is also to perform expeditiously a definition study on 11/14 GHz earth stations.
- Determined that the studies done to date on provision of maritime services via INTELSAT satellites should be transmitted by the Secretary General to International Maritime Consultative Organization (IMCO) with appropriate qualifications.
- Approved expansion of the satellite system monitoring facilities to include monitoring of the forthcoming INTELSAT IV-A series by upgrading existing stations and adding one new station each in the southeast and southwest spot-beam coverage areas.
- Noted a report of the Manager that a sufficient number of countries will participate in TDMA (Time Domain Multiple Access) field trials at their own expense and in a time frame consistent with INTELSAT needs.
- Approved the use of INTELSAT TT&C facilities by COMSAT GENERAL for the launch of maritime satellites, and requested the Manager to draw up a draft contract for such use.
- Granted formal approval to the Zamengoe (Cameroon) and Buitrago III (Spain) standard earth stations to work with INTELSAT IV satellites. The Board also granted access without charge to the non-standard Reliable Earth Terminal station located at COMSAT Labs for the purpose of conducting experiments and demonstrations through December 1974. And a non-standard earth station at Raisting, Germany was also approved for access.
- Adopted a charge of one-half unit per participant for a multi-destination half duplex digital data service.

The Arab Group was absent and the Governor of the Africa Group II was not eligible to sit on the Board due to the suspension of Zaire's rights for default in payment. The rights of seven other Signatories were also suspended for nonpayment of capital expenses.

Subsequent meetings of the Board of Governors in Washington have been scheduled as follows: Eighth meeting, March 20-27; tenth meeting, July 10-17; eleventh meeting, September 4-11; twelfth meeting, October 16-23; and the thirteenth meeting in December 4-11. The May-June meeting will be held in Hawaii.

. . . and seventh.

At its seventh meeting held in Washington in late January, with 21 Governors representing 60 of the 84 Signatories present, the Board of Governors conducted the following business.

- Authorized a 21-month transponder allotment agreement for Hawaii traffic in lieu of the full two-year agreement approved by the Board in October resulting from an FCC approval for a 12-month period.
- Authorized TDMA field trials at an estimated cost to INTELSAT of $400,000 for Manager's support and authorized free use for the trials on a non-interference basis.
- Approved position descriptions and Mission/Function statements relative to the Executive Organ proposed by the Secretary General as revised.
- Approved the Secretary General's proposal for the staffing and grading of positions in the Employment of the staff of the Executive Organ and approved the terms and conditions for

employment of the staff of the Executive Organ (The Secretary General's outline of staffing levels and the grades for each position included a total staff of 106 persons, a grade structure ranging from 1 to 13, and a salary range from $5,400 to $37,000 (net of taxes).

- Agreed to report favorably to the Assembly of Parties on coordination of the U.S. Geostationary Operational Environmental Satellites, and will point out to the Assembly potential problems in coordination of specialized satellites with INTELSAT.
- Agreed to forward its view to the Assembly that the UN request for use of the space segment cannot be met.
- Requested of the Secretary General that he draw to the Assembly's attention the requirement that the Assembly confirm the Board's appointment of the Director General in time to enable him to assume office by 31 December 1976. The Board will accordingly consider his appointment during 1976.
- Agreed to proceed with plans for a late June launch of the INTELSAT IV (F-8) in order to allow the substitution of new batteries with the proviso that if any of the four currently operational INTELSAT IV satellites degrade to the extent service may be interrupted, the Manager will proceed to prepare the satellite for launch with the present battery configuration.
- Deferred approval on the 1974 INTELSAT R&D Program pending the definition of a new INTELSAT R&D policy at the Ninth Meeting of the Board in June. However, the Manager was authorized to continue the R&D effort on projects authorized for 1973 or earlier within the overall expenditure limits of $8,712,000, and to incur in-house expenses on new work up to $300,000.
- Noted that it would expect all Parties and Signatories to coordinate technically those experimental satellites which might interfere with INTELSAT, and that initially intended experimental facilities intended or planned for later date use in carrying operational commercial traffic must be coordinated with INTELSAT.
- Authorized the Manager to develop a draft contract for the use of INTELSAT TT&C facilities by Comsat General.
- Authorized the Manager to issue RFPs for two new monitoring stations in the INTELSAT IV-A Southeast and Southwest spot beam areas and for the equipment sets to upgrade the four existing stations and supply the two new ones.
- Took under review the proposed 1974 INTELSAT budget. The Governors expressed concerns over the estimated expenses of the Manager and budgetary control over expenditures. The Board requested the Manager to provide a broad estimate of departmental allocated expenses in 1974 on the hypothesis that the Manager's current responsibilities continue throughout 1974.
- Decided that Signatories would no longer be billed for operating, maintenance and administrative costs but would use revenues to meet these expenses.
- Adopted the recommendation that the 60-day payment period for Signatories be retained stipulating the period will be applied absolutely without exception. The First Meeting of Signatories had suggested further Board action with a view to extending or otherwise alleviating the problems for those Signatories encountering difficulies in effecting payment within that period. The Board's report on its decision to the next Meeting of Signatories will point out that the original payment period of 15 days had been extended to 21, then 25, then 30 and finally 60 days and that the establishment of a longer payment period would result in less accurate bills and necessitate maintenance of a larger reserve.
- Retained the CCITT rate structure for INTELSAT occasional rates other than for cable breaks and the current rates for use of the space segment to restore unanticipated interruptions in transoceanic communications.
- Gave initial approval to the Peking 2 (People's Republic of China) standard earth station for access to INTELSAT IV satellites.
- Approved three non-standard earth stations in Brazil for access to INTELSAT IV satellites.
- Approved a one-year extension of the assignment of a Spanish nominee to work on COMSAT's Laboratories staff subject to the terms and conditions of the Management Service Contract.

Lightweight foldout solar array developed

A unique, flexible foldout solar array measuring 5.5 feet wide and 33 feet long was recently delivered to COMSAT Laboratories for testing and demonstration under a $200,000 INTELSAT R&D contract to Aerospatiale of France and with the Societe Anonyme d'Telecommunications (SAT).

The array development was partially funded by the Centre National d'Etudes Spatiales (CNES), France.

The system uses a unique spring-actuated pantograph (scissor-linkage) deployment mechanism. The total array weighs only 81 pounds and has been vibration tested, thermal cycled in vacuum, and has gone through over 30 successful deployments. It is considered a significant step forward in the development of lightweight solar arrays. Its small storage volume is particularly suited to the requirements of synchronous communications space craft.

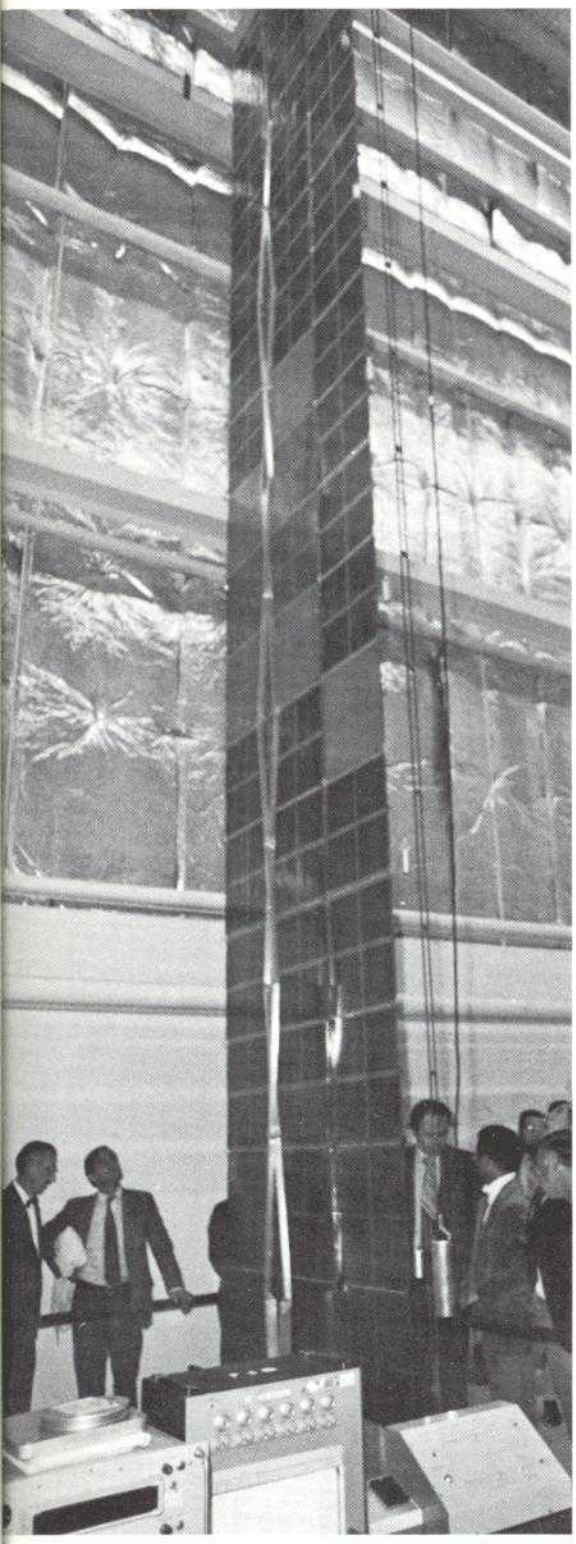
A very desirable feature of the new array is that the individual folds may be detached for pre-launch testing or repair work. The array blanket was developed by SAT with final fabrication by Aerospatiable, who also developed the storage box and pantograph.

This array is two to three times lighter than conventional rigid solar arrays because it uses a thin (2 mil) flexible KAPTON substrate, or skin, rather than a rigid aluminum honeycomb which might be 0.5 inch thick or more. The flexible foldout array can be stored in a much smaller volume than a rollout solar array.

The newly-developed array is planned for use on advanced communications satellites.

The original specifications for this contract were written by Joseph Haynos and W. J. Billerbeck at the Labs, while the final development was monitored by Billerbeck and Denis J. Curtin.

The project monitor from CNES was Dr. Wolfgang Palz. Main members of the Aerospatiale team were Gerard Barkats, project manager, M. Foucras, fabrication engineer, and Michel Calvy, testing engineer. From SAT, chief people were Jacques Roger and Jacques Fremy.



Officials from the National Aeronautics and Space Administration, the Naval Research Laboratory and other government agencies recently visited COMSAT Laboratories to witness a demonstration of the new flexible foldout solar array. The array is shown in its deployed mode.

COMSAT reports 1973 earnings

Communications Satellite Corporation reported earnings of $36,299,000, equal to $3.63 per share for 1973, compared with $24,967,000 or $2.50 per share for 1972.

Net income included the write-off of $979,000 (equal to five cents per share) in 1973 and $2,839,000 (equal to 15 cents per share) in 1972, of costs associated with domestic satellite services which the Federal Communications Commission (FCC) did not authorize the Corporation to pursue independently.

In releasing its 1973 results the Corporation pointed out that its rates for provision of services through the INTELSAT satellite system are currently being investigated by the FCC, and that, since a decision as to whether the rates are or have been excessive has not yet been rendered, reported results are subject to the effect, if any, of the outcome of the investigation.

Net operating income for 1973 totaled $29,424,000 on revenues of $119,291,000, compared with $21,428,000 on revenues of $105,965,000 for 1972. The higher revenues, which represented the major source of the increased net operating income, were entirely related to growth in the lease of full-time half-circuits by the Corporation's carrier customers. Leased half-circuits totaled 3,583 at December 31, 1973 compared with 2,971 at the end of 1972, an increase of 21 percent.

Other income, after provision for income taxes, amounted to $6,875,000 in 1973 compared with $3,539,000 in 1972. The increase was related primarily to higher interest earnings from temporary cash and other investments and a smaller write-off of domestic satellite service costs as previously discussed.

For the fourth quarter of 1973 net income totaled $11,244,000, (equal to $1.12 per share), including domestic system write-offs of $386,000 (two cents per share), compared with net income of $5,932,000 (or 59 cents per share) in the 1972 fourth quarter after similar write-offs of $2,839,000 (15 cents per share).

Net operating income for the fourth quarter of 1973 amounted to $9,180,000 on revenues of $32,642,000 compared with $6,222,000 on revenues of $28,200,000 in the similar 1972 period. Revenue increases for the quarter also were primarily attributable to growth in lease of full-time half-circuits. Other income, net of taxes, amounted to $2,064,000 for the 1973 fourth quarter, compared with a loss of $290,000 in the 1972 quarter, with higher interest income and a smaller write-off of domestic system costs accounting for the more favorable results.

Expenses for operation and maintenance and for depreciation and amortization both for the year and for the fourth quarter of 1973 were below those for 1972 counterpart periods, primarily because of a reduction in the Corporation's investment share in the INTELSAT system from 52.5 percent to 40.6 percent on February 12, 1973, coincident with and pursuant to entry into force of Definitive Arrangements for that organization.

Increased quarterly dividend declared

The Board of Directors of Communications Satellite Corporation, COMSAT, at its January meeting, increased the quarterly dividend from 17¢ per share to 20¢ per share. The dividend, COMSAT's 14th consecutive quarterly payment, is payable on March 11, 1974, to all holders of record of the Corporation's Common Stock as of the close of business on February 8, 1974.

A tour of the Canary Islands

By J. N. Pelton

[Following the Board of Governors meeting in the Canary Islands, Mr. Pelton wrote this historic and scenic article on the Islands.]

The Fifth Meeting of the Board of Governors, held at the San Felipe Hotel in Puerto de la Cruz on the Island of Tenerife was a success in every respect. C.T.N.E., the Intelsat Signatory from Spain, was the perfect host during this arduous seven day meeting, which was the first held overseas since the Definitive Arrangements came into force in February 1973.

The Canary Islands are seven in number and in descending order of size are known as Tenerife, Fuerteventura (only 60 miles from Africa), Gran Canaria, Lanzarote (the picturesque volcano island) La Palma, Gomera, and Hierro. These islands are located only 30° above the equator in the Canary current and thus have a mild tropical climate year round, even though we unfortunately had several days of rain on Tenerife.

Around 40 B.C., the Roman scholar, Pliny the Elder, named the islands Canarias after the Roman word for dogs when expeditions reported that large packs of wild canines roamed there. Going even further back, Mr. Terol Miller, Director of Internation Service for C.T.N.E. informed us that romantics believe the Canaries are the index finger pointing to the remains of Atlantis.

Despite the distraction of an olympic-size pool, tennis courts, nearby golf courses, Canary Island folk dancers, a beautiful view of the sea and the towering 12,200-foot El Teide, and a schedule arranged around a three-hour siesta from 1 to 4 p.m., the work of the meeting proceeded of necessity. In fact, the Agenda was one of the heaviest and most challenging ever for an overseas meeting.

After the first three days of the meeting and several trying sessions, the Board members and staff were more than willing to take off on a weekend excursion to the other Canary Islands. Particularly since a Thursday afternoon trip to the Canadas volcanic crater and to the base of Mount El Tiede had whetted everyone's appetite.

Saturday morning we took a SPANTAX DC-6 to the Gran Canaria Island where we toured the modern Las Palmas Earth Station facilities and with gritted teeth made an inspection of the BRACAN cablehead where a noisy rectifier made an appropriately unpleasant greeting for us. That afternoon we visited the booming hotel and apartment area called Maspalomas, which is undergoing rapid development. This visit was highlighted by a luncheon at the ultra-modern Oasis hotel, hosted by the Mayor of Maspalomas.

That evening we stayed overnight in Las Palmas, the capital of Gran Canaria, with rooms overlooking a beautiful beach lined with nightclubs and discotheques. The next morning we flew via SPANTAX to the island of Lanzarote, where grapes are grown in shallow wells lined with low stone walls to break the wind. Only the nightly dew captured by black volcanic ash provides the moisture for the vines on this virtually rainless island. Many of the buildings, in fact, have no roofs.

The truly remarkable part of the excursion was the trip to the volcanic national park of Lanzarote. Lava beds, craters, firestained rocks of green, red, brown, pink and black, geysers and burning hot ground provided a panoply of strange sights which most resembled photographs of the moon.

The highlight of the day was a camel ride up Mt. Fuego, with two people balanced, or in some cases, unbalanced one on each side of their steed. Later that afternoon we visited a huge underground grotto where blind crabs live in an underground pool 70 feet deep. There was also a pool, equipped with large turtles, available for swimming but none ventured in.

The departure to Tenerife late that evening was with some reluctance, since the long unfinished agenda awaited our return. Surprisingly, the meeting ended well Thursday evening —both a social and a business success. By Saturday morning, the shipping crates had been packed and labeled and the follow-up activities completed. The last of the Comsat personnel, with the final thank yous given, headed for Las Palmas and New York to start the final preparations for the First Meeting of Signatories.

Mr. Pelton is Manager, Board of Governors Affairs Department.

The festive, Christmas mood was not all inclusive as far as some COMSAT personnel were concerned. Here "Bart" Bartlett takes down COMSAT's Earth Station sign in Talkeetna as the Alaskan station transfers ownership to RCA Alascom.

Satellite exhibit for Houston space center

A contract to build a new COMSAT exhibit to be permanently installed at the Johnson Space Center in Houston, Texas, has been awarded to Exhibitor Displays, Inc., of Cincinnati, Ohio.

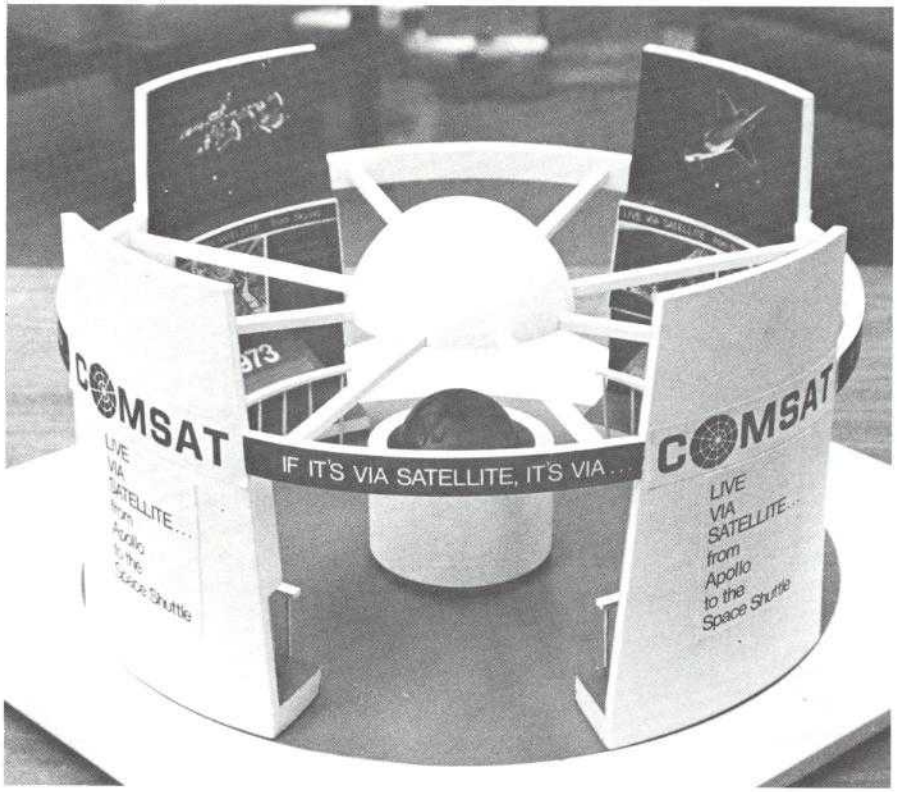
The exhibit, 21 feet in diameter and 12 feet high, will incorporate four upright units and a center piece, with murals, back-lighted transparencies and a rear-projection slide show which will imaginatively illustrate COMSAT's role in support of NASA's manned space flights.

The upright units will feature Apollo, Skylab and the upcoming U.S.-Soviet Union Apollo-Soyuz link-up, now scheduled for mid 1975. A fourth upright unit will focus on COMSAT's communications support of the lunar missions and data transmissions from Skylab.

The centerpiece will feature a 42 inch high walkaround, five feet in diameter, with the interior lined with laminated mirrored plexiglass. Within this area will be a 36-inch-diameter rotating globe showing the land masses and the ocean basins with INTELSAT IVs over each of the oceans in synchronous orbit. The earth stations around the world will be indicated by colored dots on the earth's surface.

The exhibit is expected to be completed sometime in late March and will be installed at the Johnson Space Center shortly thereafter. More than 800,000 people pass through the Houston Visitors Center annually and it is anticipated that the COMSAT exhibit will attract considerable attenmion.

COMSAT has donated other exhibits to the Boston Museum of Science and to the Kennedy Space Center, Cape Canaveral, Florida. Additionally, COMSAT has made available on an extended loan to the Smithsonian Institution, actual flight spacecraft of an Early Bird and an INTELSAT II, and a cut away engineering model of an INTELSAT III.



COMSAT exhibit for Houston Space Center

PHOTO BY ALLAN GALFUND

Scholarship award applications being reviewed

The Training and Education Office is currently in the process of reviewing Scholarship Award Applications for submission to the National Merit Scholarship Corporation (NMSC) Office.

The 1975 COMSAT Merit Scholarship Program, for scholarships to be awarded in the Spring of 1975, began last October with the administration by individual high schools of the 1973 Preliminary Scholastic Aptitude Test/National Merit Scholarship Qualifying Test (PSAT/NMSQT).

INTELSAT contract awards

To **Societe Nationale Industrielle, Aerospatiale,** Les Mureaux, France, a 14-month $112,000 contract for an engineering model of a high speed momentum wheel.

To **Fujitsu, Ltd.**, Tokyo, Japan, a 12-month, $99,130 contract for the development of a multipoint channel interrupt monitor system.

To **Laboratories de Marcoussis**, Marcoussis, France, a 16-month, $65,000 contract for a laboratory investigation of nickel-hydrogen cells.

Fallon appointed hospital director

William I. Fallon, Director, Laboratory Services Division, at COMSAT's Clarksburg facility, was recently appointed to the Board of Directors of Montgomery General Hospital in Olney, Maryland.

Mr. Fallon is a 1958 graduate of Villanova University in Pennsylvania, with a Bachelor's degree in Engineering, and a 1965 graduate of George Washington University, Washington, D.C., with a Master's in Engineering Administration.

Before joining COMSAT in 1966, he was employed with the Federal Aviation Administration. He became a Member of the Technical Staff (MTS) at COMSAT Laboratories in 1966, and was named Manager of Administrative Services in 1971. He assumed his present position as Director of Laboratory Services in January of 1973.

He is a member of the AIAA, The Society for Research Administrators, and the Association for Food Service Management.

Baby, it's cold . . . inside!

"Br-r-r it is cold in my office!" is heard frequently these days at Headquarters, the Labs and the Earth Stations. We are assured that the lower temperatures are healthier and contribute to increased productivity, but mainly we endure these conditions with reasonably stiff upper lips (to say nothing of fingers) because it is necessary to conserve energy.

Temperature control is only one facet of COMSAT's efforts to save energy. Lighting has been reduced in the corridors, storage areas and other unoccupied rooms. Electric power for stand-by and redundant equipment as well as such office equipment as copying machines and typewriters is turned off when they are not in use. Testing of infrequently used equipment has been stretched out.

Other measures for conserving energy include new procedures for arranging car pooling and increased emphasis on the use of public transportation. Also efforts are made to schedule and group motor vehicle transportation requirements. A start has been made toward replacing the motor vehicle fleet with smaller, more economical vehicles.

The Corporation is fully committed to the President's Energy Conservation Program. Much of our success will depend upon the full cooperation of all COMSAT employees.

—J. R. LOFTIS

Plaza parking facilities strained

A recent memorandum distributed by General Services urges COMSAT and COMSAT GENERAL employees to reconsider their parking requirements resulting from increased congestion in the parking areas.

According to J. Robert Loftis, Jr., Director of General Services, parking facilities provided COMSAT employees have become increasingly congested, placing a strain on the ability to provide parking for those needing it. Spaces reserved for use by only one employee compound the problem, Loftis said.

In the interest of providing the most equitable treatment for all employees, he pointed out, cooperation is requested in reducing the number of outstanding permits, particularly those for reserved spaces. Employees forming car pools or using other modes of public or private transportation should notify his office. Special arrangements can be made for the occasional use of private automobiles.

Loftis also reminded all employees that parking permits and reserved spaces are non-transferable and upon change of employee status cannot be passed on to other employees.

The day begins with early-morning conversation in the Laurel Station waiting room.

Next, depending on the weather, a brief and not crowded pause on the station platform as "the 7:20" arrives.

COMSATians commute the public way

PHOTO AND STORY BY J. T. MCKENNA

There are a number of alternatives to the automobile when planning your commuting, as Richard Hunt of Documentation and Procedures and Sylvia Walker of Traffic Analysis have found. Numerous suburbanites use the train as a comfortable, fast means of transportation.

The Laurel, Maryland, train station acts as a gathering point for more than 80 commuters who regularly relax aboard the 7:20 a.m. or 8:17 a.m. train to Union Station. The 18 mile ride takes only 20 minutes and costs less than 80¢ each way on a monthly ticket.

From Union Station there are alternate ways to L'Enfant Plaza besides the 25-minute walk, including the Metro system's midi-busses which run every ten minutes during rush hours. The ride takes 12 minutes.

Besides the Laurel train, there are other rail routes going west from Union Station to such cities as Silver Spring, Rockville and Gaithersburg. Information can be obtained from Personnel, Ext. 6055 or by calling the Baltimore and Ohio Railroad at 783-8108.

Then, there's the exchange of friendly "good mornings" as tickets are punched by a conductor who would look more at home on the stage.

The return begins as the commuters board one of Metro's midi-busses at the Plaza.

At Union Station they check to make sure the train schedule has not changed.

Story of a contract

Routinely, the COMSAT *News briefly reports in each issue those new contracts let since the previous issue. On the assumption that between the lines of a routine release there exists a story describing another technological advancement in the field of satellite communications, a contract was selected at random for a more definitive examination for presentation, in lay language, to its readership.* [Editor's Note.]

The Contract Momentum Wheel

To Societe Nationale Industrielle, Aerospatiale, Les Mureaux, France, a $112,000 contract to be completed in 14 months for the definition and testing of a high-speed momentum wheel suitable for use in an attitude control function on a body-stabilized synchronous orbit communications satellite.

The Engineer's Momentum Wheel

The nature of communications satellite technology is expected to change markedly as improved spacecraft pointing accuracy and higher power levels become necessary for some missions. These requirements can at some point be met only by a change in the fundamental nature of the spacecraft's attitude control system. Thus; we move from spin-stablilized spacecraft, such as INTELSAT IV, to body-stabilized spacecraft.

Body-stabilized spacecraft usually have deployable solar arrays and a more sophisticated attitude control system. There are a variety of possible control system concepts, each of which is claimed to benefit certain missions. Nearly all of the contending control systems use forces derived from a mechanical device, momentum wheel or reaction wheel, to counter disturbance upon the spacecraft, such as solar pressure.

The laws of mechanics require that these devices have a finite angular momentum capacity so that the necessary corrective control forces may be produced. Certain kinds of control systems use a relatively large angular momentum, provided by a momentum wheel, to resist the forces disturbing the attitude of the spacecraft.

These devices accomplish their function by using a rotating flywheel or rotor. They consist of a rotor, a motor, bearings and a housing. The shape and mass of the rotor and its speed of rotation determine the angular momentum capacity of a device. A particular magnitude of angular momentum can be produced by various combinations of rotor characteristics and speeds, but generally the higher the rotation speed the lighter the device. Momentum wheels usually operate at some nominal speed with modest variations about that value.

The ball bearings and their lubrication is usually considered the weak link in achieving momentum wheel lifetimes of five to ten years. Continuous operation at speeds around 5,000 rpm for such durations is a demanding requirement for bearings. Other elements of the device are either high-reliability components, e.g., the rotor, or elements in which component redundancy is possible, e.g., the motor. The approach at COMSAT Labs to achieving extended lifetime has been multifaceted. For near-term applications research into the use and lubrication of ball bearings, so that some of the marginally understood aspects can be resolved, is underway.

Somewhat more distant applications will profit by work on magnetic bearings. It is now possible to achieve fully noncontacting magnetic suspension of a rotor. Devices using this principle will more easily meet the longevity requirements as well as permit the high rotor speeds which lead to lighter weight. It is expected that the momentum wheel to be built by Aerospatiale will rely upon magnetic bearings and a rotor constructed from filament material to achieve operation at 24,000 rpm. —C. J. PENTLICKI

The Layman's Momentum Wheel

A momentum wheel is a flywheel, two forms of which are familiar to almost everyone. One of these is the toy gyroscope top that stays in whatever position it is placed in until the wheel inside runs down, and the other is the wheel inside a toy automobile that propels it for quite a distance once you set the wheel going.

A momentum wheel can be used in communications satellites for attitude control, or keeping them pointed in the right direction rather than slowly turning so the antennas no longer point where they should. Another type can be used to provide power during the times the satellites are in the Earth's shadow and the solar cells cannot function.

But a satellite momentum wheel needs to turn at speeds of around 5,000 revolutions per minute, and to keep this up for from five to ten years. This requires, among other things, a very reliable motor and an extraordinary set of bearings, especially out in space where oil changes every 3,000 miles are not very practical. One way of handling this is to suspend the axle between magnets so that it does not touch the bearings at all.

While the INTELSAT IV satellites are "span-stabilized" and do not use momentum wheels, future demands seem likely to require later satellites to be "body-stabilized," a type which will need them, and COMSAT Labs is investigating this possibility.

—E. BOLEN

Rate case discussions continue

Hearings in the COMSAT rate case at the Federal Communications Commission were suspended in November to explore the feasibility of settlement of some or all of the issues.

Such an exploration, undertaken at the suggestion of the Chief of the Commission's Common Carrier Bureau, is currently being pursued.

The hearings began in March of 1972 and continued through much of 1973, until December. These proceedings involve key issues, including the determination of an appropriate rate base and a fair rate of return for COMSAT. The Corporation's activities since its inception have been explored in great detail during these proceedings. Over 12,000 pages of verbatim transcript and about 250 exhibits have been accumulated in the record.

