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ABSTRACT

Having as its goal the further development of understanding through the communications media, this document examines the utilization of broadcast media from both technological and sociological vantages. The papers contained herein were presented at the twenty-third annual Broadcast Industry Conference held at California State University in San Francisco in 1973. Divided into four parts, the contents include "International Satellite Problems," which summarizes the extent to which satellites are used around the world, the role of satellites in specific countries (Korea, China, Canada, and India), and the problems satellites are creating; "International Broadcasting Problems," which discusses the implications of broadcasting on the educational, social, and political elements of various countries; "American Broadcasting Problems," which explores the nature of American television and the philosophy behind it, while also commenting on the changing patterns of television; and "Broadcast Facilities of Pacific Nations," which contains a run down of the broadcast capabilities of nations in the Western Hemisphere. (RB)

PACIFIC NATIONS BROADCASTING II

Benjamin Draper
Editor