The Corporation has indicated its desire to terminate this proceeding if a fair and just settlement can be reached. It cannot be predicted at this time whether such a settlement is possible, or whether it will be necessary to resume the hearings and proceed to final decision in the usual manner. In the event negotiations produce an agreement of some of the parties, such an agreement would be subject to objections by other parties and any agreement reached would also require approval by the Commission. If settlement efforts are unsuccessful, the issues in the proceeding will be resolved initially by the administrative law judge presiding at the hearing, and ultimately by the Commission, subject to possible court review.

Whatever action is taken, the final outcome of this case will be a major factor in determining the Corporation's future earnings and economic well being.

Minority magazine communications award goes to COMSAT

COMSAT was among the less than a score of major U.S. companies and organizations to be given the Affirmative Action Creative Communications Award by *Equal Opportunity Magazine*.

The award was presented by Equal Opportunity Publications, Inc., to companies "judged to have the most creative and relevant recruiting communications program in three consecutive issues."

According to publishers John R. Miller and Alfred Duckett, the awards are to give recognition to those companies making meaningful commitments toward achieving equal opportunity employment and career advancement for college minority and women graduates through the print media.

New SPADE service available over Atlantic

A new digital demand-assigned communications satellite service (SPADE) is now in full-time commercial operation in the INTELSAT system for a number of countries in the Atlantic area for voice communications.

The SPADE system permits international long distance calls to be dialed up between countries utilizing a common pool of frequencies set aside in an INTELSAT IV Atlantic satellite on an as-needed or demand-assigned basis. INTELSAT charges its customers a per-minute rate for use of the system.

Earth stations offering this service commercially are located in Argentina, Brazil, Canada, France, Germany, Greece, Italy, Peru, United States and the Nordic countries of Denmark-Finland-Norway-Sweden. A number of other countries plan to place SPADE terminals into service this year.

Full-service postal operation at Plaza

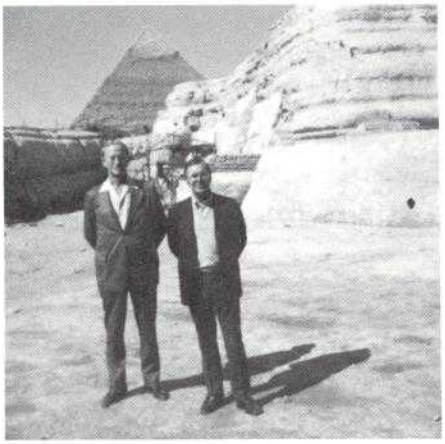
The U.S. Postal Service has opened a "full service" post office station at the west end of the pedestrian passage connecting the West Building with the L'Enfant Plaza shopping promenade. The entrance to the pedestrian passage is located between People's Drug Store and Sky Chef's Cafeteria. The station is open Monday through Friday from 8:30 a.m. until 5:00 p.m.

Van Slyke new corporate safety officer

Milton Van Slyke, recently of the Boeing Company in Houston, Texas, has joined COMSAT as Corporate Safety Officer replacing Joseph P. Fabian who joined another organization.

The new safety officer brings to COMSAT experience accumulated through more than 13 years of safety-oriented work starting as a quality assurance engineer and progressing through the positions of senior safety engineer and safety supervisor. Most of his career was spent with the Boeing Company in Seattle and Houston.

During the past six years, Van Slyke has provided safety engineering support to the Apollo, Skylab and Space Shuttle Programs at the Johnson Space Center in Texas. A native of Idaho, he earned his BS degree there and has since done advanced work in universities in Washington State and Houston. He is married and has two sons.



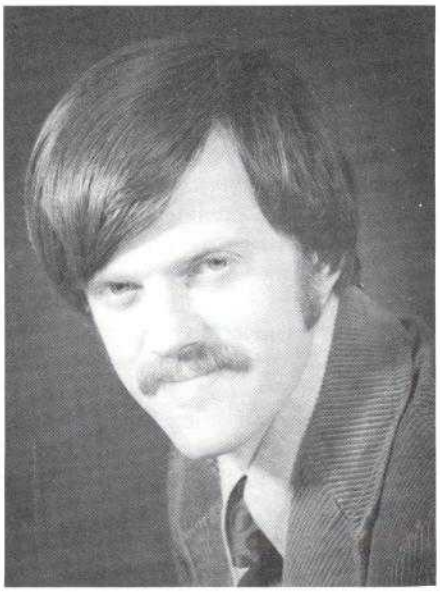
Senior Vice President George P. Sampson and Deputy Assistant Secretary of State for Transportation and Telecommunications Raymond J. Waldmann pause for a photo-taking session at the base of an ancient Egyptian sphinx during a recent trip to the Middle East. Proving that it's a small world, General Sampson reported finding a former Comsat associate, Wilbur L. Pritchard, formerly Vice President and Director of the Comsat Labs inside a centuries-old pyramid.

CEA ski club outing

Almost 100 ski enthusiasts joined the CEA Ski Club's first ski outing. Initially planning on one bus load, the group organizers were required to charter a second bus when twice as many as initially hoped for sought to attend.

Lift tickets and rental equipment were issued at Pennsylvania's Blue Knob Ski Resort—snow conditions were good, with the temperature around 32 degrees.

Ridings manages Labs' SPEC system



Robert P. Ridings has recently been designated a Member of the Technical Staff of the COMSAT Laboratories and Program Manager for the Speech Predictive Encoded Communications (SPEC) System.

Joining the Communications Processing Laboratory at the Labs in 1970, Ridings began work on the SPEC System as a senior technician, responsible for its design and fabrication. The system was recently successfully tested on a satellite link between Brewster Flats and the Paumalu Earth Stations.

While with COMSAT, Ridings has continued his education at George Washington University, recently receiving a BS Degree in Electrical Engineering.

Patent incentive awards presented to 13 at Labs

Thirteen engineers and scientists were presented patent incentive awards recently by Dr. B. I. Edelson, Director, COMSAT Laboratories.

Those receiving awards, with Patent titles, were James Allison and Joseph Lindmayer, "Method of Applying an Anti-reflective Coating to a Solar Cell;" Pier Bargellini, "New Optical Waveguide Structure;" Samuel Campanella, Michael Onufry, Jr., and Henri Suyderhoud, "Echo Canceller with Variable Threshold;" Robert Dendall and Akos Revesz, "Fabrication of Silicon Solar Cells with Anti-reflective Film;" Paul Fleming, "Planar Magic Tee;" Bernard Free, "Improved Type of Colloid Propulsion."

Otakar Horna, "Improved Analog-to-Digital Converter for Analog Signals with Nonlinear Amplitude Probability Distribution, Especially for TV Signals;" Joseph Lindmayer, "Surface Inversion Solar Cell and Method of Forming Same;" Chester Pentlicki, "Suppression of Bearing Retainer Instability for Magnetically Induced Eccentric Loading;" and George Welti, "Butler Matrix Transponder" and "Butler Matrix Transponder Improvement."

Recipients of Patent Incentive Awards at COMSAT Labs: seated, left to right, James Allison, Michael Onufry, Pier Bargellini and Samuel Campanella; standing, left to right, Robert Dendall, Bernard Free, Alan Kasper, Paul Fleming, Otakar Horna, Chester Pentlicki, George Welti and Dr. Edelson who made the presentations.

Podraczky moves to INTELSAT

Emeric Podraczky, former Director of the Systems Division, COMSAT Labs, was guest of honor at a farewell party sponsored by Labs personnel in recognition of his more than 10 years' service with Comsat. Podraczky has joined INTELSAT's Office of the Secretary General as Director, Technical/Operations.

An estimated 100 friends, past and future associates, the Secretary General, and members of the Technical Subcommittee of the Intelsat Board of Governors attended the affair held at the Naval Officers Club of the National Naval Medical Center in Bethesda, Md.

Mr. Podraczky was one of the small COMSAT group which had its beginning at "Tregaron," the former estate of the late Ambassador Joseph Davies. In his 10 years with COMSAT, he has contributed to many areas of satellite and earth station technology and was responsible for a number of design concepts in each series of satellites. He recently directed the INTELSAT V Systems Definition Study, an extensive investigation conducted during the past year into all aspects of the follow-on global system.

Emeric Podraczky says "goodbye" to former Comsat Labs associates.

Briskman named IEEE director

The Board of Directors of the Institute of the Electrical and Electronics Engineers (IEEE) recently announced the election of Robert D. Briskman as a Divisional Director.

Mr. Briskman, Program Manager, Domestic Systems for COMSAT GENERAL is the first COMSAT engineer to be so honored and will serve for two years.

An employee since 1963, he holds a B.S.E. degree from Princeton University and a M.S.E. in electrical engineering from the University of Maryland.

The IEEE is a transnational society, made up of over 165,000 electrical and electronics engineers, dedicated to improving the understanding of its engineering specialties and applying them to the needs of society.

Close to 350 employees and guests attended the annual Christmas dinner dance sponsored by the COMSAT Employee's Association and held in the grand ballroom of the new L'Enfant Plaza Hotel. Beginning with a prime rib dinner . . .

. . . the party-goers danced to the music of Barbara Herwood and her eight-piece Happiness band . . .

. . . and socialized with friends.

Clarence Holloman (right) of Administrative Services gives a 20-pound turkey to Finance Office's Richard Winkler. More than 5½ tons of turkey were distributed to COMSAT employees for Christmas Holiday dinners.

Fun For All Ages at COMSAT

. . . and, with youthful trust, placing their orders with Santa Claus.

. . . reaching for treasures . . .

COMSAT'S Annual Children's Christmas Party found the youngsters playing games . . .

People and Events

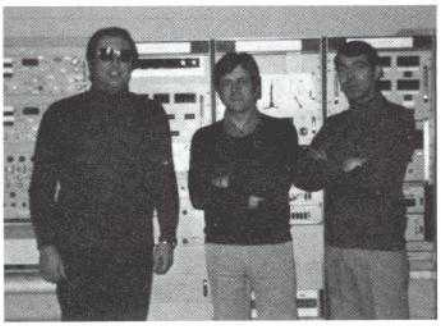
ETAM. Bill and **Betty Bell** served as host and hostess for the Etam COMSAT Employees Association Christmas party. A holiday motif set the environment for the party at the Bell home and a buffet contributed to a most enjoyable evening.

A children's Christmas party was held in the training room of the Etam site with cookies, punch and presents for all.

Two representatives from the Nigerian and Greek earth stations participated in the SPADE training course conducted by **Michael J. O'Hara**. The social part of the training program included being entertained at the Old Railroad Hotel in Rowlesburg, West Virginia, and a luncheon at the Howard Hotel attended by Ade Adebmipi and J. Lateju from Nigeria; Athanassios Bakas, Demetrios Attikis, George Constantinou and Frangiskos Voglatzi from Greece; **James Silvius** from the International System Division; **William Patterson** and **James Warren** from the Maintenance and Service Center; **William Carroll, Roger Parsons, Chester Randolph, Paul Helfgott** and **Michael O'Hara.**

—W. B. Carroll

FUCINO. Mauro Ciampaghini, an accomplished artist, had his first showing recently. It was conceded by everyone to be a huge success. TTC&M shift chief **Giuseppe Gaquinto** spent the Christmas holidays in the hospital following a bad fall on the ice on his way to work. Pictured below one of the four Fucino TTC&M shift teams stands in front of one of the INTELSAT IV consoles. Left to right are shift chief **Giancarlo Morretti** and technicians **Mauro Ciampaghini** and **Paolo Balduci.**



In Italy, there are more holidays during the Christmas Season than in the United States. But, just as in the U.S., the most important period is Christmas Eve at which time everyone opens presents and sits down to a seven-course dinner. Following dinner, the children go outside where, to the light of huge torches, they await the birth of the baby Jesus. The New Year is brought in with the sound of music and the opening of a bottle of Spumante. Children hoping for toys must be on their good behavior longer than in our country since "Befana" doesn't arrive until January 6. If the youngsters were good through the year she brings them toys. If they were bad, she brings them coal.

—Dorothy Riddle

JAMESBURG. A forty-hour Microwave Measurements Seminar was held at the station in January, conducted by Hewlett-Packard's Cliff Jones and entitled "Real World". Attending the seminar were **Richard Attwood** and **James Peasley** of Brewster, **Eddie Miyatake** and **Thomas Ota** of Paumalu, **Peter Hartwell** and **Marv Herzig** from the West Coast, **John Pate, Larry McKenna, Dennis Hill, George Furford, John Castorina** and **Charles Andersen** of the Jamesburg station.

The newest generation of Hewlett-Packard generators and link analyzers were used to perform power measurements demonstrating the correct and incorrect ways of utilizing the equipment. The subject of signal sampling was covered in depth, as well as power coupling and the limitations of directivity.

—W. E. Neu

THE LABS. Jeff Tucker, son of **Claudette Tucker,** has returned home from the George Washington University Hospital, and is doing well following an operation resulting from a fall. The Montgomery County Chamber of Commerce presented its BEAT Certificate (Business Energy Alert Team) to personnel of the Clarksburg Labs in recognition of their public-spirited efforts to conserve energy. **Bill Fallon** accepted the certificate for the group.

Congratulations are in order to **"Pep" Wurtzel** who recently became **Mrs. Rod Ruddiman;** to Personnel's **Joan Fink** on her engagement to Capt. Nelson Newhouse, a U.S.Air Force pilot; to **Brenda Lake** of Communications Processing on her engagement to Larry Hollar of Brownsville, Md.; and to **Susan Stein,** formerly RF Lab Secretary, and husband John on the addition of a new baby boy, Aaron Nathaniel, and to the **Ken Betaharon's** and their new son Seth.

Dan Fisher of Communications Processing returned from a recent business trip to South America with glowing reports of good food and a "Brazilian barbeque." He was also able to visit with former Labs coworker **Luis DeCosta** and his wife.

The defending shuffleboard team of **Paul Fleming** and **Bob Dendall** successfully defended their title during the annual tournament held in Mt. Airy. The Lucky Five bowling team won the first half of the Labs league. **Bob Redick** boasted high game with a 244 while **Terry Morgan** had high series with 589. The 15-week second half is now underway.

—Carol Louthan

THE PLAZA. PIO's **Steve Smoke** has returned to COMSAT having undergone what Steve referred to as "minor surgery." According to Steve, the recovery period, requiring inactivity on his part, presented the major problem.

Charles "Chuck" Hatcher, assistant manager for Office Services, has taken a new position with Federal National Mortgage Association after five years with COMSAT. Prior to joining COMSAT, Chuck had been employed by the McDonnell-Douglas Company.

Space buff appreciates satellites

By Dr. Paul A. Campbell
As told to John J. Peterson

Doctor Campbell has been following and participating in the exploration of space more years than most of us can remember. His interest to our readers is twofold: just as there are "buffs" on about any important event in history, he is truly a "space buff"; secondly, he is an American who has a real appreciation of the TV caption "Live via Satellite."

My interest in space really began somewhere around 1910 when, as a small boy, my father took me out one night to see Halley's Comet draped across the pre-dawn eastern heavens. It was a sight I was never to forget and one which filled me with a tremendous curiosity about space.

And, of course, my days as a boy were the days of the barnstorming pilots with their leather helmets and goggles and scarves whipping in the slipstream. My father never let me miss meeting these early pioneers of aviation if they were within reaching distance.

As the years went on, my interest in space never waned, and, upon completion of my post-graduate work in medicine at the University of Vienna, which, incidentally, I completed during the rise of Hitler, I returned to the United States. With a reserve commission and the desire to get into the field of aviation medicine, I went through the School of Aviation Medicine at Randolph Field, Texas, and later directed its Ear, Nose and Throat Department.

Having seen the end of World War II as the school's Director of Research, I was assigned to the American team that went to Germany to talk with and brief the German scientists interested in being returned to the United States. It wasn't a random selection. We pretty much knew whom we wanted. And I think it was in talking to these scientists that I really became brainwashed to some extent about the possibilities of space flight.

During the Korean conflict, I found myself again Director of Research at the School of Aviation Medicine which soon was to move to Brooks Air Force Base and become the School of Aerospace Medicine. My interests, however, were still space oriented, and my work continued with some of the German scientists and American test pilots such as Chuck Yeager and Scott Crossfield. I found my interests concentrating on how to get man to fly higher and faster and eventually into space.

Dr. and Mrs. Paul A. Campbell at the Johnson Space Center in Houston.

By 1950 there was not the slightest doubt in my mind that man was going into space in my lifetime. Not long afterward I was privileged to help make the selection of the first seven astronauts specializing in the area of weightlessness. Unfortunately, it wasn't long after this real commitment to manned exploration of space that I reached the mandatory retirement age. However, I was determined not to become just another retired Air Force Colonel.

It was during my travels overseas attending meetings of the scientific community in the areas of space medicine and air-sea rescue that I really came to value satellite communications. I don't believe my wife and I have missed being present for more than three or four of the space launches since they started. These included the early, pre-Mercury animal flights. Most of the time we were at the Manned Spacecraft Center at Houston. So it was rather important to us that, if my meetings required our being out of the country during mission times, we manage to follow the flights some way.

During the flight of Apollo 10, I was in Prague, Czecho-Slovakia, attending a meeting of COSPAR, the international basic science group of the world relative to space flight and which, at the time, was composed of approximately 36 nations. Fortunately, Astronaut Frank Borman was attending the meeting and served as narrator on Prague television. Again, I was fortunate to have a TV in my room, so, between live reporting via communications satellite and Frank Borman's narration it was almost like being at the Cape.

Later, in Amsterdam, Holland, the manager of the Hotel Krasnapolski, knowing I was a space buff, saw to it that I had a color TV in my room and was able to watch the splashdown of Apollo 10, live via satellite, and in color. I remember the splashdown because Apollo 10 was the first mis-

sion during which color television was possible and the landing was such a vivid and beautiful transmission. Of course, the reception in Europe was better than what we could see in the States for some technical reasons such as number of lines received or something, and the electronic interference is not as great as in our country.

The amazing thing, though, was that there seemed to be absolutely no gaps between the time the actual events were happening and I was seeing them. It was just as if I were in my own home back in Texas or watching a TV monitor at the Cape or in Houston. It was hard to believe that here I was, sitting in a hotel room in Amsterdam, watching live TV being literally bounced over two oceans by satellite, and it was as real in time as if I were sitting on the deck of the Navy Carrier in the Pacific Ocean. The hotel manager and his son, who was a space enthusiast, watched the splashdown with me, and the reaction of the young man was something to see.

During the second manned Skylab mission I happened to be in Vienna, Austria. I had been attending the meeting of the International Congress of Aviation and Space Medicine in Munich, Germany, and was scheduled to go on to the Soviet Union to attend a meeting of the International Astronautical Federation during which space rescue was to be discussed.

Since there was a 10-day gap between meetings, the wife and I decided to visit Vienna, which we try to do as often as we can. I happened to know one of the space telecasters, who was an Austrian doctor and an old friend, and with his help and that of the Sacher Hotel manager we were able to get a TV set. Again, we were getting live, color pictures via satellite which were beautiful. And, although the narration was in German, it came at exactly the right places.

I had been made a member of the International Academy of Astronautics in Paris and had been active in promoting an internationally oriented advanced space rescue study group made up of nations involved in or interested in space programs. I had always felt that the great gap existing in space flight was the lack of the space rescue capability and I wanted to get the interested parties together to discuss the possibility of performing space rescue or to aid in performing such a rescue.

Incidentally, as a result of a final Space Rescue Symposium held in the Soviet Union at Baku on the Caspian Sea, the sixth and final volume dealing with space rescue is being written by the Soviets, who had strong participation in the meeting, and it will be published in the Soviet Union. We had written and published the previous five volumes.

If I had to point to something of which I am extremely proud, it would be my book, *Earth Man—Space Man—Universal Man?* Not just so much because I wrote it as because, although it predated the Apollo Program, it is still about 95 percent correct. And it has a lot of history in it. I had belonged to the Jules Verne Society of France and had spent a good deal of my time researching his material which dealt with manned flight to the moon. When Apollo came along it was as if the American flight to the moon was almost a one-hundred-year mirror reflection of Jules Verne's book. I have edited and contributed to many books and encyclopedias dealing with the medical aspects of the radiation of space and dealing generally with aviation medicine and space flight, but I think the opportunity to produce *Earth Man—Space Man—Universal Man?* was probably the highlight of my literary career.

I certainly can't conclude my story without a word of appreciation for my strong right arm, my wife Eleanor. While I'm usually attending meetings and gatherings, soaking up intellectual discussions and wisdom, she's busy doing all the leg work: collecting material, taking notes, getting me on and off the right airplanes, and so on. What I do requires teamwork and she's more than half of the team.

Although I have never been accused of lack of imagination I still find myself viewing the caption **Via Satellite** in utter disbelief. When I realize that almost all of the development of wireless-type electronic communication has taken place during my lifetime I recognize that I have lived through and to some extent have participated in quite an era.

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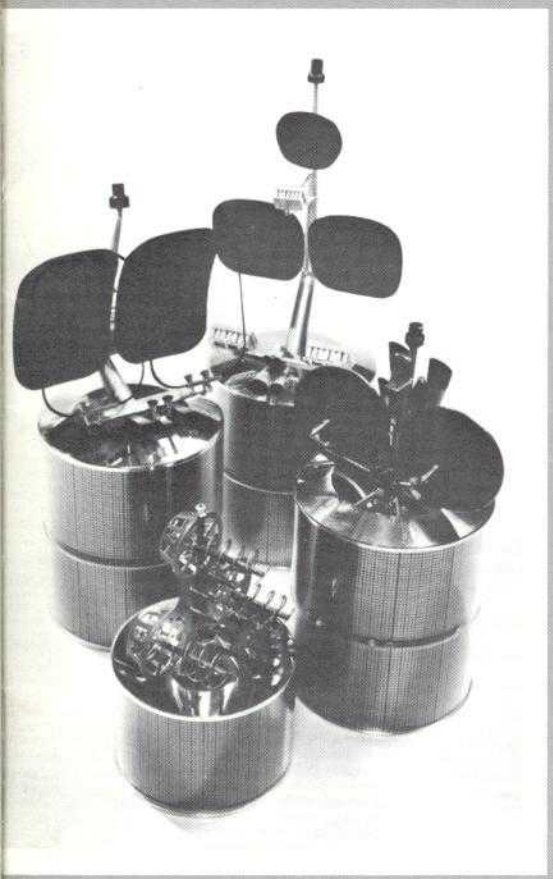

Late COMSAT News

FCC gives go-ahead on MARISAT System facilities

Construction is proceeding on COMSAT General Corporation earth station facilities at Southbury, Connecticut and Santa Paula, California under a $6.3 million contract with Philco-Ford Corporation.

One important regulatory matter was cleared up in late March when the Federal Communications Commission granted a waiver, permitting construction of an antenna and associated electronic equipment at each site for the MARISAT System to serve the U.S. Navy and commercial shipping interests.

Work on the stations had started under an earlier FCC authorization for other antennas at each site which are to provide tracking, telemetry, command, and communications monitoring for the COMSAT General satellites to be used for domestic communications, as well as to provide backup capability for the MARISAT System. The previous issue of COMSAT News reported on the contract award to Philco-Ford for the domestic program facilities, with an option for the MARISAT System facilities. The March waiver from the FCC gives contractors a go-ahead to construct the MARISAT System facilities also.

In a subsequent action in mid-April, the FCC ruled on pending matters relating to arrangements for the joint MARISAT venture in which COMSAT General holds an interest of approximately 80 percent. The remaining interest of approximately 20 percent is owned by RCA Global Communications, ITT World Communications and Western Union International.

The Commission cleared the way for the organization of the consortium by establishing policy guidelines on how capacity in the system is to be allocated among the joint owners, voting arrangements in the consortium, and other matters.

The joint owners were directed to resume negotiations among themselves looking toward a consortium business agreement, and to submit in due time service offerings and proposed tariffs.

Dr. Loutit succumbs to heart attack

Dr. John A. Loutit died of a heart attack in Lisbon, Portugal on April 10. He joined COMSAT in 1965 and was the Senior Technical Advisor in the Technical Services Division of COMSAT General. Dr Loutit was interred in the Parklawn Memorial Park in Rockville.

COMSAT to sell its interest in Cayey Earth Station

COMSAT has signed an agreement to transfer its 50 percent interest in the Cayey, Puerto Rico earth station to All America Cables and Radio, Inc. (AAC&R), a subsidiary of American Cable & Radio Corporation.

AAC&R, the long lines carrier for Puerto Rico telecommunications, proposes to modify the station and to carry traffic between Puerto Rico and the U.S. mainland via a domestic satellite system, pursuant to FCC domestic satellite policies. Traffic between Puerto Rico and the U.S. Mainland presently is carried via an Intelsat IV Atlantic satellite. Subject to the receipt of all required approvals, the sale of COMSAT's interest will take place on the date traffic from Puerto Rico to the U.S. mainland is transferred to a domestic communications satellite system. This is expected to occur after the end of this year.

The purchase price of COMSAT's 50 percent interest in the Cayey station would be the net book value of COMSAT's interest at the time of sale. As of March 31, 1974 this was about $2,274,000.

In 1973 COMSAT derived gross revenues of $8,898,000, or about 7.5 percent of its 1973 operating revenues, from traffic between the U.S. mainland and both Puerto Rico and other Caribbean points beyond Puerto Rico via the Cayey earth station. The effect on net income of the loss of the Puerto Rico traffic route, would be mitigated by the decrease in operating expenses, including depreciation and taxes, and by other factors that would follow.

AT&T and GSAT propose joint use of COMSAT General satellites

American Telephone and Telegraph Company and GTE Satellite Corporation (GSAT), a subsidiary of General Telephone and Electronics Corporation, have proposed to use jointly the high-capacity satellites which COMSAT General will operate for domestic satellite communications.

COMSAT General has a long-term lease agreement with AT&T under which COMSAT General will own, operate, and provide the entire capacity of three in-orbit satellites to AT&T for domestic service.

GSAT previously had proposed to lease capacity on separate domestic satellites which were to have been furnished and operated by Hughes Aircraft Company.

However, in submissions to the FCC in mid-April, AT&T and GSAT announced plans to combine the separate facilities they had proposed earlier and to operate a single integrated system. The two companies said the proposed system, using the COMSAT General satellites, would result in substantial savings by consolidating satellite requirements and by eliminating the construction of three earth stations. If approved by the FCC, AT&T would own four communications earth stations and withdraw an application for a fifth station. GSAT would own three stations and withdraw applications for two others. The two companies estimated savings of approximately $22 million a year under the proposed joint system.

COMSAT General's lease agreement with AT&T and its potential revenues from this program would not be altered by the addition of GSAT as a user of the capacity in the domestic satellites COMSAT General is providing.

Each of the COMSAT General satellites, now under construction, will have a capacity for approximately 14,400 two-way, high-quality voice circuits, and a design lifetime of seven years. The first spacecraft is scheduled for launch in late 1975.

News in Brief

Satellites to carry World Soccer Games

The World Soccer Matches to be played in Germany promise to be a major satellite television event.

International System Division restructured

Three major organizational elements form basic structure of realigned International Systems Division.

Signatories meet in Acupulco

Nunez of Mexico, elected Chairman, and Terol of Spain, Deputy Chairman; meeting sets minimum investment shares.

New data service for Hawaii

DIGISAT, a new medium-speed digital data service, currently providing service to Hawaii for international common carriers, expected to be expanded to European points.

Microfilmed files conserve space

Long-term storage program to preserve essential files and conserve space based on microfilm process.

Board of Governors elects new officers

Venezuela's Alegrett and U.K.'s Geddes elected chairman and vice chairman of Board of Governors.

Credit Union officials voice 1974 optimism

Shareholders at the seventh and most heavily attended meeting in CU history hear officials express optimism for current year.

AIAA volumes locally authored and edited

Forty-two COMSAT/INTELSAT authored papers edited by Labs' Bargellini make up two recent volumes of AIAA's "Progress Series".

Finance asst. VP takes new job

Joseph L. Mahran, assistant vice president for Finance departs COMSAT to join National Medical Care, Inc.

Fifth U.S. delivery by acupuncture

Elaine Gabrielle, daughter of INTELSAT Management Affairs Department's Joe N. Pelton and wife Eloise, becomes fifth caesarian-acupuncture delivery in U.S.

Heavyweight bout spans three oceans

Foreman-Norton world championship fight lasts five minutes but spans three oceans.

Operations Representatives meet in Washington

Operations Representatives of Pacific and Indian Ocean Regions meet to review plans for 1975-1976 time frame.

Cover

A family portrait of models of spacecraft which appeared in the 1973 Annual Report. The photograph of spacecraft either in commercial service or under construction shows (clockwise from extreme left) COMSAT GENERAL's domestic satellite, an INTELSAT IV-A, an INTELSAT IV and COMSAT GENERAL's MARISAT.

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World Cup soccer matches to be carried by satellite

The World Cup Soccer Tournament to be played in Germany June 13 through July 7, promises to be the major satellite television event. Demand for bookings already indicates that this year's matches will generate even more satellite television usage than did those played in Mexico in 1970.

The 491 half-channel hours of satellite TV of that tournament set a record for the greatest amount of satellite TV coverage of a single series of events until that time. (The 1972 Olympic Games in Munich set a new record—1,023 half-channel hours.)

Teams participating in this year's World Cup games will represent the countries of Argentina, Australia, Brazil, Bulgaria, Chile, East Germany, Germany, Haiti, Holland, Italy, Poland, Scotland, Sweden, Uruguay, Yugoslavia and Zaire.

Match games will be played in the German cities of Berlin, Dortmund, Dusseldorf, Frankfort, Gelsenkirchen, Hamburg, Hanover, Munich and Stuttgart, with as many as four games played in a single day.

Coverage of the games will be distributed in the United States by the New York-based Spanish International Network which will receive its signals via the Atlantic Ocean INTELSAT IV satellite. The Raisting, Germany, earth station will transmit the major portion of the coverage. The COMSAT earth stations at Etam, West Virginia, and Andover, Maine, will receive those segments designated for closed-circuit viewing in the United States.

With South American interest in the games extremely high, EMBRATEL of Brazil has negotiated with COMSAT GENERAL for the placement of three non-standard antennas to provide transmission and reception in Brazilian states presently lacking interconnection facilities.

According to Philip Caughran of COMSAT GENERAL's Technical Services, one of the 33-foot-diameter antennas will be placed at the Tangua earth station site near Rio de Janeiro, to transmit the games via the major path Atlantic INTELSAT IV to two antennas located at Cuiaba and Manaus, capitals of the Brazilian States of Mato Grosso and Amazonas.

Although match games will not be played every day, most games are to be played on Tuesdays, Wednesdays and weekends. Provisions are being made to feed simultaneously-played games to both Atlantic INTELSAT IV satellites to insure adequate coverage of all the games.

According to Lawrence Covert of COMSAT Operations, more than 160 hours of transmit time have been booked to date out of Raisting with the majority scheduled for multi-destination reception. More than 430 half-channel receive hours have already been booked; Covert points out, however, that these are early figures with a substantial increase expected.

In addition to Mexico, Brazil and the United States, the countries of Israel, Zaire and France (with retransmissions to Martinique) have scheduled receive time.

COMSAT offers new economical data service

COMSAT has filed proposed rates with the Federal Communications Commission for a new medium-speed digital data satellite service called DIGISAT.

The new data service, initially for service between the United States mainland and Hawaii, will make available digital data channels at speeds of 2,400, 4,800, and 9,600 bits per second.

The proposed monthly rate for a digital data satellite circuit between the United States mainland and the Hawaiian earth station will be $2,700 for 2.4 kb/s (kilobits per second), $3,100 for 4.8 kb/s, and $3,900 for 9.6 kb/s. The rates are for service by COMSAT to its international common carrier customers.

In addition to the medium speed rates, the Corporation filed for a high-speed 50 kb/s digital data monthly half-channel rate of $5,150 between the mainland and Hawaii. Although COMSAT currently offers 50 kb/s service for end users with high-speed data requirements, the channels offered under this new rate may be subdivided by an international carrier into a number of lower speed channels to meet end user requirements.

With the introduction of DIGISAT, COMSAT has available a wide range of digital data services from 2.4 kb/s to 50 kb/s, offering the international carriers considerable flexibility in leasing satellite digital data channels to meet the needs of a variety of end users.

Expansion of DIGISAT to European points is expected later this year after completion of tests between the U.S. and several European countries.

International Systems Division restructuring announced by Dr. Charyk

The International Systems Division directed by Senior Vice President George P. Sampson has been restructured into three major organizational elements in compliance with a March directive issued by COMSAT President Joseph V. Charyk.

According to Dr. Charyk, the organizational changes were made to separate and define more clearly COMSAT's responsibilities as Manager of the INTELSAT System and as the United States Signatory, and to strengthen INTELSAT System Program Management.

Each of the three major organizational elements will be directed by an assistant vice president: AVP H. W. Wood, International System Operations; AVP D. V. Neill, INTELSAT Systems, Technical; and AVP L. C. Meyer, Administrative Services.

With the issuance of the reorganizational memorandum, the functions of the Systems Engineering Directorate and the Management Support Directorate were incorporated into the new organizational elements of ISD and these former organizational units abolished.

A follow-on memorandum issued by General Sampson detailed the functions and responsibilities of each of the offices of the Division.

Mr. Wood, AVP for International System Operations, will continue his responsibilities as the Manager's representative to INTELSAT for operation of the INTELSAT system under the Management Services Contract, and in the INTELSAT system.

Reporting to Mr. Wood will be S. Browne, Director of INTELSAT System Management; R. C. Barthle, Director of U.S. Systems Management; W. Temple, Director of Analysis and Traffic; and G. Lawler, Director of the new Services Development Directorate. The Service Bureau, with D. James as Manager, has been transferred to the Services Development Directorate and will report to Mr. Lawler. In addition, the INTELSAT Operations Center with L. W. Covert as Manager will report directly to Mr. Wood. The Documentation and Procedures Department of the former Management Support Division has been transferred to U.S. Systems Management and will report to Dr. Barthle.

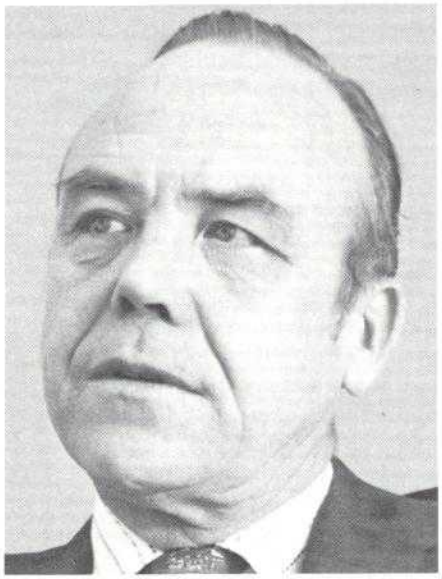
Mr. D. V. Neill, AVP for INTELSAT Systems, Technical, will continue his current responsibilities for INTELSAT satellite control and operations as performed by the Satellite Technical Control Center and, in addition, will establish an INTELSAT Satellite Program Office with M. L. Rosenbluth as Program Manager, and an Earth Segment Program Office with W. L. Miller as Program Manager.

The INTELSAT Satellite Program Office will be responsible for the management of current and future INTELSAT satellite programs and will establish a Satellite Project Office and, in addition, a Communications Requirements Office with J. Dicks promoted to position of Director of that office.

George P. Sampson

H. W. Wood

D. V. Neill



L. C. Meyer

The Earth Segment Program Office will be responsible for management and control of major earth station programs in the INTELSAT system.

Mr. W. Brauer, Manager of the Spacecraft Technical Control Center, will continue to report directly to Mr. Neill. The TT&C Support Department has been consolidated as a TTC&M Support Department under Mr. Neill, with H. Hanson as Manager. The direct SSMG operational support of the TOCC's will be the responsibility of the Operations Department under W. Lee of the INTELSAT Systems Management Directorate.

This new TTC&M department will be responsible for operation of the four TTC&M stations and for the ISD staff at the Fucino Earth Station. In addition, a Program Control Office will report directly to Mr. Neill to provide management review of those programs for which the Assistant Vice President for INTELSAT Systems, Technical, will be responsible.

Mr. Meyer, AVP for Administrative Services, will continue his current responsibilities and will be responsible for all procurement actions and contract administration for COMSAT functions including INTELSAT satellites, exclusive of COMSAT GENERAL. As defined in Dr. Charyk's announcement, Mr. Meyer will also be responsible for all launch services agreements with NASA. Reporting to Mr. Meyer will be the Director of Procurement, J. Heck, and the General Services Directorate.

Board of Governors concludes eighth meeting

BY JOE N. PELTON

The Eighth Meeting of the INTELSAT Board of Governors was held March 19—27 in Washington with 21 Governors representing 60 of the 85 Signatories present. Highlights of the Meeting follow.

Organizational Matters

- The Board unanimously elected José L. Alegrett Chairman, and William Geddes, Vice Chairman, with one-year terms beginning March 27, 1974.
- Approved the transfer of some or all of the financial, information, and administrative functions to the Executive Organ on May 1, based upon the Secretary General's judgment as to whether he had sufficient staffing, etc. to assume these duties.

Advisory Committees and Operations Representatives

- Decided to continue the Advisory Committees on Planning and on Technical Matters under their current provisional terms of reference. The current officers were reappointed: BG/T Chairman, Mr. Quaglione of Italy; Vice-Chairman, Mr. Withers of the U.K.; BG/PC Chairman, Mr. Gosewinckel of Australia; Vice-Chairman, Mr. Doran-Veevers of Canada.
- Decided not to continue the Advisory Committee on Contracting and Patent and Data Matters, as the Committee had completed the major tasks assigned to it.
- Deactivated the Advisory Committee on Finance, and accordingly took no action on new officers for that Committee, pending a clarification of the future role of such a Committee and its relationship to the INTELSAT Executive Organ.
- Continued the Operations Representatives under existing terms of reference until they and the Secretary General have provided comments to the Board on the new terms of reference drafted for them by the Manager.

INTELSAT Headquarters

- Approved a revised floor plan submitted by the Manager and authorized the issuance of the change orders required to implement the revisions, at an approximate cost of $113,000.
- Assigned the task of completing negotiations on the Headquarters Agreement to the Secretary General (and dissolved the Special Committee rather than appointing new members).

Assembly of Parties Report

- Authorized the Secretary General to begin discussions with the ITU, to prepare a draft agreement establishing formal relations between the two organizations. This draft will be reviewed by the Board at a future meeting.
- Authorized the Secretary General to request IMCO to place the matter of a formal INTELSAT-IMCO relationship on the Agenda of the May 1974 IMCO Council Meeting and approved a draft agreement suggested by the Secretary General.
- Noted that the Secretary General would present a document on relations with ICAO to a subsequent Board meeting.
- Approved the reservation of two circuits for emergency U.N. use, subject to occasional use charges and as an exceptional circumstance.

INTELSAT IV-A and V

- After extensive debate the Board reached the following conclusions: The draft INTELSAT V REP as presently developed should be further reviewed in several areas by the Manager and the Advisory Committee on Technical Matters to seek a specification better suited to meeting INTELSAT service requirements.

Furthermore, the Manager was requested to prepare a single document for distribution at an early date which summarizes all the available alternatives concerning the INTELSAT V and the INTELSAT IV-A programs, including the possibility of utilizing a split primary mode of operations with or without an intersatellite link. This report is to include a time schedule for the specific periods 1975—1978, 1978—1980, and beyond 1980.

Mr. Pelton is Manager, INTELSAT Management Affairs Department

Technical and Operational

• Approved the Manager's recommendation that it be authorized to direct Hughes to replace the batteries in the INTELSAT IV (F-6) with new INTELSAT IV-A type batteries at no cost to INTELSAT. The batteries in the INTELSAT IV-A (F-8) will also be replaced with INTELSAT IV-A type batteries at their manufacturing cost of $145,000.

• Decided to make available to Brazil, within specified guidelines, the capacity in a global beam transponder of the Atlantic INTELSAT IV major path satellite to meet the domestic telecommunications requirements of Brazil.

• Asked the Secretary General in coordination with the Manager to respond to a request from the Telecommunications Department of Malaysia for the possible lease of an INTELSAT IV transponder for domestic telephony and television between East and West Malaysia, operational before the end of 1975 at the latest.

• Granted initial approval to the Trou-Biran (France) standard station in French Guiana for access to INTELSAT IV satellites. Formal approval was granted to the Leuk (Switzerland) and Taipei 2 (Republic of China) standard stations. A nonstandard station in Haiti received approval to receive television signals in June—July 1974 in connection with the World Cup Soccer Games.

Financial and Legal

• Accepted a flat fee billing of $100,000 per launch for providing TT&C launch support services to COMSAT GENERAL utilizing INTELSAT TT&C facilities in Italy, Australia and the U.S.

• Approved an interim charge for the audio channel associated with the half-transponder lease of Spain and Mexico for television service in the Atlantic primary INTELSAT IV satellite, on the understanding that the Manager and the Secretary General would propose a definitive charge at the next regular meeting of the Board of Governors.

• The Board agreed that domestic traffic carried on the transponders leased by Algeria and Brazil could qualify as international traffic subject to the provisions of Article III (B) (ii) of the INTELSAT Agreement instead of domestic traffic, and accordingly made appropriate recommendations to the Meeting of Signatories.

The Manager presented a statistical analysis by country and firm of the response rate to INTELSAT RFPs, as had been suggested by the Advisory Committee on Contracting and Patent and Data Matters. The results show the response rates vary from the U.S. high of 6.7% to zero. The Board requested the Manager to ask each Signatory to review the list with a view to listing only firms likely to propose, and to eliminating firms which have consistently not submitted proposals.

Meeting Date

The next meeting of the Board will be held from 29 May to 5 June 1974 in Hawaii, at the invitation of the U.S. Signatory.

Allegrett and Geddes elected by Board of Governors

William G. Geddes

Jose Alegrett

The Board of Governors of INTELSAT has elected Jose Alegrett of Venezuela as Chairman and William G. Geddes of the United Kingdom as Vice Chairman for one year terms beginning March 27.

Mr. Alegrett succeeds Mr. Ernst Eliasen of Canada and Mr. Geddes succeeds Mr. Alegrett.

The Board of Governors is the policy making body for the 85-nation International Telecommunications Satellite Organization (INTELSAT) which owns the global commercial communications satellite system.

Mr. Alegrett has been a member of the Board of Governors and its predecessor, the Interim Communications Satellite Committee (ICSC) since 1966, representing Venezuela, Colombia and Chile. He also represented Venezuela during the negotiation of the INTELSAT definitive Agreements in 1969, 1970 and 1971. He is a counselor at the Venezuelan Embassy in Washington.

Mr. Geddes is head of the Satellite Communications Division of the British Post Office. He has been representing the U.K. and Ireland on the Board of Governors and the ICSC in various capacities since 1967.

United Way Creativity award presented COMSAT

PHOTO BY ALLAN GALFUND

Pat Irby and DeDe Runfola, left to right, producers of the 1973 variety show sponsored by COMSAT employees on behalf of the United Way Campaign, pose with the Creativity Award presented COMSAT in recognition of its efforts in promoting the annual drive. COMSAT exceeded its assigned goal, raising $32,142.14, its most successful drive yet, according to Lou Early, Campaign Chairman.

COMSAT reports first quarter earnings

COMSAT has reported consolidated net income of $10,891,000 for the first quarter of 1974, equal to $1.09 per share, compared to $7,066,000 or 71 cents per share for 1973's first quarter.

The Board of Directors of COMSAT, at its monthly meeting also declared a quarterly dividend of 20 cents per share, payable on June 10, 1974 to all shareholders of record as of the close of business on May 10, 1974. This is COMSAT's 15th consecutive quarterly dividend, and the second at the rate of 20 cents per share.

Annual Shareholders Meeting Set for May 14

Twelve directors presently serving on the COMSAT Board will be candidates for re-election this year at the Annual Meeting of Shareholders to be held in The American Theater at L'Enfant Plaza on Tuesday, May 14.

The COMSAT Annual Report to Shareholders for 1973 was mailed to shareholders in mid-March. The Notice of Meeting, Proxy Statement, and Proxy were mailed to shareholders the first part of April. Copies of 1973 Annual Report are available to employees at the Information Office, fourth floor Plaza; proxy materials can be obtained from the Office of the Secretary, seventh floor Plaza.

The business of the Annual Meeting, May 14, which starts at 2:30 p.m., will include election of 12 directors by holders of Series I and Series II shares, appointment of independent public accountants, and action by shareholders on proposed amendments to the Corporation's retirement plan. No shareholder proposals are listed this year in the proxy materials. A total of 75 shareholders attended the Annual Meeting last year.

In alphabetical order, the nominees for re-election as directors this year are:

Philip W. Buchen, Joseph V. Charyk (President), Gordon Edwards, William W. Hagerty, John D. Harper, George L. Killion, Joseph H. McConnell (Chairman of the Board), Rudolph A. Peterson, John B. M. Place, Bruce G. Sundlun, Leo D. Welch and William L. Zimmer, III.

Three other directors on the COMSAT Board are appointed by the President, subject to confirmation by the U.S. Senate. Frederic G. Donner and George Meany presently serve as presential appointees. As of mid-April, there was one vacancy among the presidential appointees.

Microfilmed Files conserve space and equipment

As the result of the considerable increase in the volume of records and the demand for needed filing equipment, the Department of General Services has established a long-term storage program based on the use of microfilm.

According to Mr. L. C. Meyer, Assistant Vice President for Administrative Services, a program has been started to identify and microfilm documents instrumental to the survival of the Corporation. Entitled "Vital Records," the program requires the cooperation of employees throughout COMSAT in identifying specific records that would, by their destruction by fire, water damage or other catastrophe, seriously impair or possibly wipe out the Corporation's ability to continue.

Mr. Meyer pointed out that more than 40 percent of the companies suffering severe loss of vital records fail to survive, consequently, the identification, retention and safeguarding of such records and documents is of critical concern to a company's capability to function.

The effort to revitalize the Corporate Records Program has been an ongoing program for the past three years, said Eugene P. McCarthy, Corporate Records Administrator. "As organizational changes occurred," stated McCarthy, "new records stations have been set up to more closely service specific functions within the Corporation."

He made the point that these central record stations are not intended to serve as storage areas for files but as facilities for the coding and filing of related subject matter, the elimination of duplication, and the processing for incorporation into a corporate central repository.

A Corporate Records Manual, covering the records program and filing system, has been updated to keep up with Corporate progress. A corporate-wide Records Retention List, setting time limits for retaining documents in offices and central storage, has been approved and issued. Retention dates are established by vice presidents concerned. The Records Manuals are available through the Record Stations. These are considered essential to the process, allowing office secretaries, the key factors in making the system work, to make the determination as to the forwarding of files to the appropriate Record Station.

Joan Brereton, archive technician (left) and Judy Geary, uniform file technician, log in reels of microfilm replacing the upright record cabinets shown above. The microfilmed files will reduce considerably the amount of floor space required for the storage of Comsat records.

Encouraging administrative personnel to maintain constant review of local files is the requirement that the request for additional filing equipment must be preceded by an examination of the requestor's compliance with the Corporate Records Retention List prior to the purchase of any additional equipment.

Once forwarded to the Central Repository, the material is filed and subjected to constant scrutiny to insure its retention or disposal as determined by its usefulness to COMSAT and the legal requirements for retention. Corporate sensitive records to be destroyed are packaged for supervised destruction. If considered of archival value, they will be sent to the Archive Center for review and possible reduction to microfilm.

The microfilming process permits the reduction of bulky, long-term storage files to a fraction of their original size. For example, a permanent segment of COMSAT records was reduced from 170 cubic feet of storage space to three cubic feet as the result of the microfilm process.

Marie Hixon of the Credit Union Office registers incoming members.

Credit Union holds seventh Annual Shareholders Meeting

Largest turnout in history at CU's Annual Meeting

Business of the Credit Union's seventh Annual Shareholder's meeting was conducted before a standing-room-only gathering of its membership on March 27, the largest turnout of shareholders in the Credit Union's history.

The unexpected turnout of members caused a delay in getting the business of the meeting underway at the appointed 5:30 p.m. starting time, to which schedule the Officers conscientiously attempt to adhere. However, the line of members waiting to register at the entrance to the eighth floor auditorium prevented President James Kilcoyne's gaveling the meeting "open" until registration could be completed and additional chairs brought in for attendees lining the walls.

Once underway, the business of the meeting went quickly and smoothly, climaxing in the election of four new members to the Board of Directors and three to the Credit Committee.

Elected to fill the four Board of Directors' vacancies were Legal's James Johnson, Research and Engineering's Edward Wright, Print Shop Manager Tyrone Ricks, and Gene Christensen of Office Services.

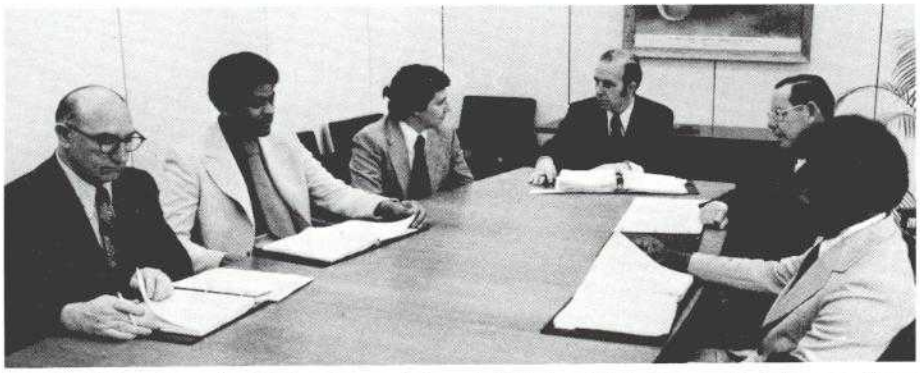
Elected to the Credit Committee were Aaron B. Coleman of Research and Engineering, Nora Godfrey of Procurement, and John J. Lehan of Finance.

The Federally-required, once-a-year meeting has increased in attendance annually, outgrowing the first floor COMSAT Theatre in 1971 and moving to the large auditorium on the eighth floor. This year's 150 members attending the meeting represented a 50% increase over the 1972 function.

Credit Union officials explaining the large turnout concluded that the comment of one of the shareholders as he registered was representative of the interest of the majority present. Bill Patterson said he was at the meeting "to see how well my money is being handled." He was one of the several making the trip in from the Labs to attend the meeting.

According to CU President Kilcoyne, the meeting is held annually to give the shareholders the opportunity to have a direct voice in the operation of their Credit Union.

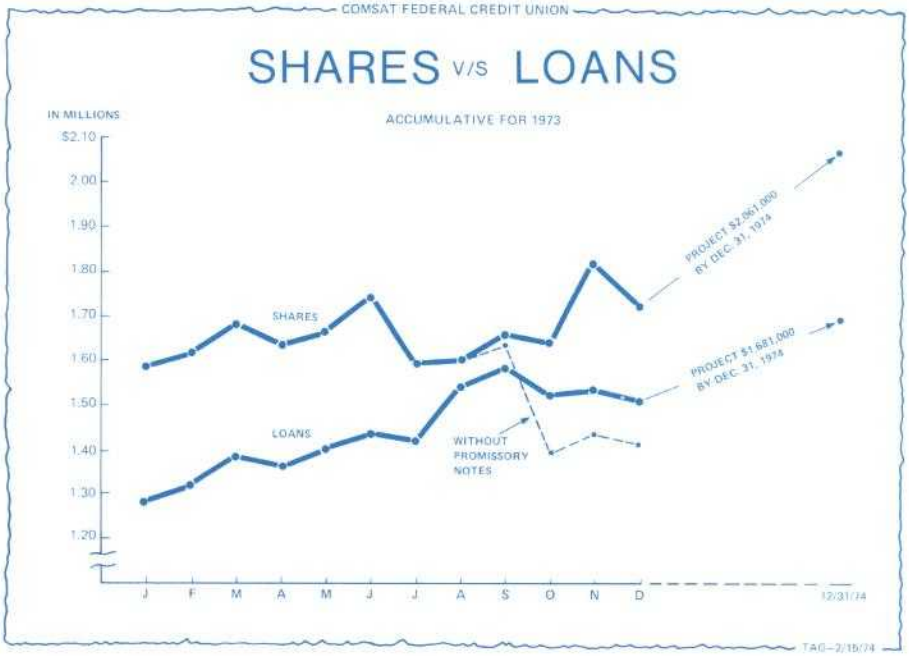
Following the balloting for the Board of Directors and the Credit Committee, the drawing for the $50 door prize was held with Legal's Jestine Singleton the winner. As is the custom with the conclusion of business, refreshments, including a buffet, were available.



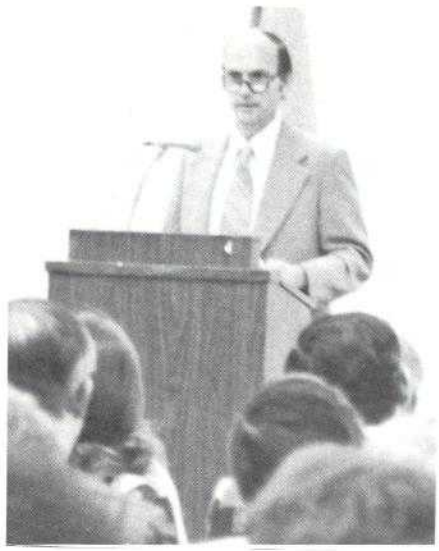
Credit Union Board of Directors pictured, left to right, Gene Christensen (new member), Tyrone Ricks, Sam Scialabba, CU President Kilcoyne, Ed Wright and James Johnson (new members).

Members of the Credit Committee, left to right, A.C. Walle, Chairman, Nora Godfrey (new member), Jack Lehan, B. Coleman (new member) and Marion Timmons.

Legal's Jestine Singleton is awarded the $50 door prize by CU's President Kilcoyne.



The shares versus loans experience is charted through 1973 with projections for 1974.



Joseph O. Wellington, outgoing Chairman of the Credit Committee, makes his final report to the CU membership.

CU officials optimistic about coming year

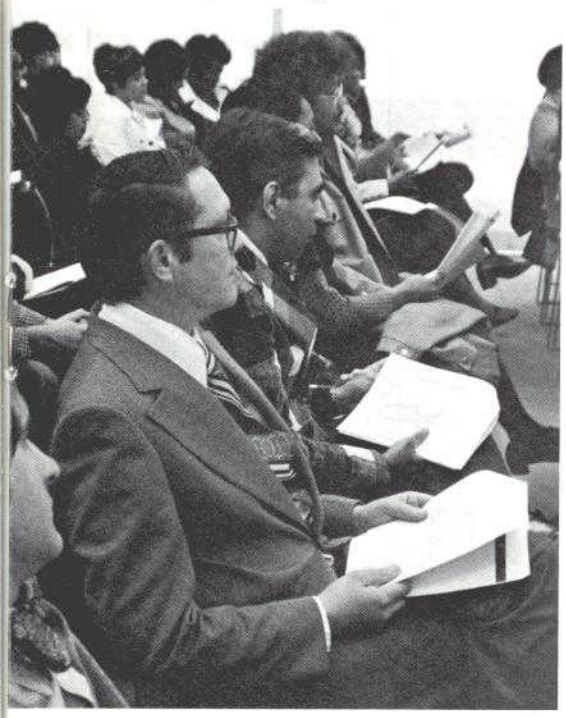
Credit Union officials were generally optimistic of the future, in spite of the prevailing uneven economic atmosphere, with predictions indicative of a more profitable 1974 than the previous year.

These opinions are based on the fact that 1973 was a difficult year for the business world. However, the monetary crisis affecting many financial institutions during the last quarter of the previous year had a lesser impact on the COMSAT Credit Union (see accompanying chart).

Immediate action by Credit Union officials early in September in offering high-yield promissory notes arrested a downward trend of assets resulting from heavy share withdrawals, while other Credit Unions saw their assets dwindle to the point of often being unable to process loan applications.

Consequently, with a general recovery of the economy, the COMSAT Credit Union continues to improve its financial situation with current projections pointing toward shares amounting to $2 million and loans totalling $1.7 million by the end of 1974.

Shareholders review copies of the annual report during the business session.



Meeting attendees enjoy a well-stocked buffet while awaiting the election results.

Ted Gottry manages CU office

Theodore A. (Ted) Gottry, Office Manager of the COMSAT Federal Credit Union, is one of the six remaining members of the original group of 13 still employed by COMSAT.

Mr. Gottry became the Credit Union's first full-time Office Manager in June 1972. Before joining COMSAT, he had been active with the Health, Education and Welfare Credit Union.

In his six years of association with COMSAT Credit Union he has served on both the Board of Directors and the Credit Committee. As a member of the Board, he chaired the Delinquency, Automation, and Plans and Program Committees.

In above photo, Mr. Gottry (right) briefs new Credit Committee member Bernie Coleman.

Spring CTR out in May

The Spring issue of COMSAT *Technical Review*, a scientific and technical journal published twice yearly, will be available in May, according to the COMSAT Public Information Office.

The new issue will contain eleven articles treating the following subjects: gravity-gradient torque effects on an INTELSAT IV spacecraft in transfer orbit, by V. J. Slabinski; stabilization aspects of a wheel energy storage and attitude control system for geostationary satellites, by M. H. Kaplan; effects of radiation on the violet solar cell, by R. A. Arndt; development of advanced interconnectors for solar cells, by D. J. Curtin and W. J. Billerbeck.

Metallurgical evaluation of fabrication technologies for high-precision microwave filters for space application, by J. M. Sandor; domestic and/or regional services through INTELSAT IV satellites, by J. L. Dicks; an experimental ship-shore satellite communications demonstration, by J. Kaiser; method for computing the optimum power balance in multibeam satellites, by H. J. Meyerhoff; review of INTELSAT earth station RF out-of-bound emission criteria, by M. P. Brown, Jr.; and 15.3-GHz precipitation attenuation measurements using a transportable earth station at Utibe, Panama, by R. J. Meyerhoff, A. Buige, and E. A. Robertson.

A CTR Note by R. R. Taur discusses rain depolarization; theory and experiment.

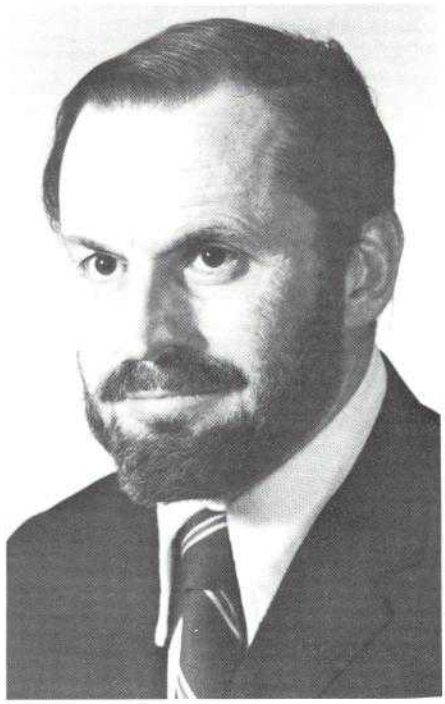
Dr. Pier Bargellini, COMSAT Laboratories, is Chairman of the CTR Editorial Board, Leonard F. Smith is Technical Editor; and Larry G. Hastings, Senior Information Officer, is Managing Editor; Edgar Bolen is Production Editor.

"Old Grad" returns to Naval Academy

An "old grad" returned to the Naval Academy in Annapolis recently to lecture graduating Midshipmen—not about how things used to be in the "Old Navy" but what the future might hold in store for them.

Dr. B. I. Edelson, Director of the COMSAT Labs, a 1947 graduate of the Academy with 20 years of active service with the U.S. Navy, returned to his Alma Mater at the invitation of Professor Karel Montor to lecture several of his classes on advanced studies, financial management and information systems.

His subject was Satellite Communications and dealt with the organization of COMSAT, technical and operational progress of the INTELSAT system, and the technological future of domestic, maritime, and military communication satellite systems.



Dr. Edelson

According to Dr. Edelson, he was favorably impressed with changes he observed in the physical growth, the academic curriculum and military discipline. After lunching with the Midshipmen in Bancroft Hall, the world's largest mess hall, he did have to report that, "The food hasn't changed at all."

COMSAT and INTELSAT authors contribute to AIAA "Progress Series"

The two most recent volumes of the American Institute of Aeronautics and Astronautics (AIAA) "Progress Series," published by the MIT Press, feature communications satellites and contain numerous contributions by COMSAT and INTELSAT-associated authors.

The editing of the two volumes, respectively entitled, "Communications Satellite Systems" (Volume 32, with 482 pages), and "Communications Satellite Technology" (Volume 33, with 540 pages), was the work of COMSAT Labs Senior Scientist Pier L. Bargellini. In addition to selecting and editing papers given at the AIAA-sponsored 4th Communications Satellite System Conference, which was held in April 1972 in Washington, D.C., Dr. Bargellini obtained and edited a number of unpublished contributions.

The twenty papers of the volume on Communications Satellite Systems are organized into sections on International Applications, Advanced Concepts, and Special Topics. COMSAT and INTELSAT authors contributing to this volume include E. Podraczky, J. Kiesling, John A. Johnson, and Philippe Feve.

Volume 33, dealing with Communications Satellite Technology, contains 22 papers encompassing such areas as Orbit and Attitude Control, Population and Power, and Communications. COMSAT and INTELSAT authors contributing articles include V. J. Slabinski, M. H. Kaplan, B. Free, G. Huson, S. B. Bennett, I. Dostis, H. G. Suyderhoud, M. Onufry, D. J. Withers, A. K. Jefferis, R. A. Rapuano, and N. Shimasaki.

In a preface common to both volumes, Dr. Bargellini outlines the development of communications satellite technology and invites the reader to regard as major events the continued success of the INTELSAT system, the inauguration of the Canadian Domestic Satellite System and the forthcoming U.S. domestic systems. After discussing possible future technical advances and expansion of telephone, television and data communications services via satellites, Dr. Bargellini emphasizes the need for greater coordination among the various communications systems.

The Labs' Dr. Bargellini with the two AIAA volumes edited by him and containing papers by COMSAT and INTELSAT authors.

He concludes: "It is my belief that satellites are bound to play a major role toward this coordination . . . As soon as large capacity domestic and regional satellite systems are established, their emergence into the international network on one side, and their interfacing with the capillary local networks on the other, will provide for mankind's needs to communicate to an extent of scale, convenience, and economy well beyond present day standards."

Dr. Bargellini gives recognition to W. L. Pritchard (formerly COMSAT Labs Director), General Chairman of the AIAA Conference Committee; R. L. Booton, Jr., and C. M. Kelly, Technical Program Co-Chairmen. He also acknowledges Dr. M. Summerfield, AIAA Series Editor-in-Chief; Miss Ruth F. Bryans, Director of Scientific Publications at AIAA Headquarters; and Mrs. Shirley H. Taylor, COMSAT Laboratories, for coordination and secretarial assistance.

Nunez of Mexico elected Signatories chairman; meeting sets minimum investment shares

Mr. Carlos Nunez of Mexico and Mr. Luis Terol of Spain were elected Chairman and Deputy Chairman of the Second Meeting of Signatories of the International Telecommunications Satellite Organization held in Mexico, April 1 through April 5.

At the invitation of the Ministry of Communications and Transportation of Mexico, the meeting was held at the Cultural and Convention Center in Acapulco. Fifty-five of the 85 Signatories to the INTELSAT Operating Agreement were represented at the meeting.

Vice Chairmen elected from regions of the International Telecommunication Union (ITU) were: Dr. J. Aquilera of Colombia, representing the Americas; Mr. A. Blanchi of France, representing Western Europe; Mr. V. Haffner of Nigeria, representing Africa; and Mr. H. White of Australia, representing Asia and Australasia.

At the Meeting, the assembled representatives established the minimum investment share entitling a Signatory to membership on the Board of Governors for the coming year, and reported an achieved rate of return on use of capital during the period February 12 to December 31, 1973, a return which resulted in the distribution of approximately $37.5 million to the Signatories.

The Signatories reported a progressive reduction in space segment charges with the most recent effective January 1, 1974.

As of February, sizeable satellite capacity has been designated for the exclusive use by certain Signatories to provide domestic telecommunications service, among them the U.S. for the purpose of transmitting domestic traffic between the Mainland and Hawaii.

Satellite capacity has also been provided to the Government of Mexico's Telecomex and the Compania Telefonica Nacional de Espana to allow the transmission of television programs in the Atlantic Region, and to Brazil and Algeria to establish communications links within their own territories which lack an interconnect capability.

Signatory contributions currently amount to $250 million with Organizational commitments totalling $117 million.

The approximate cost of the INTELSAT IV-A program, including three spacecraft, three launch vehicles and launch services was placed at $142 million. With twice the capacity of existing satellites, and the capability to operate with existing earth stations, it is expected that the INTELSAT IV-As will satisfy traffic requirements in the Atlantic Ocean region until 1978. In the meantime, studies continue on the use of an advanced satellite, the INTELSAT V.

Dr. Joseph V. Charyk, President of COMSAT, served as temporary chairman until the election of the new officers. The Third Meeting is scheduled to be held in April, 1975 in Montreal, Canada.

COMSAT waste paper now being recycled for charitable reasons

Jennifer Williams and Don Fietkiewicz prepare a check to be forwarded to Children's Hospital. The check represents the income from recycled computer paper and punch cards.

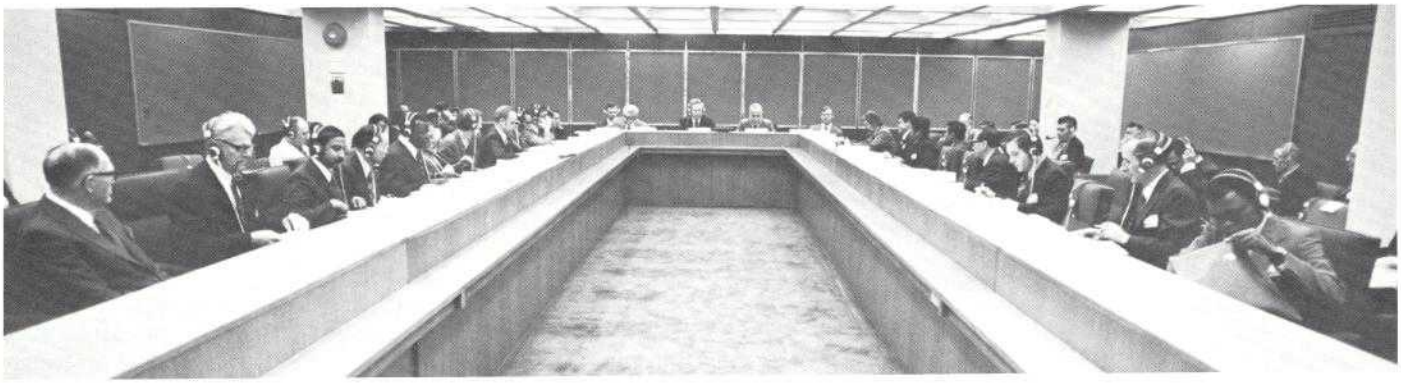
Used computer paper and punch card accumulation previously disposed of as waste paper is now being diverted to the recycled paper effort with proceeds from sales donated to the Children's Hospital here in Washington.

Jennifer Williams and Don Fietkiewicz (who credits Jennifer with the idea) of the Analysis and Traffic Division, spearhead the program which collects and delivers approximately a quarter of a ton of waste paper each week to the recycling company.

Boxes have been placed in various locations throughout the COMSAT Building for the collection of paper, and card boxes located by all keypunch machines. Contributors are cautioned to deposit only computer paper and punch cards in the collection receptacles.

Assisting in the collection and delivery of the waste are Alphonso Gillis, Vincent Jordan and Carl Laney of the Transportation Department, and James Randolph of the Mail room.

Operations representatives meet

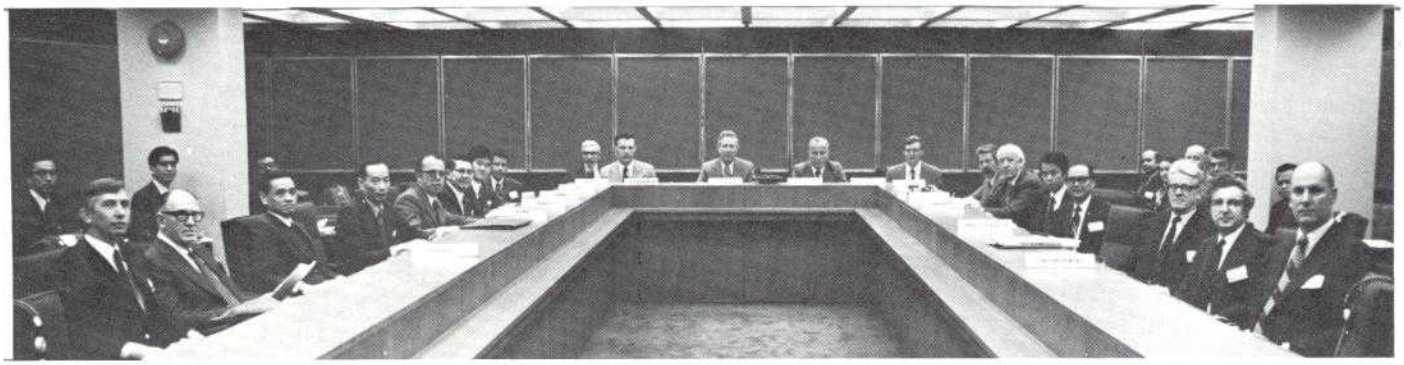


Representatives of the Indian Ocean Region (left to right): J. H. Crouch, Cable and Wireless, representing earth stations of Bahrain, Hong Kong, Qatar and United Arab Emirates; S.D. Khan, Bangladesh; T.C. Chiang, Republic of China; J. Odero, East Africa; M. Popot, France; G.F. Lehmann, Germany; R. MacKinnon, Indonesia; A. Ardehali, Iran; L. Dotti, Italy; H. Ichihara, Japan; M. Waldman, Executive Secretary; H.W. Wood and S. Browne, Representatives of COMSAT as Manager; E. Podraczky, Office of the Secretary General; S.B. Lee, Korea; I.A. Saud, Kuwait, M.R. Shamsuddin, Malaysia; S.H. Sim, Singapore; S. Oujo-Bello, Spain; L.R. Meatyard, U.K.; and S.W. Munthali of Zambia.

Operations Representatives of the Pacific and Indian Ocean Regions met in Washington in April to review operational and transition plans for the 1975-1976 time frame.

The Representatives were also briefed on the status of the INTELSAT IV-A and INTELSAT V programs. Other business included the status of the TDMA (Time Domain Multiple Access) field trials and discussions regarding the contingency situation in the Pacific Region and the need for a spare-in-orbit satellite.

During the weekend interval between meetings, Representatives were taken on tours of Williamsburg, Va., and the Etam, W.Va. Earth Station.



Representatives of the Pacific Region (left to right): R. Rawkins and E. Appleton, Australia; P.H. Chu and T.C. Chiang, Republic of China; M. Popot, France; H. Ichihara, Japan; S.B. Lee, Korea; R. Shamsuddin, Malaysia; G. Souris, Executive Secretary, US; G. Tellmann, Meeting Chairman, US; H.W. Wood and S. Browne, Representatives of COMSAT as Manager; E. Podraczky, Office of the Secretary General; I.R. Gow, New Zealand; E.A. Villanueva, Philippines; S.H. Sim, Singapore; J. Crouch and N. Wheatley, from Cable and Wireless, representing the earth stations at Fiji and Hong Kong; and A.J. Stotler, United States.

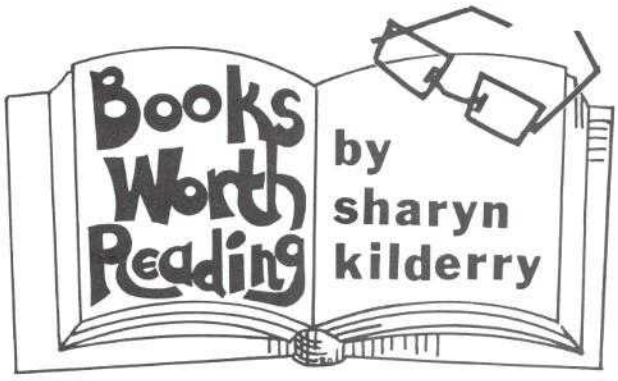
Foreman-Norton bout spans three oceans

Although the George Foreman-Ken Norton world heavyweight bout in Caracas, Venezuela, lasted only about five minutes, television receive time from the three-ocean satellites exceeded 10 hours.

The March 27 win of Foreman over Norton was transmitted globally from the Camatagua Earth Station, located approximately 80 miles south west of Caracas, Venezuela.

In the Atlantic Ocean Region, the largest receiver of TV time from the Atlantic INTELSAT IV was England with 85 of a total of 506 minutes. In order of receive time, ranging from 84 minutes to 17 minutes were: the United States, Trinidad and Tobago, Colombia, Brazil, Panama, Chile, Mexico, Ecuador, Zaire, Barbardos, Jamaica and Peru. Puerto Rico received 31 minutes via COMSAT's Andover station.

The countries of Japan, Korea, Philippines, Thailand and the State of Hawaii each received between 30 and 40 minutes by way of COMSAT's Jamesburg Earth Station and the Pacific Ocean INTELSAT IV. A double-hop from Japan's Yamaguchi Earth Station to the Indian Ocean INTELSAT IV enabled Malaysia to receive 39 minutes.



Four books dealing with the new satellite communications technology and the associated political implications have come off the presses recently and are available in the COMSAT Library.

Politics and Technology of Satellite Communications by JONATHAN GALLOWAY, (Lexington, 1972), examines the impact of this new technology on U.S. policy formulation, both domestic and foreign. He evaluates landmark events such as the Communications Satellite Act of 1962, and the organization of an international body with responsibilities for ownership and management of the INTELSAT system. The effects of accelerated communications upon individuals and nations and the most effective decision-making processes to deal with resultant behavior are the subject of an additional section.

INTELSAT: Policy-Maker's Dilemma (Lexington, 1973), by JUDITH TEGGER KILDOW, points up what the author feels to be a new dimension in U.S. foreign policy. Using the International Telecommunications Satellite Organization as a basis for her study, she describes how, with increasing frequency, large firms in technologically complex areas are preempting the bureaucratic/diplomatic prerogative of policy-making.

The INTELSAT Definitive Arrangements: Ushering in a New Era Satellite Telecommunications (The European Broadcasting Union, 1973), by RICHARD R. COLINO, Vice President of International Affairs, COMSAT, treats the negotiation of these definitive arrangements and the framework within which the negotiations took place. He analyzes the central features of the definitive arrangements and compares them with the interim arrangements, bringing into the discussion the political and cultural aspects involved in reconciling the sometimes divergent attitudes of governments. The last section deals with the controversial issues of the relationship between INTELSAT and other satellite systems and the use of the INTELSAT system for specialized services.

Global Communications Satellite Policy: INTELSAT, Politics and Functionalism (Lomond Systems, 1974), by JOE N. PELTON, Manager of the COMSAT Board of Governors Affairs Department, in addition to being a treatment of the establishment and operation of INTELSAT, examines analytically the possibility of that organization serving as a model for others in international scientific cooperation. The relationship of INTELSAT to the growing multinational enterprises is studied.

Mahran accepts new position

Joseph L. Mahran, assistant vice president for Finance, has resigned from COMSAT effective April 5 to accept the position of executive vice president of National Medical Care, Inc.

In announcing Mr. Mahran's resignation, Finance Vice President James J. McTernan, Jr., also instituted a staff realignment with the Directors of the offices of Accounting, Internal Audit and Management Systems, Financial Planning and Control, Financial Analysis, and the Treasurer reporting directly to him.

Mr. Mahran joined COMSAT in September 1969. He had previously been with American Electric Power of New York.

COMSAT's young shareholders

Since its initial stock offering, the Corporation has had a significant number of shareholders who are children. As of December 31, 1973, approximately 310,000 shares were held for minors under the Uniform Gifts to Minors Acts applicable in various jurisdictions.

Hastings elected Space Club 2nd VP

Larry G. Hastings, a Senior Information Officer in the Information Office, has been elected Second Vice President of the National Space Club. Hastings had been Third Vice President until the recent election. Dr. Joseph V. Charyk, COMSAT's President, is a Governor of the National Space Club.

Mr. Hastings has been a member of the Club for thirteen years and is a veteran aerospace information officer, having been involved with various facets of the program since 1957.

The Case of the Persistent Sign Snatchers

By W. E. Neu

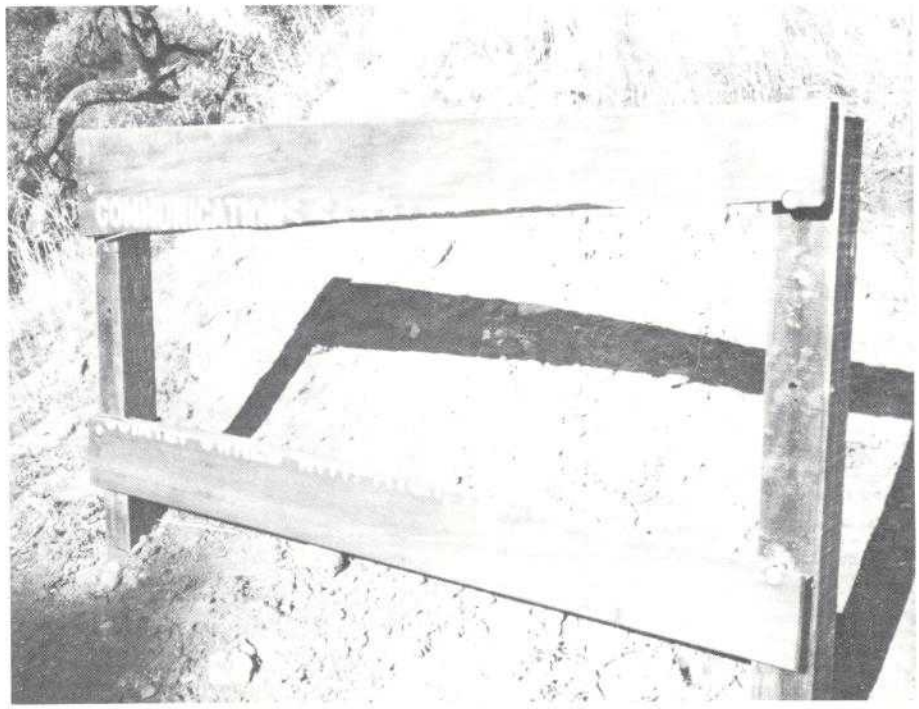
In keeping with California's tradition, at the time of the earth station dedication in April of 1969, a sign constructed of beautiful redwood, six feet long and three feet high was installed at the junction of Cachagua and Station Roads.

The employees at Jamesburg enjoyed the sign until, one morning, about a year later, they noticed the sign was gone, sawed off at its base. A duplicate of the sign was built, only this time the Jamesburg staff felt they had the sign purloiners licked—bolts were welded and attached to reinforcing rods imbedded in concrete.

However, the "sign snatchers" were not to be rebuffed. Approximately three years later, members of the staff reporting to work one morning discovered the center of the sign has been removed.

The station now has a new sign which will require a winch and some husky bodies to remove. The new one is made of one-quarter-inch steel, welded to four-inch galvanized pipe set in about two feet of concrete, and weighs close to 350 pounds.

As Station Administrator Neu points out, the installation of the new sign should bring down the curtain on the sign caper and should also deter hunters who have a habit of firing away at roadsigns. The whistling in their ears could be the ricochet of the pellets coming back.



What the snatchers left

The steel replacement

Pelton's daughter—fifth delivery in U.S. to use acupuncture

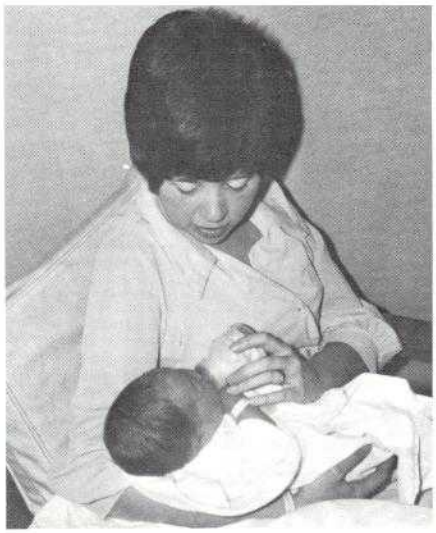
Eloise Pelton, wife of Joe N. Pelton, Manager, INTELSAT Management Affairs Department, recently gave birth to Elaine Gabrielle, weight 7½ pounds, the fifth baby in the United States to be delivered by caesarian section using the Chinese developed method of acupuncture instead of a standard anesthetic.

Although the performance of operations by acupuncture is not lawful in the States of Virginia and Maryland, following the signing of the necessary legal waivers, daughter Elaine was delivered at 10:30 p.m., March 21, at the Washington Hospital.

The acupuncturist was Mr. Chalom Albert and the delivering surgeon was Dr. Jay Grodin. A medical article is planned for publication on the effectiveness of the technique in the performance of such operations.

According to Mr. Pelton, the use of the acupuncture in lieu of an anesthetic is reported to be of varying effectiveness for different parts of the body. Rather than eliminating pain, the needle "electrodes" located in the legs and abdomen for this type of operation create diversionary sensations, between the subtle distractions of pleasure and pain, to divert the patient from the pains associated with incisions and surgical procedures rather than cancel out feeling altogether. In most cases, a form of hypnotic relaxation is used in connection with acupuncture.

The advantages, said Mr. Pelton, are the avoidance of later reactions to the anesthetic by mother and baby, a more rapid recovery, and the elimination of the need for post-operative pain relievers. He said that the reason for using the acupuncture method in this instance was the previous severe reactions of Mrs. Pelton to general anesthetics in the post-operative stage. The Peltons have another daughter, Emily Danielle.



Elaine Gabrielle Pelton and mother

It was pointed out by Mr. Pelton that doctors do not recommend such an operation for everyone, and that 17 cases of pregnancy had been rejected prior to the recommendation that his wife proceed with the acupuncture delivery.

Revised PIO publications

Several revised Public Information Office publications have been distributed and are now available through the Information Office. These include,

- The Global Communications Satellite System Map for 1974.
- The World's Earth Stations for International Satellite Communications.
- The Pocket Guide to the Global Satellite System, revised through March 1, 1974. The new edition contains an Earth Station Supplement as an annex providing a current listing of those earth stations presently in operation, their geographic locations and operating entities.

People and Events

SINGAPORE. Since the establishment of the Asia Office in Singapore last year, Director **Roman Ulans** and Assistant Director **Miles Merians** have traveled almost 100,000 miles, visiting more than 20 different countries in their areas of responsibility.

This has involved supporting a wide range of the Corporation's activities, from promoting COMSAT GENERAL's Maritime System to liaison on matters under consideration by the INTELSAT Board of Governors and stimulation of interest in satellite communications by countries not yet in the network.

One of the most intriguing developments is the possibility of applying satellite techniques to solution of domestic communications problems in countries such as Indonesia, Iran, Malaysia, the Philippines and Saudi Arabia. This is expected to take more and more of our traveller's time.

These absences do not, however, seem to have kept down activity on the "home front." The Ulans have just moved into a new apartment and are busily furnishing it in accordance with local taste and availability. The Merians seem to be constantly involved in preparations for, or cleaning up after, shows of Mrs. Merians' etchings and lithographs. She also recently gave a talk and demonstration on etching techniques at the Singapore National Library, which wound up as a television spot as well.

Administrative Assistant **Lucy Kwok** is expecting her third child—and hopes for a daughter this time—in July and Secretary **Patricia Chen** is understudying her to provide continuity during Mrs. Kwok's absence.

The new Asia Office is in the building belonging to the Regional English Language Centre of the South East Asian Ministers of Education Organization (otherwise known as RELC-SEAMEO). The building is the site of frequent conferences, conventions and seminars, the last one being on promotion of modular techniques in the construction industry. We keep being mistaken for delegates, but don't mind since it provides an introduction to many interesting people and random invitations to receptions or cocktail parties. **—Lucy Kwok**

ANDOVER. A farewell party was held for **Dave Durand** at the site visitors building on March 9. Dave has left the Andover Station to become Station Manager of the COMSAT GENERAL Station at Southbury, Conn. AT&T's Plant Manager, Ed Snyder, has accepted a transfer to Worcester, Mass. A get together was held at Madison's on March 27 for Ed. Don Mixer, formerly of the AT&T office at Bangor, will replace Ed. His new title will be Operations Supervisor.

Due to the energy shortage, Andover personnel have been conserving gasoline by forming car pools and purchasing motorcycles. At last count, 27 percent of employees at Andover own motorcycles. The cycles range from a 90cc Honda to a 750cc Moto-Guzzi.

A welcome home to **Herman Sauret** and **Ralph Summerton** who spent a few weeks at Headquarters going over plans for the new antenna. Ralph helped define GCE and Multiplex requirements while Herman worked on the facilities portion of the operation.

Rumford, located about 12 miles from the site, has a high school of which we can all be proud. With an enrollment of only 750, Rumford marched on to victory in more ways than one this year. The wrestling team went undefeated again this year to win the state championship title for the third consecutive year. The basketball team and the girl's ski team also won state championship titles. The gymnastic team came in third in the state meet.

Rumford's talents aren't just in the athletic department. Not to be outdone, the school band was one out of six U.S. bands playing in the St. Patrick's Day Parade in Dublin, Ireland. Our congratulations to the students, faculty and coaches of Rumford High School. This indeed was a year of honors.

In keeping with the true spirit of competition at the grade school level is **Lisa Engblom.** Lisa, 11-year-old daughter of our Administrator, "Sven," attends Middle School in Rumford as a sixth grade student. The school system held a spelling bee for sixth, seventh, and eighth-grade students, which Lisa won and went on to compete with other schools in the local area. Lisa placed second in the finals, defeated by an 8th grade student. **—Joanne Witas**

PAUMALU. Dan Geer, one of the original group of technicians reporting to Paumalu during the early days of construction and pre-testing in 1966, has bid "aloha" to the staff of the Hawaiian earth station to take up his new duties as station manager at

Dan Geer

COMSAT GENERAL's Santa Paula Station in California. Dan will be joined later by his wife **Fumiko** and daughter **Naomi**. The Geers, who plan to settle in Ventura, will regretfully take leave of a beautiful home overlooking the Pacific Ocean in Kahaluu on the windward side of the Island. **—R. N. Kumasaka**

ETAM. Bill Mayes was unanimously elected Chairman of the Etam COMSAT Employees Association for the 1974 Calendar Year. Other ECEA members include: **Betty Bell, Mike Britner, Jerry Hart** and **Terry McCollough.**

David R. Cross has joined the staff as the new Digital Maintenance Technician. David resides at Humbleton, West Virginia.

With FCC approval for the construction of a second antenna at Etam, core drillers under the supervision of Johnson Engineers extracted core samples in late February. Construction of the antenna is expected to begin in the very near future.

Etam has been "hit" by the gas shortage, as probably, were all the other stations. Approximately one-half of Etam's employees formed car pools, which helped immeasurably.

Mr. and Mrs. **Lynn Rector** have a new son, born March 3. Lynn is a senior technician working on the Blue Team.

Etam enjoyed a relatively mild winter season this year. Snowfall was at a minimum, and temperatures never reached zero. However, employees driving long distances reported highway conditions worse than usual with more icy roads and fog.

With the arrival of Spring, the weekly hamburger cookout season officially started for the Etam staff on March 27. **—William Carroll**

THE LABS. The basketball teams of Fairchild, Bechtel Power, Bish Thompson's, Bechtel Division and Xerox went down to defeat at the hands of the Labs' team which came out Number One in the Gaithersburg Recreation Department's Night Class B Basketball League. The Labs squad is now on its way to the tournament finals with an opposing fine Bish Thompson five.

This columnist just discovered that the Labs' **Rocky (Rockwood) Lee** coached a top-honor CYPF League basketball team which played regularly at the Gaithersburg High School gym.

The softball team will soon be in full swing with the teams already thinking about Spring practice.

Judy and **Ernie Martin** recently returned from a western vacation. Judy returned to work with a slight limp, the result of a fall while skiing with ex-COMSAT employee Judy Martin (there are two Judy Martins), and husband Bruce in Park City, Utah. The Martin's also visited the Martin's and their children at their Prairie Village home in Kansas.

Congratulations are in order for new arrivals: a baby boy, **David,** to cafeteria manager **Dave Bayne** and wife **Bonnie;** a daughter, **Christina Louise,** to **Bob** and **Madeline Hefele;** a boy for the **Matt Sandor's;** a son **Albert** to **Russell** and **Donna Fang;** a third daughter for the **Fred Kellys;** a baby girl to the **Will Cooks;** and a son **Alan Jeffrey** to the **Bill Sandrins.** **—Carol Louthan**

COMSAT NEWS

May-June 1974
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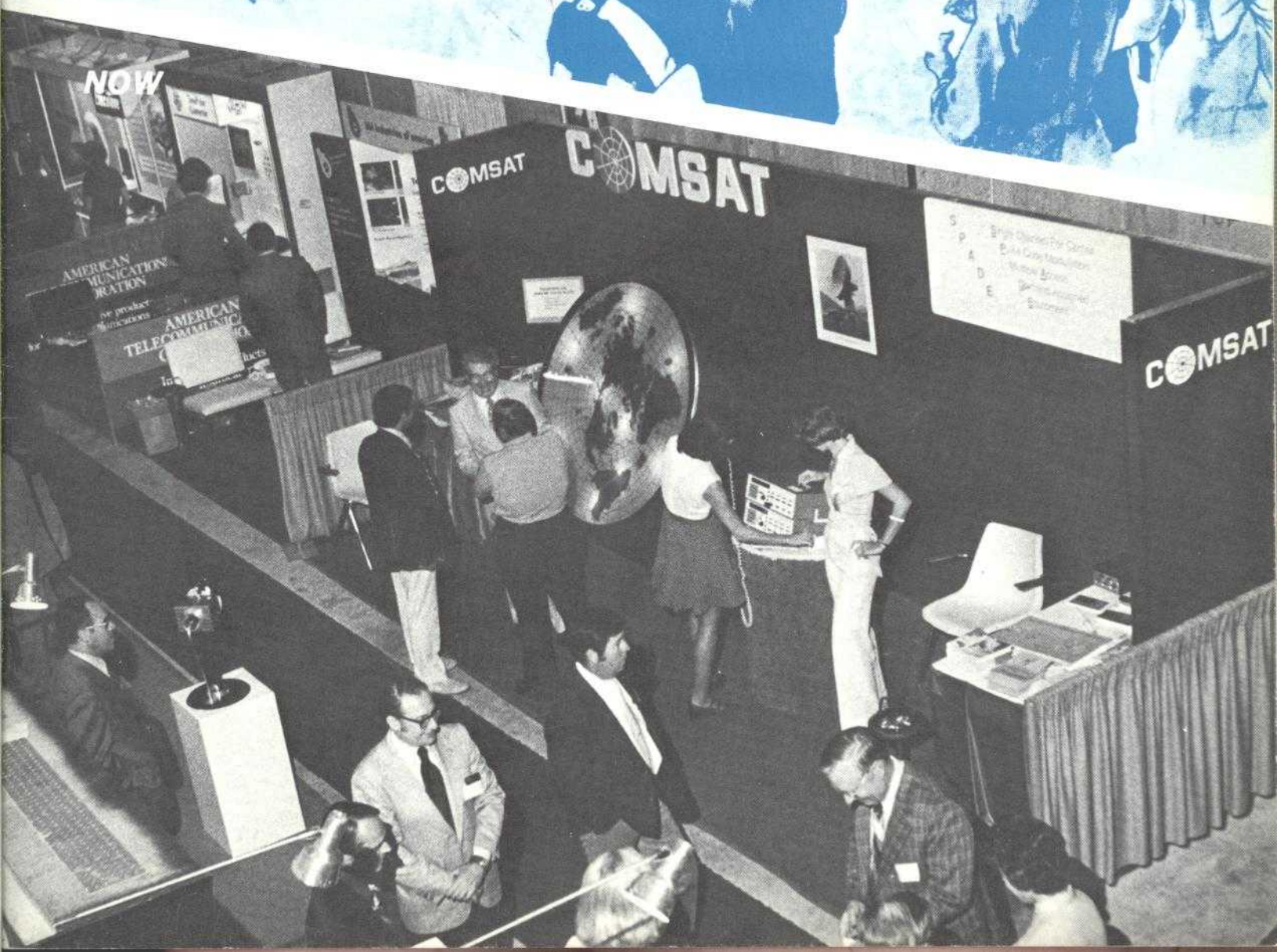

Late COMSAT News

IBM and COMSAT agree to join in domestic satellite communications venture

International Business Machines Corporation and COMSAT have announced plans to join in the domestic satellite communications business.

Subject to approval by the Federal Communications Commission, IBM and COMSAT General Corporation will acquire the one-third interests that Lockheed Aircraft Corporation and MCI Communications Corporation each holds in CML Satellite Corporation. COMSAT General currently owns the remaining one-third interest.

IBM and COMSAT General will pay MCI and Lockheed $5 million for their shares in CML. IBM will pay each about $1.6 million and COMSAT General will pay each about $900,000. This, together with COMSAT General's earlier investment of $750,000 in CML for its original one-third interest, will result initially in 55 percent ownership by IBM and 45 percent ownership by COMSAT General.

IBM and COMSAT intend to broaden participation in the joint venture by making a substantial offering of the company's shares either to other investors or to the public. The time of the offering will be determined by the success of the company in operating its first satellite system expected in the late 1970s.

In a joint statement, Frank T. Cary, IBM chairman, and Joseph V. Charyk, COMSAT president, said: "By joining our technical capabilities and experience, we believe we can make a substantial contribution to the development of satellite communications."

CML is headquartered in Washington, D.C. and has about 50 employees developing plans for a domestic satellite system to relay specialized voice, image and data communications. Hilliard W. Paige will continue as president and chief executive officer of CML. A new chairman will be elected.

IBM and COMSAT said the company will offer its services to all interested parties seeking the benefits of domestic satellite communications.

COMSAT General doubles shipboard terminal order

COMSAT General Corporation has increased from 100 to 200 the number of shipboard antennas and related equipment it is procuring to provide improved communication services via satellites to commercial ships at sea.

On June 6, COMSAT General announced the award of a contract to Scientific-Atlanta, Inc., Atlanta, Georgia, for 100 sets of shipboard terminals, with options for additional terminals *(see story on page 9)*. The additional 100 terminals are being purchased pursuant to such options.

The contract price for the 200 terminals and associated equipment, and spare equipment to be ordered later, will be approximately $4 million.

A message from the President

The following memo was distributed to COMSAT Management by President Charyk in conjunction with the press release summarizing the COMSAT-IBM memorandum of understanding.

I am happy to be able to announce a development which I believe to be of great significance to our organization and to its future. Today we signed a Memorandum of Understanding between COMSAT and International Business Machines Corporation (IBM) and issued a press announcement of our plans for a jointly owned enterprise to establish and operate a domestic satellite communications system.

Agreement has been reached for a restructuring of CML Satellite Corporation under which the shares held by MCI Communications Corporation and Lockheed Aircraft Corporation will be acquired by COMSAT General and IBM. Appropriate steps are being taken to seek approval of the Federal Communications Commission for this joint venture.

The agreement establishes a basis for us to proceed in concert with one of the nation's most outstanding corporations to bring the benefits of modern satellite technology to bear on the problem of meeting industrial and governmental needs for new, versatile, and flexible communications of all types.

We believe that this arrangement opens up new and exciting opportunities for COMSAT, and we look forward to moving ahead rapidly to implement plans and programs for this new undertaking.

More late news inside back cover

News in Brief

Incumbent Directors reelected to Board

Shareholders reelect 12 incumbent Directors at 11th Annual Meeting of Shareholders.

Shareholders approve retirement amendments

Amendments to the Corporation's Retirement Plan, previously given OK by Board of Directors, approved by shareholders at annual meeting.

Contract let for shipboard antennas

COMSAT General Corporation awards contract for 100 shipboard antennas for use in the two-ocean MARISAT System at a cost expected to exceed $2 million.

COMSAT/TELESAT complete joint tests

COMSAT Labs and TELESAT of Canada recently completed joint field tests transmitting digital data through the Canadian ANIK-1 satellite at what is believed the highest rate to date.

Global Traffic Meeting held in Netherlands

Sixty-eight delegates representing 62 countries and areas attend traffic meeting in the Hague.

Domestic satellites to conduct research

COMSAT General domestic satellites to carry research equipment capable of measuring effects of rain on radio propagation at frequencies above 10 GHz.

SPADE demonstrates potential

Capabilities of SPADE are demonstrated at Meeting of Signatories in Acapulco and at ICA Convention in New Orleans.

CG's Personnel headed by Rutter

Jack L. Rutter, former Senior Compensation Advisor for COMSAT, heads staff of COMSAT General's Personnel Department.

Lockett named assistant director

William B. Lockett has been named an Assistant Director, Personnel, for Equal Employment Opportunity and Human Resources Development.

Awards presented at Labs

Twenty-seven engineers and scientists at COMSAT Labs receive Patent Incentive Awards.

Special features

Cover

Top: Marconi demonstrates his wireless on Salisbury plain, England, to officials of the Post Office and the Armed Services (1896).
Bottom: COMSAT's SPADE exhibit in New Orleans (photo by Allan Galfund).

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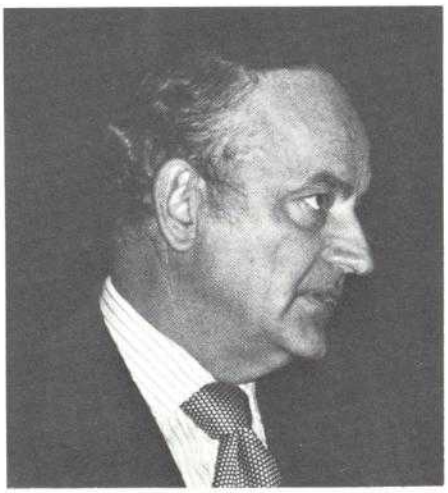
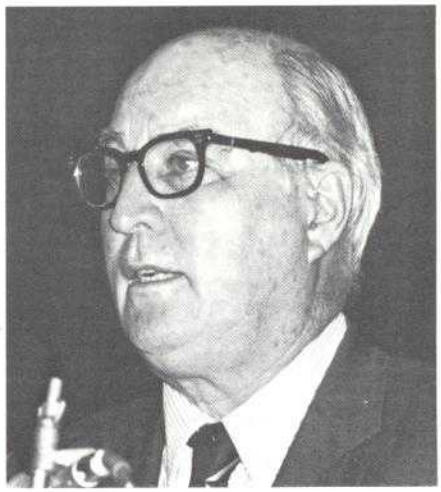


Chairman and President address shareholders



(Following is the text of the remarks of COMSAT *President Joseph V. Charyk at the Annual Shareholders Meeting.)*

Good afternoon, ladies and gentlemen. As always it is a pleasure to have this opportunity to meet with you and to describe another chapter in the fascinating story of the development of communications via satellite.

In terms of the application of satellites to meet world telecommunications needs, this year's annual meeting is in some ways reminiscent of our first annual meeting in 1964. At that meeting, we reported that we were planning to launch EARLY BIRD, the world's first commercial communications satellite, during the first part of 1965. If successful, EARLY BIRD would be the forerunner of a global system of satellites that would open up a new era in communications among countries.

Now at this meeting, our eleventh, we can report that we plan to launch MARISAT I, the world's first commercial maritime communications satellite, early in 1975. If successful, MARISAT I will be the forerunner of another satellite system that will open up a new era in communications with ships in the Atlantic and Pacific Ocean areas.

This program is being carried out by our new wholly-owned subsidiary, COMSAT GENERAL. I will, however, first report briefly on the activities of our International System Division which account for virtually all of our revenues.

The global satellite system has now been in operation for nearly five years. The fifth satellite in the INTELSAT IV series was launched last August and serves as one of two traffic-carrying satellites in the Atlantic area. Additional INTELSAT IVs are planned for launch this year to serve as spares in orbit.

Construction of the INTELSAT IV-A series is on schedule with delivery planned for mid-1975. These satellites will have about twice the capacity of the INTELSAT IVs. And studies are in progress on configuration of the global satellite system of the 1980s.

Five additional countries have constructed earth station facilities since our last meeting and the worldwide network of earth stations now stands at 89 communications antennas at 70 earth station sites in 54 countries.

There are now about 315 satellite pathways—55 more than a year ago—which indicates the scope of the world-

(Continued on page 21)

(Following is the text of the remarks of COMSAT *Chairman Joseph H. McConnell at the Annual Shareholders Meeting.)*

Since our last annual meeting, the Corporation has made a great deal of progress on many fronts.

The volume of our satellite services reached a record level in 1973. Earnings were $3.63 a share, or $1.13 more than in 1972.

The Board of Directors increased the dividend from 14 cents to 17 cents a share in the third quarter of 1973, and from 17 cents to 20 cents a share in the first quarter of 1974. The total of dividends paid in 1973 was the maximum permitted under the guidelines of the Committee on Interest and Dividends established by the President of the United States.

Through our wholly owned subsidiary, COMSAT GENERAL Corporation, we have moved closer to the introduction of maritime satellite service and the provision of satellites for U.S. domestic communications. Dr. Charyk will report later on the status of these and other activities of the Corporation.

The satellite circuits that COMSAT leases to its customers on a full time basis have been increasing steadily, as has our net operating income. Now, however, we have entered a transition period which presents us with some potentially difficult problems but, at the same time, with some very hopeful prospects.

On one side, we have the losses of offshore traffic to domestic systems, the ongoing competition between trans-oceanic cables and satellites, and the financial effect of the latest developments in the COMSAT rate proceeding before the Federal Communications Commission.

On the other side, however, we have major new opportunities such as the maritime and domestic satellite business, and the introduction of new international services.

As the annual report states, the COMSAT rate proceeding before the FCC was suspended for some months to permit discussions among the parties of a possible settlement of some or all of the issues. Only last Friday, we announced our support for a recommendation of the Common Carrier Bureau of the FCC whereby COMSAT would make a 20 percent rate reduction this summer and further rate hearings would be suspended for two years.

(Continued on page 22)

shareholder meeting snapshots

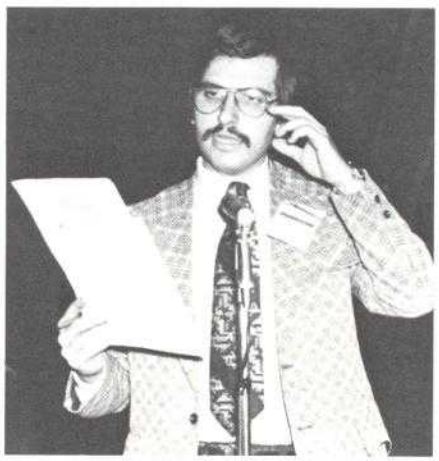
Looking over the display . . .

. . . gathering reports and brochures . . .

. . . listening to the report . . .

. . . reading the annual report

. . . questions from the floor . . .



Incumbent directors reelected at annual shareholders meeting

Twelve directors, all incumbents, were reelected to the COMSAT Board of Directors at the Corporation's 11th Annual Meeting of Shareholders on May 14.

Approximately 75 shareholders, proxy-holders and guests attended the two-hour meeting in the American Theatre at L'Enfant Plaza.

The 12 directors reelected to serve until the next annual meeting and the number of votes received by each were: Joseph H. McConnell, Chairman, 7.7 million votes; Dr. Joseph V. Charyk, President, 7.7 million; and Philip W. Buchen, Gordon Edwards, William W. Hagerty, John D. Harper, George L. Killion, Rudolph A. Peterson, J.B.M. Place, Bruce G. Sundlun, Leo D. Welch and William L. Zimmer, III, each of whom received 7.7 million votes.

For the first time in COMSAT's history, there were no directors elected separately by communications common carrier (Series II) shareholders. All 12 directors were elected by Series II and other shareholders (Series I) voting together.

Ms. Lillian R. Levy, a non-management candidate for election as a director, received 1,000 votes. Ms. Levy, a writer on aerospace topics and a NASA employee, explained before the voting that her candidacy was "not at all to cast reflection on the competency or the distinction or the availability and eligibility of any of the management nominees. It is, however, in part a note of strong protest against the monopoly of the male in the management of this distinguished organization."

In addition to the 12 directors elected by the shareholders, three COMSAT directors are appointed by the President of the United States with the advice and consent of the U.S. Senate. Frederic G. Donner and George Meany currently serve as presidential appointees.

During the business portion of the annual meeting, in addition to the election of directors, COMSAT shareholders voted to reappoint Haskins & Sells for another year as the Corporation's independent public accountants, and approved amendments to the Corporation's employee retirement plan. Mr. McConnell and Dr. Charyk reported on progress of the Corporation for the last year, and spoke of opportunities ahead, in separate addresses to the shareholders.

Daughter of Labs employee sets a first

Miss Margaret E. Coffey, daughter of Labs assistant Facilities Manager F. X. Coffey, and youngest executive ever employed by the American Institute of Chemists, was appointed General Manager of the AIC at a recent meeting in New York.

Miss Coffey, who also serves as Assistant Treasurer and Manager for the AIC's magazine *The CHEMIST*, has been with the national office since it moved its operations to Washington in the spring of 1973.

A native of West Virginia, she was a Rotary International Exchange Student to Sweden, where she attended Sandviken Gymnasium and The University of Upsala. Upon her return to the U.S., Miss Coffey attended Marshall University, majoring in prelaw and accounting. She has worked in various fields of accounting for the past five years.

Miss Coffey has also done volunteer work for drug rehabilitation programs in four states. Her main outside interests include swimming and sailboating.

Mr. Coffey joined COMSAT in 1968, at the Etam, West Virginia, Earth Station. He later transferred to Brewster and, in June 1969, moved to the Labs.

Shareholders approve Retirement Plan amendments

The following story was extracted from a memo addressed to all COMSAT *employees by Dr. Charyk.*

Several amendments designed to improve the Corporation's Retirement Plan, previously approved by the Board of Directors, were approved at the 1974 Annual Shareholders' Meeting held in Washington in May.

The revised plan, effective as of January 1, 1974, will contain the following amendments:

Increased normal benefits

A new formula will provide increased benefits upon normal retirement. The new formula calculates a "basic pension," based on twenty-five years of service, consisting of (a) 30 percent of your "final average annual earnings" (as defined below), plus (b) 10 percent of your final average annual earnings in excess of your "covered compensation" (as defined below).

If you have less than twenty-five years of service at your normal retirement date, the "basic pension" is reduced by 2 percent for each year of service less than twenty-five years. If you have more than twenty-five years of service at normal retirement, you will receive an additional annual benefit equal to the sum of: (a) 0.5 percent of your final average annual earnings, multiplied by your years of service in excess of twenty-five years but not in excess of thirty-five years, plus (b) 0.25 percent of your final average annual earnings in excess of "covered compensation," multiplied by your years of service in excess of twenty-five years, but not in excess of thirty-five years.

"Final average annual earnings" refers generally to the average annual regular compensation you received during those consecutive sixty months of your last 120 months of service during which such compensation was the greatest.

"Covered compensation" means the average annual wages subject to Social Security (FICA) tax over the entire working career of a hypothetical employee whose earnings each year are at least equal to the Social Security wage base. The Internal Revenue Service has prepared schedules to determine this amount for any employee. The amount of covered compensation depends upon the year in which an employee reaches his 65th birthday. The current I.R.S. schedule, which is subject to change as the Social Security wage base changes, is as follows:

Calendar year of 65th birthday	*Social Security covered compensation*
1974	$ 6,000
1975	6,600
1976-1977	7,200
1978	7,800
1979-1981	8,400
1982-1984	9,000
1985-1989	9,600
1990-1996	10,200
1997	10,800
1998	11,400

Early retirement benefits

Uniform actuarial factors for males and females have been adopted to compute the reduced benefits of employees who retire at an early retirement date and elect to receive their retirement benefits immediately.

If you make such an election, your annual retirement benefit will be the following percentage of your normal retirement benefit:

Age at early retirement date	*Percentage of normal retirement benefit*	
	New	*Old*
64	93.3%	91.3%
63	86.7	83.6
62	80.0	76.7
61	73.3	70.6
60	66.7	65.1
59	63.3	60.2
58	60.0	55.8
57	56.7	51.8
56	53.3	48.2
55	50.0	44.9

Credit for period of disability

Another amendment provides that, if you become disabled while employed by the Corporation, you will receive service credit under the Plan for the period of your disability. Upon attaining age 65, your retirement benefits will be calculated on the basis of your earnings at the time the disability occured and your total credited service, including both your active employment and the period of your disability.

Second Meeting of Signatories held in Acapulco, Mexico

COMSAT's President Joseph V. Charyk, center, serving as Temporary Chairman and Representative of COMSAT, opens the Second Meeting of Signatories held recently in Acapulco, Mexico. Seated on the dais are, left to right, Mr. S. Astrain, Secretary General; Mr. J. L. Alegrett, Chairman of the Board of Governors; Ing. Eugenio Mendez, Secretary of Communications and Transportation of Mexico; Dr. Charyk; Lic. Miguel Alvarez Acosta, Undersecretary of Broadcasting for Mexico; Mr. A. K. Al-Ghunaim, Deputy Chairman of the First Meeting of Signatories and Representative of Ministry of Posts, Telegraphs and Telephones of the State of Kuwait; and Mr. W. G. Geddes, Vice-Chairman of the Board of Governors.

SPADE demonstrated at Second Meeting of Signatories

With COMSAT President Joseph V. Charyk and representatives to the Second Meeting of Intelsat Signatories looking on, Mr. George Lawler, COMSAT Director of Service Development, demonstrates the unique capabilities of SPADE. Attendees to the meeting were able to make telephone calls using SPADE through the Tulancingo earth station in Mexico to public service numbers in countries equipped with SPADE facilities.

Pictured above are, left to right, Mr. Seymour Lynn of COMSAT, Mr. Lawler, Ing. Mendez of Mexico, Dr. Charyk and Lic. Acosta of Mexico.

Rutter heads COMSAT General's Personnel Department

The continual shaping of COMSAT GENERAL as a fully developed subsidiary of COMSAT took another step forward with the establishment of COMSAT GENERAL's Personnel Department in April of this year.

Jack L. Rutter, formerly Senior Compensation Advisor for COMSAT, was selected to head the new function. Mr. Rutter will report to Joseph H. O'Connor, Vice-President and Treasurer of the new subsidiary.

Robert B. Randle, who formerly reported to Mr. O'Connor, and his secretary, Francoise Crepeau, were subsequently transfered to the Personnel function. Mr. Randle will continue to handle a variety of administrative functions involving space allocation and planning, management and review of travel expenditure, and supply allocations. Miss Crepeau will function as secretary for the COMSAT GENERAL personnel staff.

In mid-April, Susan Newborn was hired as Personnel Administrator. Mrs. Newborn comes to COMSAT GENERAL after four years as a personnel professional in the food industry with ARA in San Francisco and the Macke Company locally. Shortly thereafter the internal promotion of W. Jean Davis to the position of Senior Personnel Clerk completed the department staffing.

Mr. Rutter, assisted by Mrs. Newborn, will be responsible for staffing professionals and non-professionals, salary administration, budgeting, and employee relations. Mrs. Davis will be responsible for record administration, coding and updating of computer reports, and assembling and formulating data for internal and external reports.

This staffing will permit the department to handle exempt recruiting, merit budgeting, employee relations, and manpower planning. Considerable coordination with the corporate office will continue. Corporate policy will serve as the guideline in these areas as well as in benefits administration, policy and procedure development, recruiting preparation of overall merit forecasts, and corporate reporting to federal and state agencies.

Mr. Rutter joined COMSAT in 1970. He began his industrial personnel career in 1958 and had held compensation and personnel management positions with a number of firms including Honeywell, Westinghouse Electric, and Leasco Systems and Research. He is currently President of the local Technical Personnel Forum and an active member of the American Compensation Association. Rutter, his wife Marie, and their three sons, John 16, David 14, and Jeff 7, live in Silver Spring.

Mr. Randle joined COMSAT in 1967 as Senior Project Manager in the International Department after a 27-year career with the U.S. Army Signal Corps. His army career spanned a variety of interesting and high-level assignments in communications and audio-visual specialties. Prior to his current assignment, he was Manager for Asia-Pacific Development in COMSAT's International Development Division, and in that capacity was responsible for the promotion of space segment utilization and INTELSAT membership among countries within the Asia-Pacific area. He and his wife, Eleanor, live in Vienna, Virginia. The Randles have three children: Penny, married and the mother of four children, lives in Wisconsin; Robert B. II is a helicopter pilot with the U.S. Army in Germany; and Michael is a graduate student at the University of Ohio.

Miss Crepeau joined COMSAT in 1970 in the International Department as secretary to the Manager for African Development where her fluent French was an asset. She remained in the International Department until her transfer to COMSAT GENERAL in May of last year. She lives in Kensington, Maryland.

Mrs. Davis joined COMSAT in 1967 in the Reproduction Department, later moving to the Mail and Records Department as a Uniform File Clerk. She terminated in March 1971 and returned eight months later to her former position as Senior Uniform File Clerk. Mrs. David and her husband Willie, an employee of the D.C. Department of Corrections, live in Glenarden, Maryland. The Davises have three children: Ronald 20, who works in the Mail Room at COMSAT; Reginald 17, a high school junior at Duval; and Miyoshi, a 14 year-old eighth grader at William Wirt Junior High.

Mrs. Newborn joined COMSAT GENERAL in April of this year as Susan Litman and in mid-May married Stephen Newborn, a civilian accountant with the U.S. Air Force. The Newborns have taken an apartment in Beltsville, Maryland.

Lockett gets new Personnel post

Mr. William B. Lockett has been named Assistant Director, Personnel for Equal Employment Opportunity and Human Resources Development.

As Assistant Director, Mr. Lockett will report to the Director of Personnel and will be responsible for the development of the Corporation's equal employment opportunity programs. He will also undertake an assessment of COMSAT's training needs, develop internal training programs to meet certain of these needs, and be responsible for evaluating and recommending external training programs.

Mr. Lockett joined the Corporation in February 1969 as a Personnel Representative with responsibility for nonexempt staffing. Prior to joining COMSAT, he had been associated with the U.S. Department of Labor, Manpower Administration, as Director of Manpower Programs in Trenton, New Jersey.

Summer working hours at Labs

Effective June 17, working hours at COMSAT Labs, Clarksburg, will be from 8:15 a.m. until 4:45 p.m. The schedule will remain in effect through August 30. The summer work day will apply to personnel of the Laboratories and Maintenance and Supply Center organizations, according to Dr. B. I. Edelson, Director.

Dr. David nominated Director by President

Dr. Edward E. David, Jr. recently nominated to the COMSAT Board of Directors by President Nixon, is President of Gould Laboratories and a Director of the company, and former Science Advisor to the President of the United States and Director of The President's Office of Science and Technology.

Born in Wilmington, North Carolina, January 25, 1925, he received a B.S. degree in Electrical Engineering from Georgia Institute of Technology in 1945 and the S.M. and Sc.D. from Massachusetts Institute of Technology in 1947 and 1950, respectively. Prior to coming to Washington in September, 1970, he was Executive Director, Research Communication Principles Division of Bell Telephone Labs.

Dr. David Joined the Bell Laboratories in 1950 and worked subsequently in underwater sound and communication acoustics. From 1963 on he specialized in computing science research, doing research in advanced computing techniques with particular emphasis on "man-machine communication." He has been granted eight patents for inventions relating to underwater sound, sound localization, and speech processing.

He is the originator of *The Man-Made World*, a new course for high school students concerning the principles behind technology. The course was developed to provide "technological literacy" for the general student and was the result of collaboration by teachers, professors, and engineers from industry. The course is now being taught in about 400 high schools. The book received the Operations Research Society of America 1971 Lanchester Prize.

Dr. Edward E. David, Jr.

Dr. David was selected by the honorary engineering society, Eta Kappa Nu, as one of the country's outstanding young engineers in 1954. In 1958 he received the George W. McCarty Award from the Georgia Institute of Technology as the outstanding young alumnus of the year. In 1959 he was designated by the Summit, New Jersey, Junior Chamber of Commerce as its outstanding young man of the year. In 1971, he received the American Society of Mechanical Engineers President's Award of Merit. The Moore School of University of Pennsylvania awarded Dr. David the Harold Pender Award in 1972, and in the same year he received the North Carolina Award, which is the highest award the state can bestow on its citizens.

The author of many technical articles on communication theory, speech hearing, speech recognition and processing, vocoders, and computing, Dr. David is co-author of two books: *Man's World of Sound* and *Waves and the Ear*.

He is a member of the National Academy of Sciences and the National Academy of Engineering, a Fellow of the American Academy of Arts and Sciences, the Acoustical Society of America, the American Association for the Advancement of Science, the Institute of Electrical and Electronics Engineers, and a member of the Association for Computing Machinery, the Audio Engineering Society, the Engineering Society of Detroit, and the Instrument Society of America.

Prior to joining the Government, Dr. David was also Professor of Electrical Engineering at Stevens Institute of Technology and a member of the Board of Directors of the Summit, New Jersey, Speech School.

Dr. David is the recipient of honorary doctorate degrees from Stevens Institute of Technology, The Polytechnic Institute of Brooklyn, University of Michigan, Carnegie-Mellon University, Lehigh University, and the University of Illinois at Chicago Circle.

He is married to the former Ann Hirshberg of Atlanta, Georgia. They have one child—a daughter, Nancy.

INTELSAT contract awards

To **Fairchild Camera and Instrument Corporation of Palo Alto, California,** a 12-month, $92,035 contract for a 14-GHz Gallium Arsenide Field Effect Amplifier Development.

To **AEG-Telefunken (The Federal Republic of Germany),** an 18-month, $150,000 contract for improved 4-GHz Traveling Wave Tubes.

To **RCA, Advanced Communications Laboratory, Somerville, New Jersey,** a 12-month, $63,312 contract for the development of prototype large scale integrated circuit modules for digital systems.

To **Hollandse Signaal Apparaten B.V. (The Netherlands),** a 14-month, $183,500 contract for the development of an RF Attitude Sensing System.

COMSAT's John Mullen staffs the SPADE exhibit at New Orleans.

John McGivern, center, of COMSAT's Service Development, assists visitors from Kokusai Denshin Denwa Co., Ltd. (KDD), Japan, place calls to Germany via SPADE.

An overall view of the ICA exhibit hall in New Orleans. PHOTOS BY ALLAN GALFUND

SPADE exhibit gets big play at New Orleans ICA Convention

COMSAT demonstrated its new international communications transmission network at the International Communications Association (ICA) 27th Annual Conference and Exposition at the Fairmont Hotel in New Orleans, La., early in May.

SPADE, which stands for **S**ingle Channel Per Carrier, **P**ulse Code Modulation, Multiple **A**ccess, **D**emand Assigned **E**quipment, has been introduced in the Atlantic Ocean Region and is now operational.

Developed by COMSAT under contract from INTELSAT, SPADE allows satellite circuit users access to the satellite system on a demand basis.

For the ICA demonstration, COMSAT arranged for direct access between the COMSAT booth in the hotel exposition hall to the SPADE terminal at Etam, West Virginia. Dial calls were made to public service numbers in countries participating in the network. Upon completion of each call, the circuit was immediately relinquished to the circuit pool and became available for calls to other country destinations.

Representing COMSAT at the exhibition were John Mullen and John McGivern of Service Development, William Surber of the Labs and Allan Galfund of Public Information. According to the COMSAT representatives, considerable interest was shown in the COMSAT display by visitors to the three-day exhibit.

COMSAT General awards contract for shipboard antennas

COMSAT GENERAL Corporation has awarded a contract to Scientific-Atlanta, Inc., for 100 shipboard antennas and associated terminal equipment as part of a major program to provide improved communications via satellites to commercial ships at sea. The amount of the contract is expected to exceed $2 million.

Two multi-frequency satellites are scheduled to be in operation early next year to form the space segment of a two-ocean MARISAT System. The satellites, stationed in geostationary orbits at 22,300 miles altitude over the Atlantic and Pacific Oceans, will be capable of providing ship-to-shore voice, teletypewriter and data communications with vessels equipped with complete shipboard terminals. The U.S. Navy will use capacity in the system, utilizing its own ship and shore stations, for communications with its Atlantic and Pacific fleets at separate frequencies.

The contract calls for delivery of 100 shipboard terminals to COMSAT GENERAL, with options to purchase up to 300 additional terminals. A separate contract will be awarded later for communications equipment for interconnection with the Scientific-Atlanta terminal units.

The complete facilities will be capable of providing reliable, full-time communications services via satellites at assigned L-band frequencies. Once installed aboard commercial vessels, they will permit 24-hours-a-day operation for high-quality voice and data communications.

In addition to solid-state receivers and transmitters, the terminals being purchased under this initial contract include a four-foot diameter antenna, protected by a radome, which is mounted on a stabilized platform to keep the antenna pointed at all times toward the satellite despite movement of the ship. Continuous communications can be maintained in heavy seas and under extreme environment conditions. An antenna control unit will be installed below decks for operating and controlling the complete ship terminal.

John A. Johnson, President of COMSAT GENERAL, said the shipboard terminal contract with Scientific-Atlanta (headquartered in Atlanta, Georgia) is "a major step toward providing greatly improved and expanded communications services to the maritime industry. This program represents a promising new application of satellite technology. It will introduce new services for shipowners who now must rely heavily on outmoded 'brass-key' techniques. It will totally change maritime communications by offering for the first time modern, dependable and continuous communications throughout entire ocean areas."

The space segment for the MARISAT System together with communications earth stations on the U.S. east and west coasts—as distinct from the shipboard terminals—are to be owned and operated under a consortium arrangement currently being negotiated among four carrier companies. COMSAT GENERAL would have an interest of approximately 80 percent in the consortium; RCA Global Communications, ITT World Communications and Western Union International would participate as joint owners with a total interest of about 20 percent.

The satellites for the system are under construction. The launch of the first spacecraft is scheduled for early 1975. The U.S. earth stations which will serve the MARISAT System are being built at Southbury, Connecticut and Santa Paula, California.

Joseph H. O'Conner, COMSAT General's Vice President and Treasurer, signs $2 million contract with Scientific-Atlanta Inc. as Sidney Topol, President Scientific-Atlanta looks on. The contract calls for Scientific-Atlanta to build and deliver 100 small shipboard earth terminals to COMSAT General for use in the MARISAT program.

Global traffic meeting held in Netherlands

by PAUL E. TROUTMAN

Seated on the dais at the plenary session were: left to right, Emeric Podraczky, Executive Organ; Sidney Browne, Vice-Chairman; B. J. Bakker, Director-in-Chief of Telecommunications, Netherlands PTT; H. Hermsen, Chairman; Paul Troutman, Executive Secretary; and Robert Carl, Manager's staff.

A Global Traffic Meeting was held in The Hague, Netherlands, in mid-May, for the purpose of obtaining agreement on satellite circuit estimates for the years 1974-1978. Sixty-eight delegates representing 62 countries and/or locations were present. This was the largest number of delegates to attend a traffic meeting.

Traffic meetings have been held since 1966, first on a regional basis, and then, starting in 1971, on a global basis. Meetings have been held in Australia, Brazil, France, Germany, Japan, The Netherlands, Philippines, Hawaii and Washington. The host country provides the Chairman and COMSAT as Manager usually provides the Vice-Chairman.

Since the purpose of the meeting is primarily to obtain bilateral agreement on satellite circuit requirements for the current year plus the following four years, plenary sessions are usually short and are used to open the meeting, provide the delegates with a status report during the middle of the meeting period, and to close the meeting.

A typical meeting consists of an opening plenary session lasting a half day, and two and one-half days of bilateral discussions with initial results given to the Manager's staff on Friday evening. A plenary session is held on Monday morning to discuss the results of the Manager's analysis completed during the weekend, followed by further bilateral discussions to correct any discrepancies that were found and on Tuesday a final closing plenary session. This week-long meeting is essential to the future planning of the INTELSAT system.

In addition to the work done at the traffic meeting, the host country usually provides a series of social events. At the Hague meeting, the Netherlands PTT hosted a cocktail party Thursday evening at "Voorlinden." This location is an old mansion that has been converted into a school for higher management by the Netherlands PTT. It is located beside one of the many parks in The Hague in a beautiful wooded setting.

On Saturday all delegates were invited to participate in a tour of Amsterdam and the surrounding areas. This tour consisted of a visit to Keukenhof, one of the flower centers of The Netherlands where the tulips were in full bloom. After leaving Keukenhof, the group went to Amsterdam where they took a boat tour of the canals then to Marken and the fishing village of Volendam where the residents were dressed in the native costumes of The Netherlands.

The day ended with a formal dinner held at the North Sea town of Zandvoort. This seaside resort city reminded one of Ocean City or Rehoboth with its boardwalk and other attractions. Sunday was a free day and many of the delegates visited Maurdodam, a complete city constructed on a one-twenty-fifth scale. Others took advantage of the beautiful parks.

The weather had been cold and windy during the week but the weekend was sunny and warm. The Hague shopping areas were interesting. There was an antique section which drew the interest of several of the U.S. delegation and there are "walking streets" for shopping where no cars are allowed.

What impressed me the most was the cleanliness of the city. I never did see anybody picking up trash or washing windows but the streets were clean and the windows sparkled. Bicycles were everywhere and all streets have three transportation paths, one for cars, one for bicycles and motor bikes, and one for pedestrians.

The food was interesting also. Indonesian style food is available and the "rice table" was a favorite of several of the delegates. Breakfast at the hotel was a unique experience. A "buffet" was set up and consisted of orange juice, slices of ham, roast beef, turkey and cheese along with bread, toast and rolls. Coffee or tea was ordered through a waiter and eggs or other style foods cost extra. Lunch consisted of soup, cold cuts, bread and fruit. Evening meals were more in line with the American style of eating.

Four representatives from COMSAT attended the meeting: Sidney Browne, Director, INTELSAT System Management, the Vice-Chairman; George Lawler, head of the U.S. delegation; Robert Carl, member of the Manager's staff; and myself in the capacity of Executive Secretary and member of the Manager's staff.

Mr. Troutman is Manager of the Traffic Department, Analysis and Traffic Division.

The first plenary session of the Global Traffic Meeting convenes in the Hague.

Dr. Bargellini presents paper to Electrical Engineer Congress in Iran

COMSAT Labs' Dr. Pier Bargellini participated in the meeting of the First Congress of Electrical Engineering in Iran last month and delivered one of the more than 100 papers dealing with electrical engineering.

Approximately 450 representatives from 23 countries attended the Congress held at Pahlavi University in Shiraz, Iran. Areas covered by the speakers in the field of electrical engineering included power, distribution and communication systems. Dr. Bargellini's paper was entitled, "Satellite Communication Systems, Present and Future."

In his presentation, the Labs' Senior Scientist reviewed the technology trends of the past decade and the major characteristics of the existing Intelsat system. In addition to their international use, Dr. Bargellini pointed out that communications satellites were about to play a major role in domestic systems in various countries, especially wherever increasing traffic requirements and the need for new communications services cannot be adequately met by existing communications systems.

He emphasized the need for satellites with greater capacities around the late seventies and the technological advances and breakthroughs contributing to meeting this need. The application of satellites to mobile, maritime and aeronautical communications was also discussed.

Based on the presentations and follow-on discussions, Dr. Bargellini noted it was apparent that the Iranian Government intends to go ahead with a domestic system of its own which will also contribute to the educational needs of the huge, sparsely populated country.

Senior Scientist Pier Bargellini of the COMSAT Labs participates in a panel discussion on the use of communications satellites for educational purposes at the First Congress of Electrical Engineering in Iran. Panelists are, left to right, Professor G. Law of the University of Colorado; Dr. Bargellini; Mr. J. Fuhrmann of Page Communications; Dr. A Aidun, Dean of Engineering, Pahlavi University, the Moderator; Professor Y. Suematsu, Tokyo Institute of Technology; Dr. H. Khakzar, Arya-Mehr University of Technology, Tehran; and Mr. E. L. Smith of Westinghouse Electric Co. (not in photo).

COMSAT and TELESAT complete joint high speed data tests

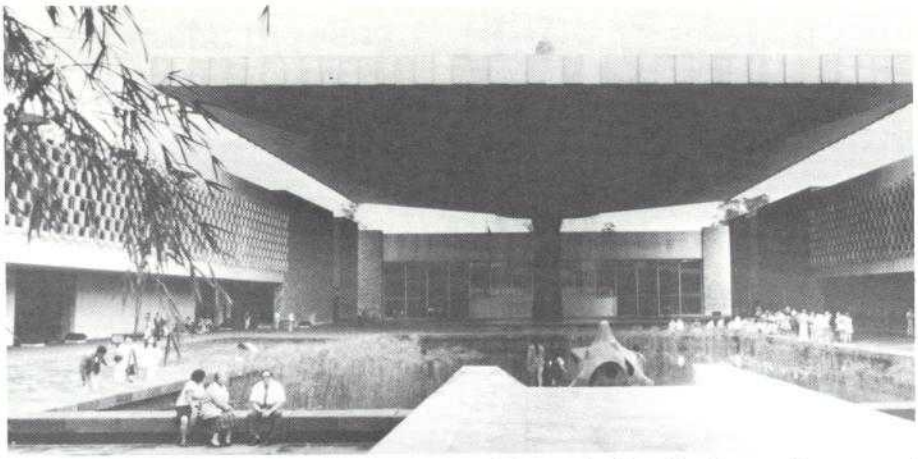
The Communications Satellite Corporation (COMSAT) Laboratories and TELESAT Canada, recently completed joint field tests of the transmission of digital data through the Canadian ANIK-I communications satellite.

The data was transmitted at a rate of 67.2 megabits (67.2 million bits) per second which is believed to be the highest rate ever transmitted by satellite. This high speed bit transmission rate allows two DITEC (digital television communications system) color TV channels to be carried through a single transponder.

Through the use of the 4-phase CPSK (Coherent Phase Shift Keyed) modem equipment developed at COMSAT Labs, loop tests at the earth station at Lake Cowichan, near Vancouver, British Columbia, were conducted to measure bit error rate performance versus operating point in the satellite transponder. The station at Lake Cowichan utilizes a 98-foot-diameter antenna.

After the first tests were conducted jointly by TELESAT and COMSAT at the Lake Cowichan station, the receive terminal was then moved to the Riviere Rouge station near Montreal. Transmissions to the Riviere Rouge station demonstrated clearly that a transmission rate of 67.2 Mbits/sec could be made within the required error bit limitation to earth stations employing a 33-foot antenna, such as the one at Riviere Rouge.

The field tests, conducted jointly in Canada, confirmed systems analyses which were carried out previously and proved the ability of the satellites, utilizing digital data methods to transmit the equivalent of more than 100 newspaper pages in one minute.



A huge rectangular stone roof supported by a single, circular center support covers the courtyard of the National Museum of Anthropology in Mexico City.

A visit to Mexico City

Story and photos by J. T. McKenna

Recently my neighbor and I had the opportunity to visit Mexico City, the highest and oldest city on the North American continent. Situated in a dry lake bed some 7,500 feet above sea level the city dates back to the early 1500s.

Visitors to the city are advised to take in the sights and events at a leisurely pace until they are acclimated to the altitude. While we agreed that it would be nice to take things slow, there was so much to see and do in Mexico City that we naturally started out in a hurry.

In order to minimize the fatigue, we first familiarized ourselves with the public transportation system of the city. Fortunately, Mexico (the word "City" is often omitted) has one of the best public transportation systems I have seen anywhere.

The main avenues of the city are traversed by 16 cent pasero taxi cabs. A pasero is an old car painted green whose driver rides the curb lane holding one hand out the window indicating his route with his fingers. The ride can be as short as two blocks or as long as ten miles, but the fare is always the same—two pesos. Paseros start and stop often, making a normal ride seem quite long, but the experience is well worth the extra time.

On one of our daily excursions we wanted a little more luxury than a pasero cab afforded, so we tried the city's first class "dolphin" buses. For one peso (8 cents) you can ride anywhere on the route. First class dolphin buses all have tinted glass windows and are painted bright orange and black. The driver only sells as many tickets as he has seats so no one has to stand.

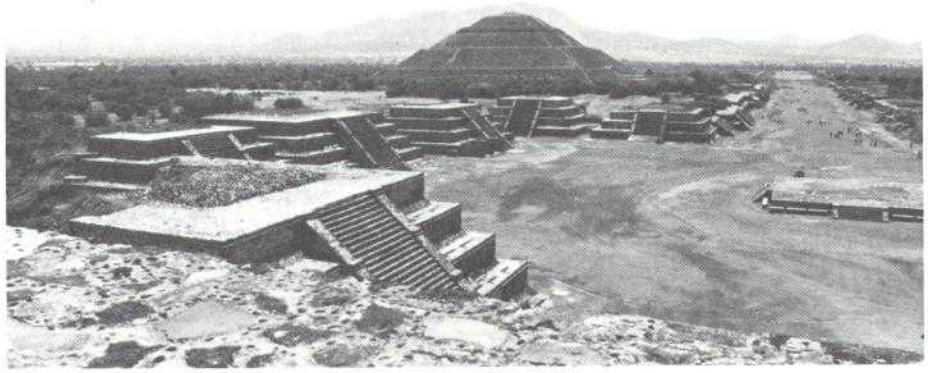
If you want more of the local flavor, the city operates a number of second and third class buses that run along the side streets and the main avenues of the city. These buses often are missing a window or part of a door, but only cost 4 cents and eventually will get you to your destination.

Mexico also has a new subway system that covers most of the city. Several of the stations are art museums in themselves with large and colorful murals painted on the walls. One of the unique aspects of Mexico's subway is that all the cars move on rubber wheels giving a very smooth and quiet ride for your 12 cents.

Using a variety of the above modes of transportation we started out to see the sights and events of this city. Sunday is one of the busiest days in the city for both the locals and tourists. On Sunday, the Palace of Fine Arts presents the National Ballet of Mexico to the city's many visitors and residents. The ballet traces the history and customs of the Mexican people, from the days when the sun and moon were worshipped as gods to the colorful native dances of the various Mexican regions.

The Fine Arts Palace alone, located in the heart of the city, is worth a visit to see the marble floors and huge murals on the walls painted by such famous artists as Diego Rivera. The stage curtain in the main theater is formed out of tiffany glass and framed in copper, showing the lake bed with surrounding mountains that was the site for Mexico City. At the beginning of each performance the entire tiffany curtain rises straight into the ceiling of the theater revealing the stage and its performers.

Near the Palace of Fine Arts is the National Palace where the President of Mexico has his offices. Upon walking into the courtyard of the palace one is surrounded by beautiful murals about 25 feet long by Diego Rivera, depicting the history of Mexico and its many conflicts. The bright and colorful murals act as a strong contrast to the 17th century stone building upon which they are painted.



Midway up the Pyramid to the Moon at San Juan Teotihuacan, the Pyramid to the Sun, believed to have been built a thousand years ago by another civilization, can be seen.

Mr. McKenna is a Comsat *Information Officer.*

After visiting the National Palace we took a subway down to the Chapultepec Park located at the west end of town. This park is reported to be one of the most beautiful in the world and, among other things, contains Mexico's National Museum of Anthropology. Even if one does not particularly care for museums, almost everyone will find something here to his liking and amazement. The various halls trace the history of Mexico from prehistoric times to the most recent archeological discoveries. The halls are designed in such a way that you never have to repeat yourself during a walking tour. A visit to the anthropology museum gives the visitor a much better appreciation and understanding of the sights to be seen around the city and suburbs.

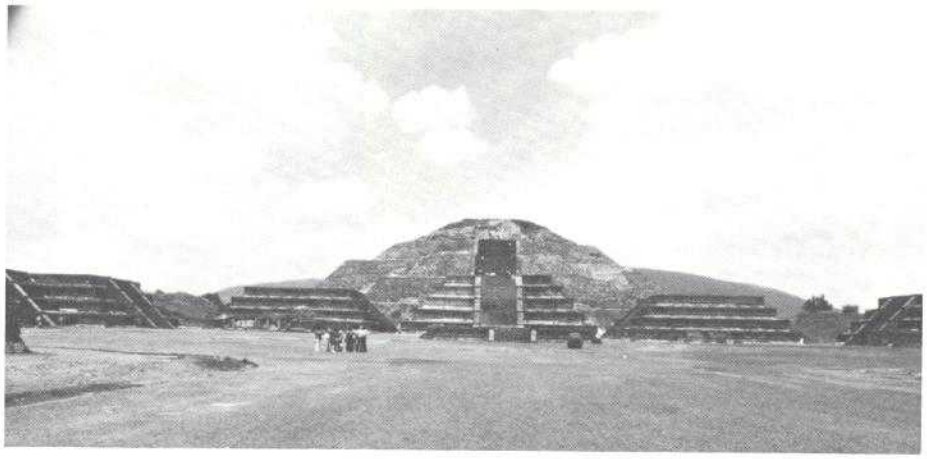
While there are numerous nighttime activities in Mexico City, a 45-minute bus ride from the centrally located Revolution Monument to see a sound and light show at the Teotihuacan Pyramids makes for a very pleasant evening. The huge pyramids, dating back to at least 100 A.D. act as a backdrop for a narration of an ancient Aztec legend dealing with the gods of the sun and the moon. Narrators, along with flood lights and stereo music, give the appearance of a dialogue between the towering pyramids.

In order to see and study the entire pyramid complex this area also should be visited during the day. The two major pyramids were built to honor the gods of the sun and the moon. Each pyramid stands over 300 feet high and can be climbed by steep and uneven cobblestone steps. Going up isn't bad, but coming down is a real exercise in concentration and perseverance.

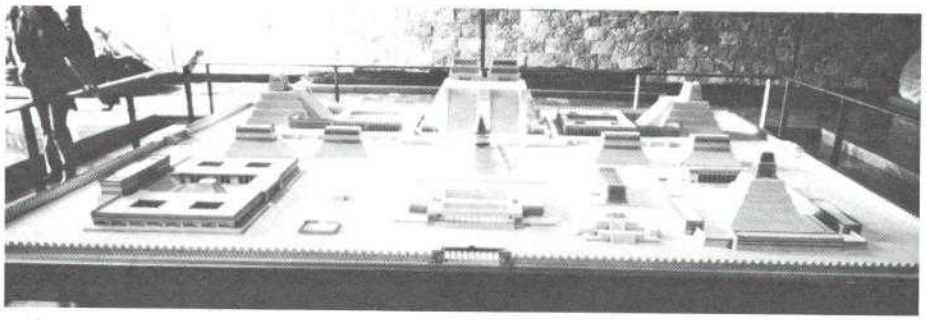
After touring the pyramid complex you can do a little shopping with the merchants at the entrance to the pyramids. Here you can find all sorts of pottery, jewlery and archeological paraphernalia.

Another interesting experience in Mexico City is shopping in the market places. There is a market for just about anything you desire with the most popular items being leather and silver products. The asking price is always higher than what the merchants are willing to accept and negotiation on an acceptable price adds a certain amount of additional enjoyment and flavor to shopping. No matter what you pay for an item, it is usually substantially less than if you had bought it in the U. S.

After running ourselves ragged in Mexico City, we travelled to Acapulco for several days of rest. Here, the greatest amount of exercise came from raising the native drink each evening to toast the beautiful sunsets at Puerto Marques.



Smaller ceremonial pyramids built to honor lesser gods flank Mexico's huge Pyramid to the Moon.



A model of the ancient City of San Juan Teotihuacan in the National Museum of Anthropology depicts the ceremonial area as it is believed to have existed around the year 100 A.D.

1974 Graduates

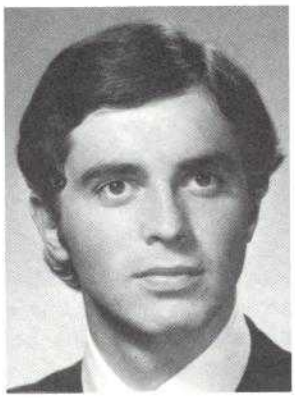
Pictured on these two pages are the 1974 graduates, sons and daughters of COMSAT employees. A photo was not available for Raymond Juhl, son of Mr. and Mrs. Raymond Juhl (Andover), Telstar Regional High School, Bethel, Maine.

Tina Arthur, daughter of Mr. and Mrs. Raymond Arthur (Headquarters), T.C. Williams High School, Alexandria, Virginia.

Leonard M. Bargellini, son of Dr. and Mrs. Pier L. Bargellini (Labs), Damascus High School, Damascus, Maryland.

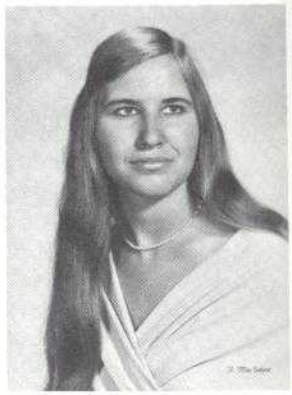
Sharon Lee Bell, daughter of Mr. and Mrs. Charles Bell (Labs), Gov. Thomas Johnson High School, Frederick, Maryland.

Sharon Weems Bland, daughter of Mr. and Mrs. Floyd F. Bland (Labs), Loch Raven Senior High School, Towson, Maryland.

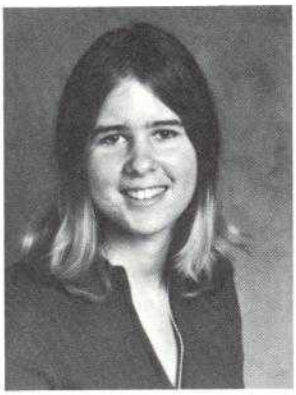


Alberto S. Bracht, son of Mrs. Barbara Bracht (Headquarters) and the late Alberto L. Bracht, B.A. in Economics, U. of Virginia, Charlottesville.

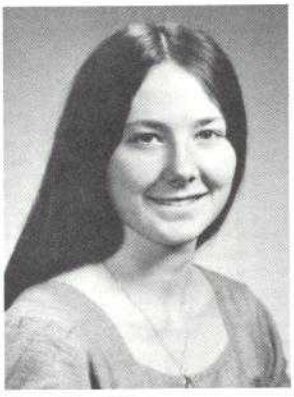
Stephanie Gay Browning, daughter of Mr. and Mrs. Darold D. Browning (Brewster), Brewster High School, Brewster, Washington.



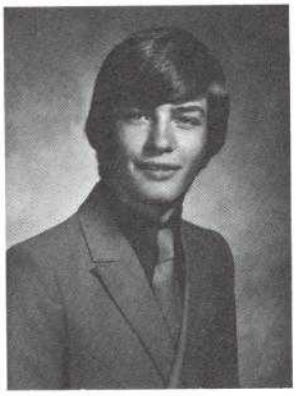
Valerie Maureen Davis, daughter of Mr. and Mrs. Curtis C. Davis (Headquarters), Potomac Senior High School, Oxon Hill, Maryland.



Barbara Susan Early, daughter of Mr. and Mrs. Louis Early (Headquarters), Winston Chruchill High School, Potomac, Maryland.



Jennifer Suzanne Getsinger, daughter of Mr. and Mrs. William J. Getsinger (Labs), B.S. in Anthropology, Radcliffe College, Cambridge, Massachusetts.



David Gifford, son of Mr. and Mrs. Leonard Gifford (Etam), Philip Barbour High School, Philippi, West Virginia.

Wanda Jeanne Gray, daughter of Mr. and Mrs. John E. Gray (Headquarters), Gar-Field High School, Woodbridge, Virginia.

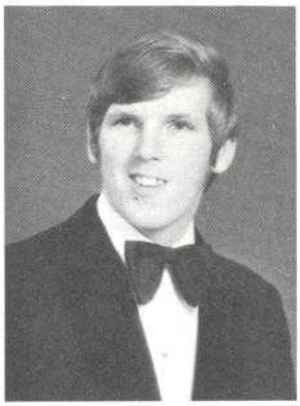
Rhonda Greer, daughter of Mr. and Mrs. Donald E. Greer (Headquarters), Langley High School, McLean, Virginia.

Melody Cecilia James, daughter of Mr. and Mrs. Daniel V. James (Headquarters), B.S. in Zoology, U. of Maryland, College Park, Maryland.

Carol Ann Keck, daughter of Mr. and Mrs. William J. Keck (El Segundo), B.S. in Nursing, UCLA School of Nursing.

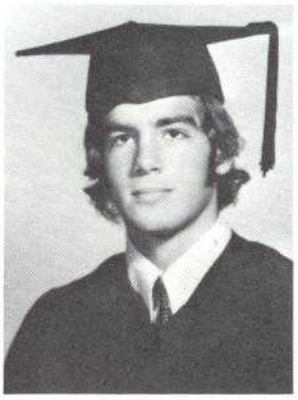
Ann Kilcoyne, daughter of Mr. and Mrs. James H. Kilcoyne, Jr. (Headquarters), Associate in Science, Chowan College, Murfreesboro, North Carolina.

Jo Ann Landesberg, daughter of Mrs. Viola Newhouse (Headquarters), B.A. in English, Washington University, St. Louis, Missouri.



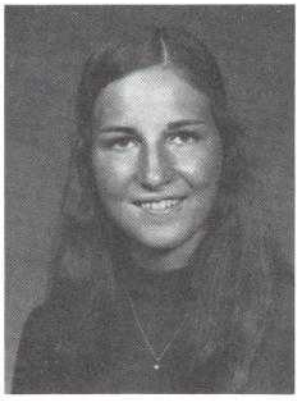
Benjamin McGaha, Jr., son of Mr. and Mrs. Benjamin McGaha (Labs), Gov. Thomas Johnson High School, Frederick, Maryland.

Donna Kay Ours, daughter of Mr. and Mrs. David K. Ours (Headquarters), Marshall High School, Falls Church, Virginia.



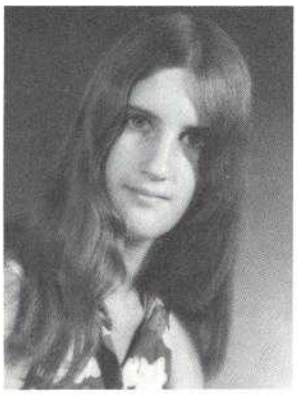
Michael J. Peterson, son of Mr. and Mrs. John J. Peterson (Headquarters), Surrattsville High School, Clinton, Maryland.

Janet P. Reber, daughter of Mr. and Mrs. Carl Reber (Headquarters), Woodward High School, Rockville, Maryland.

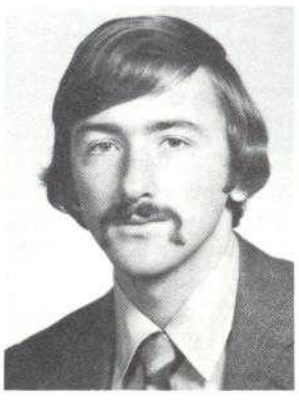


Susan B. Reber, daughter of Mr. and Mrs. Carl Reber (Headquarters), Woodward High School, Rockville, Maryland.

Beth A. Silvius, daughter of Mr. and Mrs. James R. Silvius (Headquarters), Middletown High School, Middletown, Maryland.



Beth Ann Sparrow, daughter of Mr. and Mrs. Lawrence Sparrow (Labs), Magruder High School, Montgomery County, Maryland.



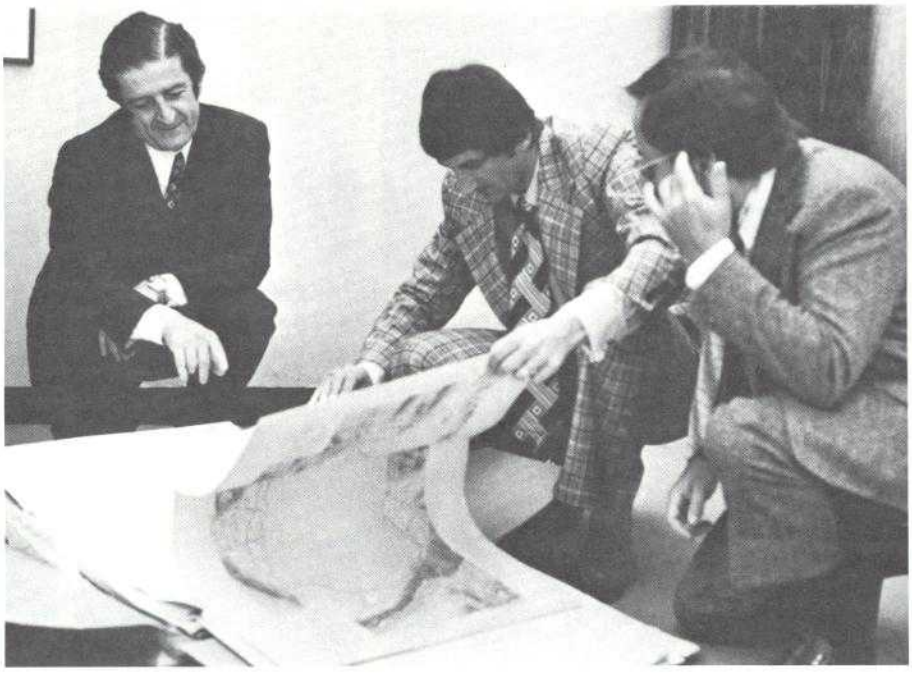
Stephen E. Strauss, son of Mr. and Mrs. Robert Strauss (Labs), B.S. in Biochemistry, Cornell University, Ithaca, N.Y.

Peter Tellmann, son of Mr. and Mrs. George Tellmann (Headquarters), McLean High School, McLean, Virginia.

Joseph V. Ulans, son of Mr. and Mrs. Roman I. Ulans (Asia Office), Singapore American School, Singapore.

Diane Catherine Velasco, daughter of Mr. and Mrs. Gilbert A. Velasco, Sr. (Labs), Glen Burnie Senior High School, Glen Burnie, Maryland.

Fucino Earth Station area "as it was"



A COMSAT "find" is examined by (left to right): Andrea Caruso, Director of the Administration and Conference Affairs Division, INTELSAT Executive Organ; Matthew Gordon, Assistant Vice President for Public Information, COMSAT (picture at left only); Dr. Christoph E. Mahle, Manager, Transponder Department, Microwave Lab, COMSAT Laboratories; and Simon B. Bennett, Manager, Engineering Department, INTELSAT Executive Organ.

The large "folio" book, published in 1861, represents a collection of engineering drawings of the draining of the Fucino Lake area under direction of Prince Torlonia. This became the site of the Fucino Earth Station. The book was acquired by Mr. Gordon as part of his extensive rare book collection.

Steven Drill wins 1974 Merit Scholarship

Steven C. Drill, son of I. Robert Drill, TV Requirements, Commercial Development Office, COMSAT General, has been awarded the 1974 COMSAT National Merit Scholarship.

COMSAT President Joseph V. Charyk awarded the four-year scholarship to Mr. Drill at a presentation ceremony held in Dr. Charyk's office.

A recent graduate of Herndon High School, Herndon, Virginia, Steve was active both as a participant and as an officer of several school club and team activities. He was Chairman of the Science Club, President of the Speleology Club, Vice-president of the Archaeology and Anthropology Club, an attendant to the Summer Science Institute and a member of the Math team and of a local environment study project.

He was also a member of the Herndon High School "It's Academic" TV team. This is the television series seen on Washington's WRC TV in which high school student teams compete for awards to further school projects. Herndon High School, this year's Washington area champion, defeated Baltimore's Randallstown High School to capture the Washington/Baltimore regional championship.

Steven C. Drill (second from left), son of COMSAT General's I. Robert Drill, chats with Dr. Charyk following scholarship award ceremony. Seated, left to right, are Personnel Director David S. Nye, Steven, Mr. Drill and Dr. Charyk.

Steve intends to enter Johns Hopkins University in September and will major in Biophysics.

According to William B. Lockett, Assistant Director of Personnel, EEO and Human Resources Development, the COMSAT Scholarship, offered each year to the son or daughter of a COMSAT employee who obtains the highest total score on the National Merit Scholarship Examination, provides for a yearly stipend for four years of undergraduate study.

Three miles to *where*?

Having spent the major part of his life working with printers and typographers, COMSAT's Ed Bolen casts a copyreader's jaundiced eye on an offending directional sign on the way to the Labs. Accustomed to returning incorrect proofs to the printer with the proofreader's symbol ordering the proper correction, Ed ponders the proper procedure for the removal of the intruding "T" from the road sign.

COMSAT receives SavEnergy award

Gene Christensen and Clarence Holloman of Administrative Services display the SavEnergy certificate presented COMSAT by the U.S. Department of Commerce in recognition of its contribution to the national energy conservation program.

27 at Labs get patent incentive awards

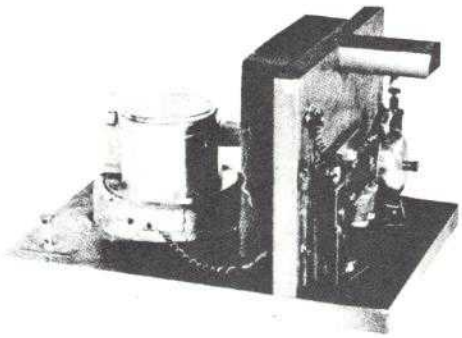
Twenty-seven engineers and scientists were presented patent incentive awards recently by Dr. B. I. Edelson, Director, COMSAT Laboratories.

Those receiving awards, with patent titles, were Arnold Berman and Marvin Wachs, "Microwave Multiplex Switch"; Berman, Wachs and Christoph Mahle, "Frequency Translation Routing Communications Transponder"; George Dill, "Single-Channel-Per-Burst TDMA"; Harold Ford and Atsushi Tomozawa, "System for Changing the Burst Format in a TDMA Communications System"; Wilfrid Maillet, "TDMA Burst Acquisition System"; Arthur Standing and Calvin Cotner, "Adjustable Microstrip Substrate Holder"; and Joseph Haynos, "Mechanically-interlaced and Electronically-interconnected Silicon Solar Cells".

William A. Allen, "Ultra Hgh Vacuum Valve"; Eugene Cacciamani and Alan Dohne, "Phase Ambiguity Resolution System Using Convolutional Coding-Threshold Decoding"; Robert Dendall, "Padded Solar Cell Contracts"; James Dunlop and Joseph Stockel, "Lanthanum Nickel Hydride-Hydrogen/Metal Oxide Cell"; Harold Ford, William Gaunt and Pradman Kaul, "Variable Threshold Digital Correlator"; Ronald Garlow, Marvin Ginsberg, Leonard Golding, M. Lynwood Heiges, Pradman Kaul, Wilfrid Maillet, Bruce Merrihew and Henry Mueller, "A Digital Television Transmission System"; Randall Kreutel, "Lossless Network for Orthogonalizing Dual Polarized Transmission Systems"; John Locke, "Holographic Image Scanner/Recorder System"; and Chester Wolejsza, "Dual Pilot Redundant AFC System".

Among those receiving Patent Incentive Awards at the Labs were: (seated, left to right) Wilfrid Maillet, Bruce Merrihew and Marvin Ginsberg; (standing, left to right) Ronald Garlow, Leonard Golding, William Allen, William Gaunt, James Dunlop, Dr. Edelson who presented the awards, Randall Kreutel, Harold Ford and Joseph Stockel.

Sixth World Telecommunication Day



A. S. Popoff's first radio receiver (1895).

With the theme "Telecommunications and Transport" the 146-member-country International Telecommunication Union (ITU) celebrated the sixth World Telecommunication Day on May 17.

Founded in 1865, the Geneva, Switzerland, based ITU, is the specialized agency of the United Nations for telecommunications.

Following are extracts of a historical review dealing with radiocommunications and the introduction of radio in shipping, aviation and other forms of transportation prepared by the ITU.

The very nature of radio made it international right from its first beginning. Unlike the cables of the telephone or the wires of the telegraph, electromagnetic waves know no man-made frontiers. Once emitted from their antenna only their strength decides to what distance they travel. This immense advantage was first appreciated by naval and maritime authorities who had in wireless the first possible method of keeping in touch with ships at sea.

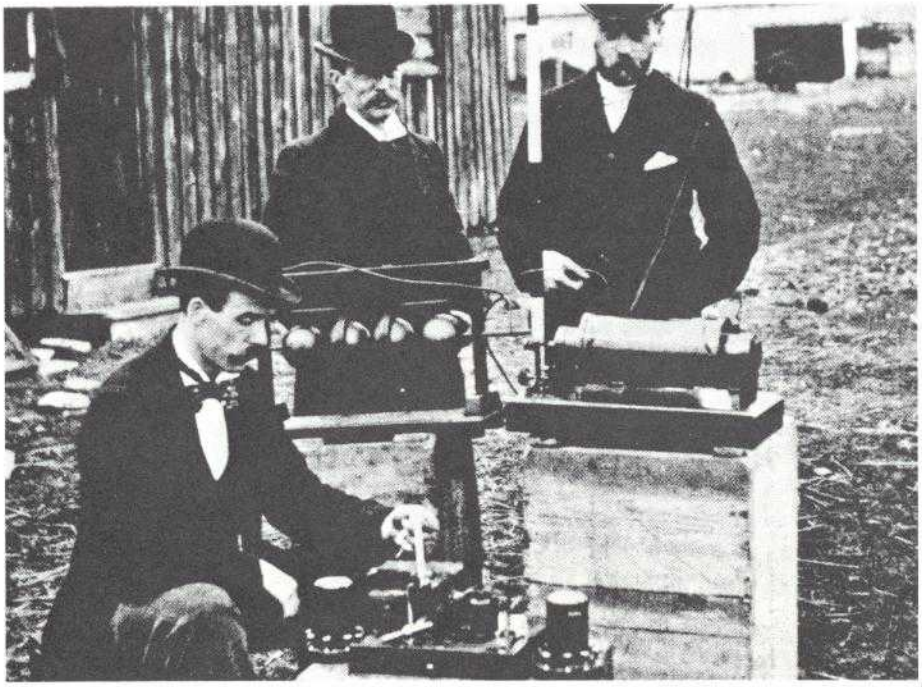
After conducting experiments with wireless telegraphy the Russian physicist Alexander Stepanovich Popov established a radio station at Kronstadt, near St. Petersburg, in March 1897 and equipped the cruiser *Africa* with his apparatus. In 1899 wireless communication was established between the battleship *Admiral Aprasin* and the coast over a distance of 72 kilometres (45 miles). On 23 January 1900, using Popov's apparatus, a message was flashed from St. Petersburg to the icebreaker *Yermak* in the Baltic Sea instructing the crew to rescue a group of fishermen stranded on floating ice in the Gulf of Finland.

Meanwhile Guglielmo Marconi's Wireless Telegraph and Signal Company Limited was registered in London on 20 July 1897. The field of wireless was an area of keen competition. In Germany, Adolph K. H. Slaby (1849-1913), who had himself made distinguished contributions by the invention of resonant coils to measure wavelength, joined with Count George von Arco and the A.E.G. in the manufacture of wireless equipment.

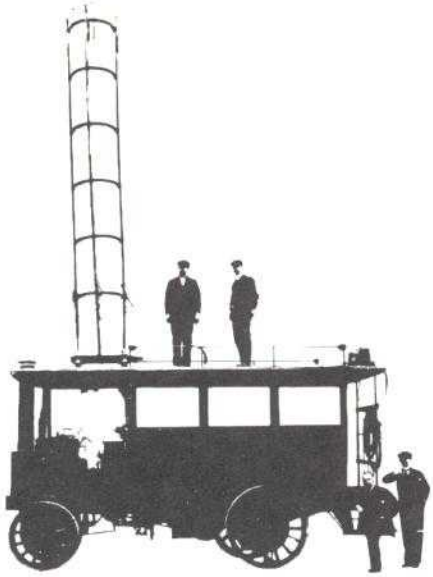
Marconi built his own transmitting stations on land, strategically located along the sea trade-routes, and placed his own operators on board ships fitted with his equipment. They were forbidden to communicate with any other wireless station on any other ship unless it also was a Marconi station. To carry out his plan, the Marconi International Marine Communications Company was created in 1900, and from May 1901 many Marconi Stations were opened in Britain, Ireland, Italy, Canada, Belgium and Newfoundland. The first radiocommunication company in the United States was the Marconi Wireless and Telegraph Company of America; it was organized as a New Jersey Corporation on 22 November, 1899.

During the first decade of this century wireless was still thought of as a means of point to point communications. A shipowner giving his captain instructions, a financier ordering his broker to buy or sell, or the transmission of the latest news to the ship's passengers (often this was duplicated on board, and thus the first ship's newspapers came into being). Then three dramatic events happened at sea, showing to the whole world the real value of this new means of communication.

At 5:30 in the morning of 23 January, 1909, the 15,000 ton ship *Republic* was in deep fog, about 280 km (175 mi.) east of Ambrose light, off the east coast of the United States. There and then she struck the Italian steamer *Florida*, with 800 emigrants aboard, westward bound to the new world. Jack Binns, radio officer aboard the *Republic*, transmitted the



Post Office officials examining Marconi's apparatus when, in 1897, he successfully communicated by wireless across England's Bristol Channel.

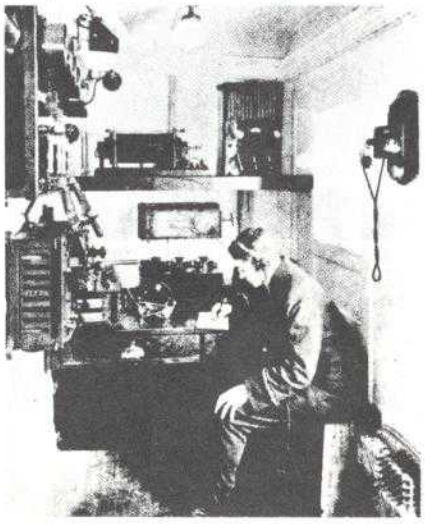


The first mobile wireless (1901). Steam driven wagon used by Marconi in early experiments.

wireless distress signal—CQD—to Siasconset, on the American coast, and from there it was relayed to other ships in the neighborhood. The first to arrive at the scene was the *Baltic,* which had received the request for assistance only 30 minutes after it had been sent out. She was brought alongside entirely by wireless messages from the *Republic,* this being the only means of guiding her in the thick fog. All 1,700 souls from the two ships were saved.

That wireless could render a quite different kind of service was shown only 18 months later. In July 1910, the notorious British murderer, Dr. Crippen, had escaped with his secretary and was fleeing aboard the Canadian Pacific liner *Montrose* from Antwerp. The captain's suspicions having been aroused by a strange passenger and his son (the secretary was disguised as a boy), radioed his company's offices, which sent him a detailed description of the pair. When he confirmed their presence aboard, Chief Inspector Drew of Scotland Yard set out for Canada aboard the *Laurentic,* a much faster vessel.

So began the race across the Atlantic, known to the whole world by wireless, but unbeknown to the two fugitives from justice. They were both arrested on arrival in Canada.



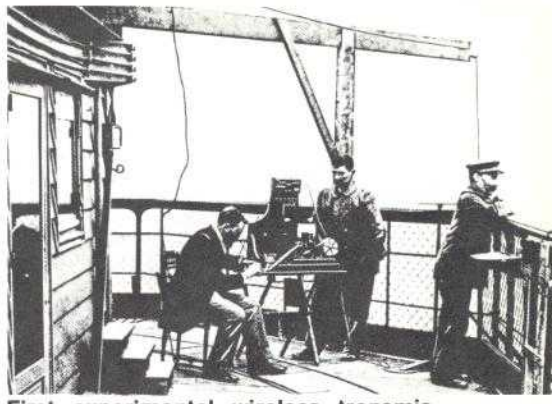
Similar to the wireless room on the Titanic, this is a ship's wireless room in 1913.

But the most dramatic event of early wireless history at sea was the loss of the *Titanic* with 1,503 souls. She struck an iceberg on 14 April, 1912, when on a northern great-circle route to beat the record of an Atlantic crossing during her maiden voyage. The *Titanic's* distress signals were heard by the *Carpathia,* which on arrival at the scene of the disaster was able to rescue 710 survivors.

As more and more ships had been equipped with wireless, trouble had begun. Because the spark transmitters used a very wide bandwidth, two chatting operators practically blanketed any other vessel within 100 kilometers that might have wanted to use the air. The only way to choke them off, and it was frequently used by some who wanted to send a message, was to "drop a book on the key". This meant literally that the operator put a book or any other heavy object on the transmitting key, setting up such a continuous roar of interference that nobody could hear or send anything at all. Confusion was rendered worse confounded.

These and many other inevitable interferences, with everyone operating at will on the same wavelength, naturally led to wireless feuds and quarrels, filling the air with curses, aspersions, and choice obscenities. With such conditions prevailing, naturally the service was far below the efficiency it could have reached even in those early days.

The physical existence of radio equipment aboard ships and land stations was obviously not enough to ensure an efficient international service. Two radio stations must communicate on the same frequency and if this frequency is also used by a third station then interference may occur. Throughout the history of radio it has always been the aim to choose and assign appropriate frequencies by international agreement, to lay down rules for the operation of radio stations, whether on a ship, on an aircraft or on land, and to approve standards for apparatus and operators. It was indeed fortunate that a preliminary international conference on radio took place in Berlin as early as 1903.



First experimental wireless transmissions from the Eiffel Tower (1898) were received near the Pantheon, 2½ miles away.

Undoubtedly an incident of the previous year had much to do with this. Prince Heinrich of Prussia had attempted to send a courtesy message to President Theodore Roosevelt, while crossing the Atlantic after a visit to the United States, but was refused service because the apparatus on his ship was not of the same make as that of the coast station with which he attempted to communicate. Freedom of correspondence was certainly one of the major aims of the preliminary conference of Berlin, where, incidentally, Popov was one of the chief Russian delegates.

Nine countries, including the United States, met in Berlin in 1903 to undertake preliminary studies for the international regulation of radio. For the First Radio Conference in Berlin in 1906, the German Government had drawn up a complete draft convention and radio regulations; 29 nations came to this, the First International Radiotelegraph Conference.

Other noteworthy provisions of the Berlin Convention were the obligation to connect the coast stations to the international telegraph service, to give absolute priority to all dis-

tress messages, and to avoid radio interference as much as possible.

But the main work of this, and of all subsequent radio conferences, was concerned with more technical questions, particularly those of frequency allocation.

The procedure for ship-to-shore radio communications, and of course vice-versa, was laid down in the Radio Regulations. Stations had to have a Government license and operators had to have certificates as to their competence.

Finally, the Regulations adopted the new Morse distress signal •••———••• SOS.

The steady scientific progress of radio communications led to the calling of the next radio conference in London in 1912.

There was much of importance discussed at London. Obligatory installation of radio aboard all ships could, however, not be adopted, as it was considered to trespass on the internal jurisdiction of individual countries. Continuous radio watchkeeping was one topic.

The allocation of frequencies came up again for revision.

Three new services were in use in 1912 for which frequencies had up till then not been allocated; radio beacons, weather reports and time signals.

Thus in the space of 15 years the technique of radio-communications grew from the experiments of physicists into a service used on the oceans of the world, providing public correspondence, weather information, navigational aids and bringing help to ships in distress.

The next Radio Conference took place in Washington in 1927, 15 years after the London Conference. By this time it had become necessary to restrict severely some of the older types of transmitters, the spark sets, and to divide up the radio spectrum in a highly efficient manner to deal with the ever-increasing demands on it.

Comsat General's Dr. Loutit: an appreciation

Dr. John A. Loutit, 63, Senior Technical Advisor of COMSAT GENERAL's Technical Services Division, a pioneer in space communications, died April 20, in Lisbon, Portugal, where he was serving as an advisor to the Portuguese government on satellite communications.

A Canadian, Dr. Loutit served with the Royal Canadian Signal Corps for 25 years before joining the COMSAT Corporation here over nine years ago.

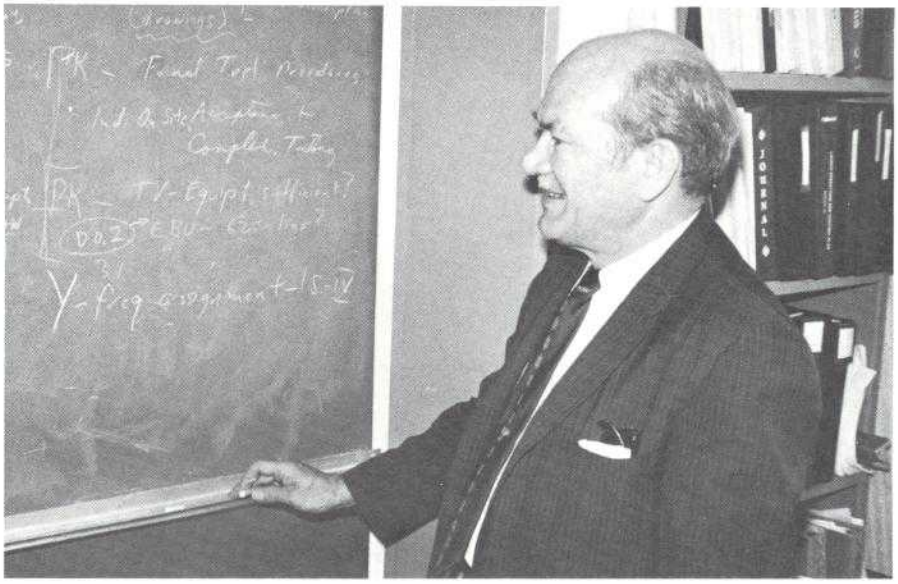
In his last three years in the Canadian Army, Dr. Loutit was assigned to Fort Monmouth, N.J., helping the U.S. Army develop the first communication satellite. He also was chief of special projects and the consulting engineering group of the Royal Canadian Signal Corps.

Dr. Loutit was born in Selkirk, Manitoba, in 1911, was educated at the University of Manitoba and the University of Toronto, and earned his Ph.D. in engineering sciences at Harvard. Prior to joining the Canadian Army in 1940 he was an engineer with Dominion Electrohome Industries, Ltd., in Kitchener, Ont.

In his position with COMSAT, Dr. Loutit was noted for his ability to communicate the complexities of satellite engineering in terms that were understandable to government ministers as well as to engineering students, and had served in an advisory capacity in Thailand, Formosa, Jordan, Cameroon and Pakistan.

Dr. Loutit lived at 9519 Woodly Ave., Silver Spring, Maryland. He is survived in addition to his wife, Irene Evelyn, by three daughters, Irene Franklin of Montreal; Margaret Kirkland of Newport News, Va.; and Carol LaBelle of Pensacola, Florida.

Other survivors include six sisters, Roberta Levant of Chevy Chase, Maryland; Anne and Ruth Loutit of Winnipeg; Isobel Loutit of Montreal; Patricia Crookes of Edmonton; and Marvel Sadler of Calgary.



The late Dr. John A. Loutit had lived with a heart pacemaker for the past several years and had a long-time interest in medical technology. Dr. Loutit had planned to work toward the technological improvement of medical instruments following his retirement.

Dr. Charyk's speech

(Continued from page 2)

wide interconnection the satellite system provides. Either directly or through terrestrial extensions from the countries with earth stations, a total of 100 countries, territories or possessions are leasing satellite circuits on a full time basis.

As a result of the continuing expansion of the satellite system and the growing reliance on satellites as a primary means of communications, the number of half circuits being leased on a full time basis in the INTELSAT system increased 37 percent to a record 9,833 in 1973. (A half circuit in international communications is one country's portion of a through circuit to another country.)

For COMSAT, the number of half circuits being leased to the U.S. international communications carrier companies between the United States and the satellites increased 21 percent in 1973 to a record 3,583.

The significance of these figures on satellite utilization is their indication that a major portion of all international long distance communications is going by satellite, and that a healthy long term growth trend has been established.

Even though the normal growth in international communications looks strong, we are constantly striving to introduce both new technology and marketing techniques.

Since the beginning of last year, we have introduced several new tariffed satellite services. One was a new all-digital service for high speed data communications (the equivalent of 70,000 words per minute) between the United States and Hawaii and between the United States and Europe. Recently we introduced tariffs to Hawaii for data rates in the order of 3,000, 6,000 and 10,000 words per minute.

Other new tariffs to stimulate business include a per hour program channel service for radio broadcasters, and a totally new service in the Atlantic area which makes satellite circuits available as needed on a per minute basis, instead of requiring a preassigned full time circuit.

Although revenues from these offerings are now modest by comparison with those from the voice-grade leases, we are confident they will grow in time.

Our engineering and research efforts, of course, continue to support INTELSAT, COMSAT GENERAL and outside customers. Perhaps one of the more significant projects at COMSAT Labs is the construction of a millimeter wave beacon which will be placed aboard the satellites COMSAT GENERAL leases to AT&T. This is a highly advanced solid state transmitter which will radiate exceptionally stable signals to obtain precise measurements of atmospheric interference that is encountered in the much higher frequency ranges that satellite systems of the future must inevitably employ.

The Laboratories continued their work on the small unattended earth terminal which can work by remote control with several satellites, as compared with one satellite for present stations.

The Laboratories are also developing the telemetry and command equipment to be used in support of the MARISAT and domestic satellite earth station installations now under construction in Santa Paula, California and Southbury, Connecticut. Such equipment will also be used in COMSAT GENERAL's Control Center in Washington, D.C. When the satellites for AT&T are deployed early in 1976, a year later than the launching of the MARISAT satellites, COMSAT GENERAL will be able to take economic advantage of multiple system operations from the same earth station sites.

The MARISAT satellites will, of course, completely change maritime communications. You may be surprised to learn that more than 90 percent of all messages in commercial high seas communications still go by radio telegraphy or Morse Code—at an average speed of only 25 words a minute and an average delay of about 12 hours in the delivery of messages. There is some reason, therefore, to envision a revolution in maritime communications, for the MARISAT satellites will provide instant, high quality voice, picture, teletype and high speed data communications throughout entire ocean areas.

Negotiations for the establishment of an aeronautical satellite communications capability in the Atlantic Ocean area by the ten countries of the European Space Research Organization, the United States and Canada have been underway for some time. Part of the negotiations includes the selection of a U.S. partner by ESRO in what would be a tripartite joint venture. Up to this time, selection of the U.S. participant has not been made, but COMSAT GENERAL and RCA Global Communications are the principal candidates being considered by the Europeans.

As the launching of the MARISAT satellites approaches, construction of the four satellites for domestic use by AT&T (three in orbit and one as a spare) also continues on schedule with the first launch planned for early 1976. These satellites, you will recall, have more than twice the capacity of any satellite now in existence, and they will also introduce a new technology by making dual use of the same frequency bands through a technique known as cross-polarization. COMSAT GENERAL will own and operate the satellites and the associated ground facilities for telemetry and command. AT&T will lease the full capacity of the satellites and construct and operate the earth stations needed to integrate them into its national message network.

COMSAT GENERAL also has a Technical Services Division. This activity was initiated by COMSAT as an advisory service in 1966 at the request of foreign countries who were interested in constructing earth stations and joining the satellite system. The service, which included matters that range from site selection to the monitoring of construction and operations was offered at cost. Over the past eight years, COMSAT has provided such services to nearly 30 of the 54 countries that now have earth stations.

Last month the Government of Saudi Arabia, for example, retained COMSAT GENERAL to supervise construction of large standard earth stations at Riyadh and Jeddah for completion in about 16 months. Meanwhile, COMSAT GENERAL will arrange for the installation of small interim stations within the next three or four months to provide communications routes between Saudi Arabia and other countries throughout the INTELSAT system. The contract for interim services is valued at more than $2 million.

During our first ten years, our efforts were directed primarily toward the development and expansion of the global satellite system. This was the primary job that Congress gave us to do, and in all modesty it is fair to say that our success in developing the global system has been far more

rapid and definitive than anyone foresaw ten years ago.

The nature of our participation in each of the new opportunities differs quite widely at the present time. We have every confidence, however, that our experienced staff and our solid financial resources will enable us to continue to play an important role in shaping satellite communications of the future.

Mr. McConnell's speech

(Continued from page 2)

We hope for favorable Commission action on this proposal. We believe it would be beneficial to the Corporation and its shareholders—as well as to the public interest. It would provide a period and degree of financial stability which might not be possible in the presence of the uncertainties that could accompany extended rate proceedings in the Commission and possibly in court.

Initially, of course, there would be a reduction in our operating revenues. But I do not assume that the long-range outlook for COMSAT is unfavorable.

Last year, we announced the formation of the new wholly owned subsidiary, known as COMSAT GENERAL Corporation, to carry out the Corporation's domestic satellite programs and other non-INTELSAT activities. This was done in compliance with FCC requirements.

Earlier this year, a financing plan for COMSAT GENERAL was approved by the FCC. Under the plan, COMSAT, subject to certain conditions, is authorized to make a total contribution of $200 million to COMSAT GENERAL in cash and non-cash assets.

COMSAT GENERAL is participating in two satellite programs. One involves making available to AT&T the use of satellites to meet domestic communications requirements. The first of these satellites is planned for launch early in 1976. The COMSAT GENERAL investment of about $180 million in this program would result in revenues of approximately $314 million if the satellites operate satisfactorily over their seven year design life.

In a separate enterprise, COMSAT GENERAL, MCI Communications Corporation, and Lockheed Aircraft Corporation each holds a one-third interest in CML Satellite Corporation which was formed to offer domestic satellite services to customers other than AT&T.

CML is exploring some unique approaches to the provision of domestic satellite services which hopefully will place CML in a strong position in this field.

Recently, CML has acquired an option for the acquisition of the shares of MCI and Lockheed, and COMSAT has agreed to lend CML operating funds on a short term basis.

COMSAT GENERAL will soon be providing maritime satellite services to the U.S. Navy and to the commercial shipping industry in the Atlantic and Pacific Ocean areas. The first maritime satellite is planned for launch early next year. This program is a joint venture in which COMSAT GENERAL holds an 80 percent interest, the remaining 20 percent being held by RCA Global Communications, ITT World Communications and Western Union International.

The cost of satellites, launches, earth terminals and related costs for the Navy/maritime program is estimated at about $80 million, of which COMSAT would pay 80 percent.

A contract with the U.S. Navy to use a portion of the capacity of two satellites for two years calls for minimum revenues of $27.9 million. The Navy, however, has options to use additional capacity and to extend service to three years.

We believe that this program has excellent potential. COMSAT GENERAL has an opportunity to enter a new market with an initial commitment of revenues, as contrasted with starting from scratch. Moreover, the availability of service over the entire five-year design life of the satellites should contribute to a speedier development of customers in the commercial shipping industry.

When we stop and think, we see that COMSAT's success over the years stands in dramatic contrast to many of the trends in the business and international environments around us.

During a time when other international relationships have been marked by severe strains, when historic alignments have shifted, and when international economic relationships have been subject to the greatest uncertainty, INTELSAT has grown and matured, has become more cohesive, and has achieved greater stability.

At a time when most markets for goods and services are beset by the rising costs of inflation, by capital shortage and by uncertain profitability, COMSAT's charges for certain of its services have been reduced, our revenues much enlarged, and our earnings greatly strengthened.

Our capital position is sound and we have not had to rely for our expanding activities upon new debt or equity capital at a time of high capital costs and poor securities markets.

In most of its fundamental respects, therefore, the conditions of our business are a dramatic and welcome relief from the conditions of the business environment in general.

As in most human affairs, these conditions of our business result from a combination of foresight and good luck, but it is a result in which our shareholders can take considerable satisfaction. I hope that our foresight continues, as in the past, and that our good fortune increases.

Commuter Club printouts distributed

COMSAT employees responding to the Commuter Club questionnaire and indicating their willingness to participate in a carpool have received computerized printouts listing L'Enfant Plaza workers interested in participating in carpools.

The printouts, prepared by the Washington Board of Trade, contain the names of those Washington workers who have been matched with others commuting to and from the same general areas and signifying their desire to "pool it". Interested parties for whom matches were not available will receive printouts only if future updated lists disclose matching possibilities.

Computerized lists of Plaza employees include respondents from Tenneco and General Electric which companies maintain offices in the Plaza.

Responsibility for carpool matters has been transferred from Robert A. Dahlgren to Cindy Watson. Queries concerning carpooling should be directed to her in the Personnel Office, telephone extension 6055.

COMSAT Women in Profile: Sigrid Badinelli

by DONNA HIGGS

Women employees of COMSAT *make important contributions to the corporate effort. "Women in Profile" represents a selection from the "distaff side" of the* COMSAT *House in recognition of such performance* (Ed.).

Our spotlight for this issue focuses on Mrs. Sigrid Badinelli, Advisor, INTELSAT Agreement Matters, INTELSAT Affairs Division; a COMSAT employee for approximately six years. Under the direction of Mr. R. Colino, Assistant Vice President, International Affairs, Sigrid's work, in brief, includes writing position papers and policy analyses with respect to U.S. representation in various INTELSAT organs such as permanent management arrangements, establishment of the executive organ, and reports of meetings of Signatories and the Assembly of Parties.

At the Ninth Meeting of the Board of Governors, Mrs. Badinelli was alternate U.S. Representative to the Special Committee on Permanent Management Arrangements, and, following the Ninth Meeting, the U.S. Representative, rather than the alternate.

Mrs. Badinelli and her husband, Joseph, reside in Rockville. In her scant spare time, she enjoys reading, crocheting and playing with their four cats.

Tracy, Scott, Maureen and friends

Former COMSAT employee Mrs. Maureen Howes (left), accompanied by her two boys Tracy and Scott, visit COMSAT and are warmly greeted by Senior Vice President George P. Sampson and Senior Executive Secretary Pat Kiernan. Mrs. Howes had been employed in Marketing from December 1966 to October 1969.

COMSAT NEWS ends generation gap

The last time the paths of Gene Christensen and Dr. Paul Campbell crossed was when they were both on Air Force Embassy duty in London, England, 20 years ago.

Dr. Campbell, now retired and living in San Antonio, Texas, and the subject of the feature article *Space Buff Appreciates Satellites* in the March/April issue of the COMSAT NEWS, and COMSAT's Christensen, have renewed their friendship as the result of the story and are now filling in the two decades of blanks by correspondence.

Copies of the COMSAT NEWS carrying Dr. Campbell's story have also become part of the archives of the Paul A. Campbell Man and Space Library at Trinity University in San Antonio.

ETAM: How green the valley

by R. N. Hobbs

Spring has once again arrived in Green Valley, and we welcome the coming of nature's yearly miracle that brings out the wonderous beauties of this planet that varies so widely in appearance as one travels over its surface.

The word Etam is normally used to designate our station, but it is hard to exactly define just where Etam actually is. As one approaches the station along Route 72, there is a small mountain stream (streams are called runs in West Virginia). The name of this run is Buffalo Creek and it is here that you will find the small green sign with white letters that announce this location as Etam. They further inform the traveler that it is unincorporated, a fact hardly worth mentioning.

Directly opposite the sign, on the westerly side of Route 72, is Etam's most elegant residence, that of Mr. Darrell Dean, one of whose brothers is employed in the station's facilities department. Mr. Dean owns and operates the Darrell Dean Sawmill No. 1, several hundred yards down Green Valley road and about half way from the junction of Green Valley road and Route 72 to the Comsat Earth Station. It is here, beyond the Darrell Dean Sawmill, that our station is located.

Green Valley Road is not a pretentious road that would evoke cries of delight from some chance traveler. Our little road has not risen to the fame of the Jamesburg road that seems to come up at frequent intervals. In fact, it is about one half mile long to the point where our entranceway enters the grounds, and Route 72 where it terminates, or begins, depending on the direction you view it from—it further has only one chuck hole in its entire length.

The hole starts as you turn off Route 72 and ends where you turn into the station grounds. From that point on the Comsat drive has no check holes that are of any significance. This does not mean we have never had one, but as fast as they appear, someone from the facilities department fills them up, and we do not even have a photographic record of one on the station due to the exuberance of this gang of eager beavers. So, somewhere about half a mile from the state-implanted pole with a green sign lettered in white that announces Etam, one can halt his vehicle and look at the space age marvel of our imposing 97 foot dish. It stands alone amidst the greenery of the cow pasture surrounding it, and centered between the wooded peaks of the two mountain ranges that pass on either side.

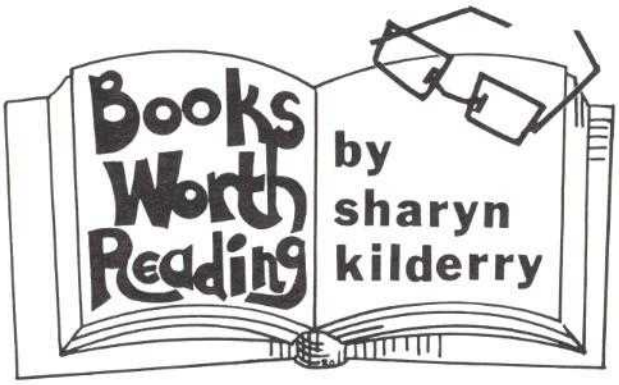
Looking westerly, one will see the remainder of Green Valley. It is from these wooded hills near the station that Mr. Dean acquires the logs that he saws daily (Sunday excepted). And as one climbs the staircase leading to the Elevated Equipment Room affixed to the backside of our relector, should it be daylight hours, the whine of Mr. Dean's big circle saw will come floating on gentle breezes to announce he is once again at his labors in his small sawmill.

Since I have not been able to determine the exact boundaries that encompass the community identified on state maps as Etam, I am going to take a chance and say that the next most pretentious dwelling at Etam is the Loughry residence, which lies directly across the Green Valley road from our station entrance. There are several dwellings of varying lesser financial value that lie between the Green Valley road terminus and the main gate of our station.

There are people that have lived out their entire lives in Green Valley and now lie at rest among the graves of the small cemetery on the hillside across the road from our valley entrance who never experienced the meager plasure of having a small box attached to the wall known as a thermostat. The plumes of blue smoke arising from the chimneys of these small homes, often in need of repair, indicate that, while astronauts glide across the endless miles of space in sophisticated vehicles with at least two systems aboard to insure a safe return, these plain hill folk still cut, split and carry fuel into their wood burning stoves just as their ancestors did a hundred years before. Little has changed here in Green Valley that could possibly be related to this advance of man's most cleverly designed mode of communications. Our coming has created no problems, nor, for that matter, solved any.

Time passes, winters change to spring, and Green Valley continues on in its peaceful manner. Except for the great white dish protruding upward from a former cow pasture, there seems to be no other visible evidence that here, within earshot and easily within visual range, stands among these hardy hill folk a real space age device that could easily have changed their plain and simple way of life. And, if God remains willing, and we continue our operation in the future as in the past, we join them in their prayers that nothing will change Green Valley from being what it always has been, and is fittingly described in our state promotional slogan, "Almost Heaven . . . West Virginia."

Mr. Hobbs is the author of Red Neck Rufus, *published by Vantage Press, the story of the fast-vanishing mountain folk of Applachia.*



World Communications: Threat or Promise, by COLIN CHERRY (Wiley, 1971), examines technology within a social, political environment. The author's prime thesis deals with the different ways individuals in developed and developing countries see the institutions within which they operate, and the impact of communications technologies on these institutions. Cherry feels that to the Westerner communications technologies represent a personal, emotional value—telephones, televisions, books, newspapers are used in the home for personal enjoyment, for convenience, for necessity. This personalized assessment fails to take into account the great organizing powers of the new technologies—powers for organizing industrial, commercial, governmental and educational institutions. Those living in advanced countries tend to trust in their institutions; they trust in the utilities to operate, the transportation system to run, the Government to function. Less importance is placed on personal contact; we deal with the function, not the person. But in pre-industrial societies the trend is just the opposite, and trust is placed in the individual friend or relative. This brings us to the author's conclusion: the primary contribution that communication technologies can make to national advancement through industrialization lies in this development of trust. They have the power to assist the practical and continuing operation of existing institutions and the creation of new ones.

In the mid-1950's, Robert K. Greenleaf, then Director of Management Development and Management Research for the Bell System, perceived the need for basic research into growth and development in adult life as an additional management development tool.

From this grew the Management Progress Study, reported in *Formative Years in Business: A Long-Term AT&T Study of Managerial Lives* (BRAY, CAMPBELL, and GRANT; Wiley, 1974). The study covers a period of eighteen years, utilizing men who had come into the management staff of the System early in their careers as subjects. Several general questions were examined: what significant changes took place in these men as their careers progressed; what expected changes failed to materialize; to what extent did company policies, climate, or practice effect (sic!) these changes or preclude the expected changes. From these generalizations evolve some very specific questions of interest to all those living in the corporate world: at what point does the drive for advancement slack off, does learning ability decline as people age, do less successful men devote more time to their families and outside activities, and many others.

National policy regarding science and technology is becoming increasingly interwoven in the fabric of basic domestic and international policy, and interest in the subject grows on both the national and worldwide levels.

With this in mind, the Battelle Memorial Institute sponsored a year-long Science Policy Colloquium featuring nationally prominent figures. For five years the Institute had published the journal SCIENCE POLICY REVIEWS, "a pioneering effort to document the broad range of thought on matters involving science policy."

Science and Technology Policies: Yesterday, Today and Tomorrow (STRASSER and SIMON, eds.; Ballinger, 1973), an edited collection of these speeches and papers, hopes to bring to the readers' attention some of the expert opinions put forth.

A review of the book reveals a theme common to all selections: The rapid evolution of American science and technology policy stems from changing social and political conditions and reflects the temper of the times more than any inclusive long-range national goal or policy.

McGraw-Hill Yearbook of Science and Technology (1974 Edition), contains a section discussing communications satellites authored by Labs Senior Scientist Pier Bargellini. Dr. Bargellini reviews the progress in communications by means of satellite as characterized by the continued growth of the International Satellite Communications System, the inauguration of the Canadian Domestic System, and rulings of the Federal Communications Commission opening the market of domestic communications satellites in the United States. The greater capacity of future satellites resulting from the development of advanced communications satellite technology and techniques is described by Dr. Bargellini. "Within a few years," he concludes, "it is reasonable to expect a variety of communications services to be available to industry and the public to an extent that challenges the imagination—and with attractive promise of continued lower cost."

Labs Tech Library offers many services

A variety of information services are available to Labs personnel in the Technical Library and Document Collection Center at the COMSAT Laboratories in Clarksburg. A description of each of the services offered follows.

Technical Library

The Library currently receives approximately 375 scientific and technical periodicals and journals including a complete set of IEEE Transactions. The book collection is varied, consisting of about 7,000 volumes primarily in the areas of engineering, electronics, communication, mathematics and physics. Approximately 350 books and other materials are available as reference. In

addition, the library also has a collection of proceedings from technical meetings and conferences.

The shelving and classification system is that of the Library of Congress. If additional material is needed, journals, articles, and books may be obtained through the Inter-Library-Loan arrangements as well as through the National Technical Information Service (NTIS), NASA Scientific and Technical Information Facility and many local professional and university Libraries. Access has also been arranged to the Engineering Societies Library in New York and the John Crerar Library in Chicago. All books and documents for the Labs are purchased through the Librarian.

Document Collection

The "Document Collection" consists of approximately 12,000 reports generated by facilities other than COMSAT. The collection is physically housed in Lab Records. Access is either through the Library or Lab Records by means of a computer-aided search program. Requests for specific documents not in the collection must be made through the Library. Additionally, literature searches may be requested thru the Library using NASA, NTIS, and DDC facilities. Numerous indexes to the literature are available in the Library also.

Lab Records

Lab Records is an extensive collection of internally generated material. A copy of eveything generated in the Labs is required to be sent to Records except for material concerning pay and rough notes. Records clerks provide assistance in searching for and locating internally generated report literature on a need-to-know basis. In addition, all Purchase Requisition Numbers, Laboratory Notebooks, COMSAT specifications and Technical Memoranda and Reports are issued from this facility. A visual collection is also maintained here.

Awareness Bulletins

The following current Awareness Bulletins are issued by the Library and Document Collections:

Current Contents. A weekly compilation of tables of contents of most periodicals and journals on display in the Library. Current issues are held on display for several weeks.

New Book List. A bimonthly listing of Library acquisitions. These also are held on display for several weeks.

Document Listing. A computer listing of all newly received additions to the Document Collection issued every few weeks.

Receipt of such listings on a regular basis can be requested of the Library. Also available through the Library is a listing of the Journal Collection of the Library and a Catalog of Technical Publications which lists published papers by COMSAT authors available in Reprint form.

The Library is physically located in the front corner of the building between the cafeteria and the Lobby. Lab Records is located in the basement of the last wing of the building beyond the mail and supply rooms. The telephone number for the Library is extension 4512, for Records extension 4232. The Library is staffed by a professional Librarian, an assistant and part-time clerical help. Records is staffed by three record clerks and part-time clerical help. Both groups report to the Manager, Labs Office Services, extension 4293.

People and Events

ANDOVER. Ralph Summerton was promoted to Chief Engineer, replacing **Dave Durand** who accepted the position of Manager of the Southbury Earth Station in Connecticut for COMSAT GENERAL. Ralph joined COMSAT in September 1966 as a Senior Technician. In January 1967 he was promoted to Operations Controller and in June of 72 became our Electronics Supervisor.

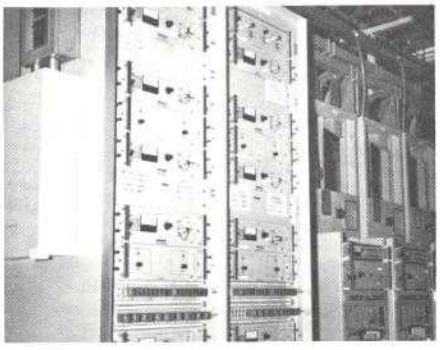
Stan Morse, Senior Technician, is on temporary loan to COMSAT GENERAL and is in Cuiaba, Brazil. Stan is lending a technical hand to help cover the World Cup Soccer Tournament. Dr. **Geoffrey Hyde** and **Jeff Steinhorn** (COMSAT Labs) were on site May 23 and 24 overseeing the equipment installation at the Radome for the ATS-F project. Other personnel from the Labs have been busy setting up the horn antenna equipment for operation in connection with the ATS-F project.

Al Briggs, Senior Mechanic, is at home recuperating from major surgery and a three week stay in the hospital. **Jim Goodwin** of Utilities has been in the hospital fighting a bout with pneumonia and emphysema. **Charlie Jaros,** Jr. Technician, has returned to work after an extended absence due to torn leg ligaments, the result of a kite flying accident.

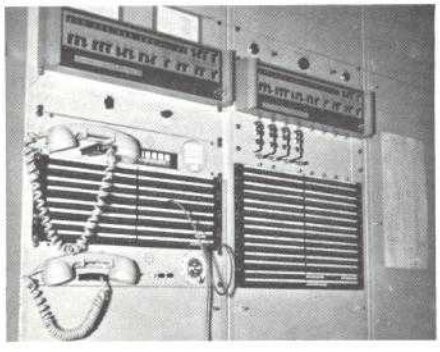
—**Joanne Witas**

ETAM. During the month of May, Etam once again participated in an orientation program for secretarial students at the Preston County Vocational Center. Six students participated in this program.

Etam's guardhouse roof has recently been repaired much to the satisfaction of our guards. Every time it rained at Etam, the guards' ardor was dampened. Now, with the improvement of a new roof, we once



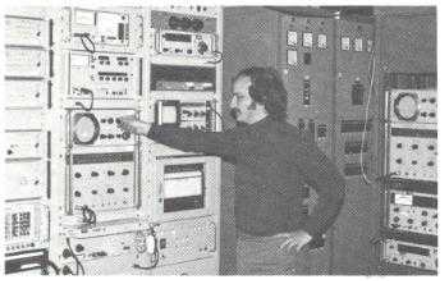
The eight new receivers manufactured and installed at Etam by Comtech allow for more receive capability in less physical space than existing equipment.



The new Systems Technology Associates orderwire installation which has proven to be a considerable improvement over Etam's previous orderwire facility.

again have happy faces to watch over us.

Etam was visited by Dr. **Robert C. Barthle** and Mr. **David S. Nye** of Headquarters who held discussions with Etam employees. Dr. Barthle extended his visit an extra day in order to be available to all Etam employees. ITT World Communications personnel arrived to begin the installation of their equipment for the "hot line" to Moscow and ITT has taken up residency in the base of our antenna pedestal. They have now become official Etam Earth Station tenants.



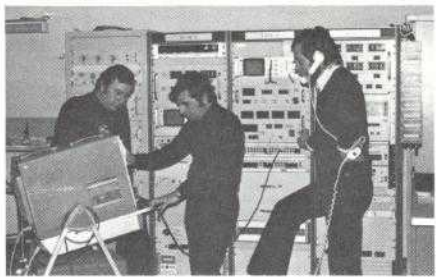
Roberto Fergalli, SSMG Specialist, obtains a spacecraft carrier power measurement at the Fucino Earth Station.

We recently received our refurbished station signs from our friendly sign repairman in Elkins. The new signs certainly help to enhance the appearance of the station. Mr. Kenneth Grant, Administrator of the Soil Conservation Service, United States Department of Agriculture, toured the station with 28 other soil conservation service employees from the northeastern area of the United States. The Etam COMSAT Employees Association held its annual picnic in mid-June at Camp Horseshoe. —**Beverly Conner**

FUCINO. Shift chiefs **Giancarlo Morretti** and **Guiseppe Jaquinto** recently spent three weeks visiting COMSAT Headquarters in Washington, are spending two days at the Andover Earth Station. **Paolo** and **Nella Balducci** are the parents of a new daughter Debora, their second child. **Mike** and **Doralici Hoehne** gave a Mardi Gras birthday party for their daughter **Sandra.** It was her second birthday. The Hoehne's are still cleaning up their apartment following the departure of the 26 children who attended.

One of the customs in Italy is to celebrate Mardi Gras, or Carnivale, during the month before the beginning of the Lenten Season. Each Sunday the children dress in their best costumes and, on the day preceding Ash Wednesday, wear their costumes to school and celebrate the coming of Lent with a party followed by a parade through town.

—**Dorothy Riddle.**



Shift Chief Luciano Fasano and Technicians Guiseppe Crisigiovanni and Roberto Saltari (left to right) prepare to send a command from Fucino to an Intelsat IV satellite.

THE LABS. With the arrival of beautiful weather the summer vacations are upon us. **Martha Hoffacker,** Engineering Services, has returned after a week in Hawaii and is still talking about it. **Pam Wood,** Project Control Office, took daughter Casey to Florida for 10 days and visited Disney World, Busch Gardens and Clearwater Beach. She reported superb weather. Donna Norton, daughter of Labs secretary **Sheila Norton,** recently returned from a two-month stay in Mexico.

By the time the COMSAT NEWS is distributed, **Marie Curtis,** Project Control Office, and **Betty Linthicum,** Labs' Cashier, should be basking in the Florida sunshine. Marie and Betty are accompanied by Marie's seven-year-old son Frankie who couldn't wait to get to Orlando to Disney World.

Brenda Boxwell, who worked at COMSAT through the Damascus High School work study program until the end of May, is wearing a new ring on her left hand. Shortly before departing COMSAT for a permanent position in Gaithersburg she became engaged to **Garry Weider** of Engineering Services. The couple plans a September wedding. Also understand that ex-COMSAT employee **Judy Ford** is wearing a ring and expects to take the same step in October.

Labs fisherman are still talking about the recent fishing tournament. Understand not too many fish were caught but that everybody had an enjoyable day. Informants tell me that Bill Windell came out on the losing end but that **Terry "Rookie" Morgan** landed a "whopper" following a terrific struggle. A few friends gathered at the Fools Three Supper

NASA Solder School attendees seated, left to right, Mary McGaha, June Furr, Joe Bruno, John Sterrett, Al Ewing and Marjorie Smith. Students standing, left to right, Joe Molz, Leonard Lieb, Russ Eicher, Ron Johnson, John Talcott (Reliability and Quality Assurance), Frank Pyott (Instructor), Sam Jones, Lyn Russell (Personnel Manager), Terry Morgan, Pete Carlton and Al Barnes.

Club to bid farewell to Engineering Services secretary **Bettie Wentworth.** After four-and-a-half years with COMSAT, Bettie has decided to stay at home to work in her garden and with her Girl Scouts.

Thanks to our own **Buck Jones** of the Communications Processing Labs, our pond, which has been in existence for some time and without tenants, is now stocked with 50 beautiful bass. We also thank Buck as well as the other Labs employees for their continuing concern and their efforts to provide food for the new residents.

The NASA Solder School was held at the Labs in support of the Centimeter-Wave Beacon Program under the able instruction of Frank Pyott (see photo). **—Carol Louthan**

THE PLAZA. An add to a story in the last issue of the COMSAT NEWS—**Jennifer Williams** and **Don Fietkiewicz,** Analysis and Traffic Division, tell me that, as of this writing, they have collected a total of $180.85 from the recycling of used computer paper and keypunch cards. In addition to this money, the Corporate Charitable Contributions and Membership Committee of COMSAT, chaired by Mr. **Donald E. Greer,** recently approved a $50.00 disbursement from its budget for Children's Hospital as an expression of corporate support.

The Spring Cocktail Party was a great success! The new dance craze exhibited at the party was the "Bump"—sounds like fun but reportedly not recommended after more than a few drinks!

Negotiations were recently held here with representatives of Saudi Arabia on a contract for two transportable earth stations to be built in Saudi Arabia this year. Mr. **William F. Ferguson,** Technical Assistance, will be on hand during the installation and checkout stages. Although COMSAT will be totally responsible for operation and maintenance of the earth stations, COMSAT GENERAL will provide one employee at each of the two sites, Riyadh and Jeddah, to act as station managers for a period of approximately one year.

For the past few weeks **David Durand** who, prior to transferring to the Andover Earth Station in 1969, was a member of the Technical Staff of the Earth Station Design Department, has been undergoing briefings here at Headquarters prior to assuming the position of Manager of the Southbury, Connecticut, Earth Station when it becomes operational late in 1974.

Facilities' secretary, **Wanda Mills,** recently spent a week in Tuscaloosa, Alabama with her mother. On Wanda's return to Washington on May 17, as a passenger on the Southern Railway's "Crescent" passenger train, the train derailed, clearing trees off an 80-foot embankment as eight of the ten cars left the tracks. Unlike many of the passengers, Wanda was not seriously hurt, suffering only a few bruises and contusions. She was treated briefly at the Druid City Hospital and released.

The 1974 annual Canal Hike of the Chesapeake and Ohio Canal Association was held from April 17 through 27, starting at Cumberland, Maryland, and covering the 184 miles to Washington, D.C. The Canal Hike each year commemorates the famous hike in 1954 led by Supreme Court Justice William O. Douglas. Starting at Cumberland, the hikers move down the towpath in approximately 17-mile stints, camping along the way. Among such hikers were **Jeremy Parker,** Mobile Satellite Systems, COMSAT GENERAL, and his son, **Christopher,** who will be five years old in July. Jeremy says he was one of the 33 who completed the entire trip, and **Christopher** completed all but 18 miles.

We were sorry to lose **Sharyn Kilderry** as our librarian. Sharyn is now a Research Assistant for Management Support Services, International Systems Division. Our new librarian is **Eileen Barrett** who was most recently with the Department of Interior and who hails from Philadelphia.

Joan Brereton, Archive Technician, was honored with a small party planned by her fellow employees on May 15 to celebrate her newly acquired U.S. Citizenship.

COMSAT's bowling team, the Satellites, placed 7th this year in the Communications Mixed League. At the League's annual banquet, two "Satellites" received trophies: **Linda Kortbawi** for high game and **John Welch** for most improved male bowler.

Joan Brereton, Archive Technician, finds it difficult to restrain her happiness on becoming a United States Citizen.

Congratulations are in order for the Girls' Softball Team, the Tigerettes, who scored a 12 to 8 victory over NLRB in their first game of the season. The girls are doing great and r'arin' to go, but they do need our support. Let's get out there and cheer them on!

A baby shower was held for **Lucina Pete,** Finance, on April 19. Lou is expecting her first baby on June 18. The shower was a success with about 60 people attending. **Carol Walker,** former senior secretary in the Information Office, and husband Rich are the parents of a new daughter Ann Marie born Monday, April 13.

Columbia Hospital has been busy with "COMSAT babies" lately—Born to **Melvin Harley,** Photo Lab, and wife, **Sheila,** a baby girl, **Teia Michele,** on April 22; born to **Audrey Rudd,** Legal, and husband, **Thomas,** a baby girl, **Tomaudrie Brénea,** on May 19.

A reminder to all of you who plan to take the trip to Hawaii—reservations and deposits must be in to me by July 19 at the latest.

Volleyball is alive, well, and played every Wednesday night near the Lincoln Memorial, by a smattering of COMSAT employees and friends who gather under the watchful eye of **John McManus.** Employees brave enough to participate in the competition so far, are **Nellie Foxwell, Amy Kane, Richard Keefer, Ron Kos, Jack Lehan, George Merriman, Ed Mikus, Ginny Oehler, Tyrone Ricks, Bernadine Thomas, Cindy Watson and Jack Winters.** Games start at 6:30 p.m. and last until dark. The games are relaxed and informal and provide an enjoyable middle-of-the-week break. **—Donna Higgs**

Late News

(continued from inside front cover)

Board of Governors adopts IV-A and V programs: Authorizes $6 million for 1974 R&D

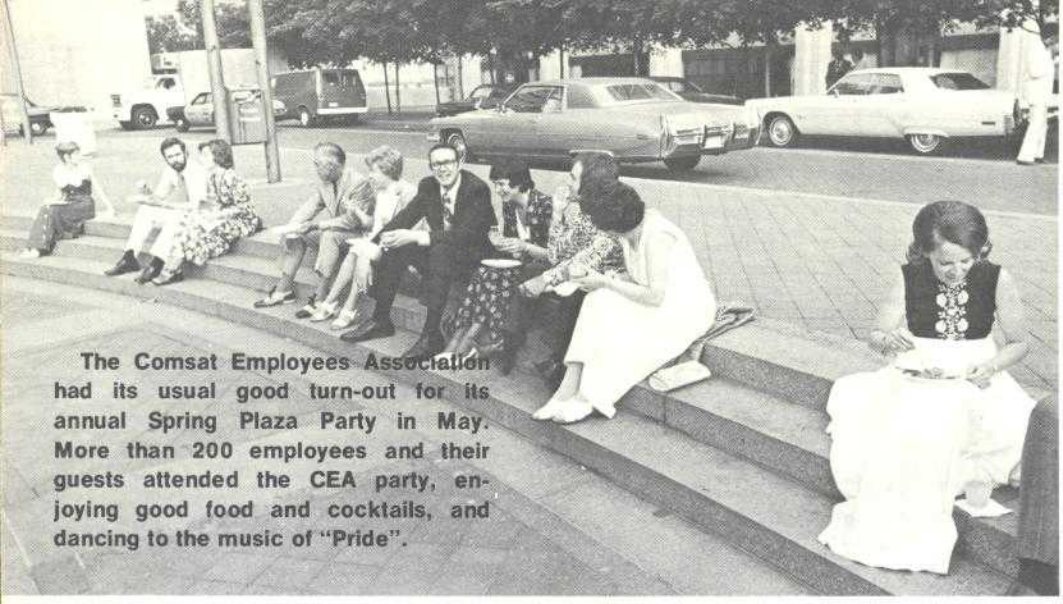
The Ninth Meeting of the INTELSAT Board of Governors was held in Honolulu, Hawaii from May 29 to June 5 at the invitation of the U.S. Signatory, with 21 of the 22 Governors representing 56 of INTELSAT's 86 members present.

Among its actions the Board of Governors:

- Adopted a course of action for the INTELSAT IV-A and INTELSAT V programs similar to that recommended by the Manager.
- Authorized the Manager to negotiate with Hughes an amendment to the INTELSAT IV-A contract to procure additional INTELSAT IV-A satellites, for delivery beginning in 1977, together with an option to purchase more INTELSAT IV-A satellites, with the Manager completing these negotiations by the Eleventh Meeting so that the Board can take a decision at that time.
- Authorized the Manager to make arrangements with NASA for launch services for three satellites with the necessary options.
- Requested both the Manager and the Advisory Committee on Technical Matters to endeavor to define the current RFP in order to make it more acceptable by making further improvements for Atlantic and Pacific Region service and by developing new communications specifications applicable to service in the Indian Ocean Region.
- Requested the Manager to provide an assessment of alternative means of achieving higher capacities in an INTELSAT V satellite and a schedule for implementing an alternative INTELSAT V concept, with studies to be completed in time for the Board to take decisions at its Eleventh Meeting.
- Adopted the current INTELSAT Research and Development procedures incorporating pertinent provisions of the proposal of the Manager at the Eighth Meeting and recommended by the Advisory Committee on Technical Matters.
- Approved the 1974 R&D work program as recommended by the Manager and by the Advisory Committee on Technical Matters, resulting in a total allocation authorization for 1974 R&D of approximately $6,000,000.
- Adopted the Manager's recommendation that the next INTELSAT IV launched be located at 179° East longitude to serve as a spare-in-orbit for the Pacific Region and that the INTELSAT III (F-6) be in the vicinity of 184° East longitude to prevent interference with other satellites.
- Authorized the allotment of space segment capacity to Malaysia for domestic public telecommunications service, under conditions similar to those applied in the case of Algeria in 1973.
- Approved the Norwegian request for lease of half a transponder on the same terms and conditions as Algeria, except that the annual utilization charge would be $500,000, provided that certain conditions were met to ensure that there would be no interference in the other half of the transponder, or in adjacent transponders.
- Adopted the recommendation of the Secretary General and appointed Price Waterhouse and Company the INTELSAT auditors commencing with the INTELSAT accounts for 1974.
- Granted initial approval to the Riyadh and Taif (Saudi Arabia) standard earth stations for access to INTELSAT IV satellites; formal approval was granted to the Ivanjica (Yugoslavia), Peking 1 and 2, Shanghai (Peoples' Republic of China), Pleumeur-Bodou 3 (France) and Raisting 3 (Federal Republic of Germany) standard earth stations.
- Approved two Saudi Arabian non-standard earth stations for access to the Indian Ocean Region satellites to provide single destination telephony service to a standard European station at a rate adjustment factor of 2.5 the normal rate.
- Approved a non-standard earth station at Pleumeur-Bodou for access to INTELSAT IV satellites subject to a review of the technical characteristics by the Advisory Committee on Technical Matters at its next meeting and subject to the usual conditions applying to access by non-standard stations.
- Approved access by the Norwegian non-standard earth station without charge, from July 1974 through October 1974, to the primary INTELSAT IV satellite in the Atlantic on an as-available basis, for the purpose of conducting a demonstration program.
- Approved the non-standard station at Cairo for access to INTELSAT IV satellites to provide telephone and telegraph services to a standard station in the USA until replaced by a standard station, subject to a review of the technical characteristics by the Advisory Committee on Technical Matters at its next meeting and subject to the usual conditions applying to access by non-standard stations.

The next meeting of the Board will be held from July 17—24. Subsequent meetings are scheduled for September 25—October 2 (Eleventh Meeting), November 13—20 (Twelfth Meeting), January 8—15 (Thirteenth Meeting), and February 26—March 5 (Fourteenth Meeting).

The preceding report was prepared by Sigrid Badinelli, Advisor, INTELSAT Agreement Matters, INTELSAT Affairs Division



The Comsat Employees Association had its usual good turn-out for its annual Spring Plaza Party in May. More than 200 employees and their guests attended the CEA party, enjoying good food and cocktails, and dancing to the music of "Pride".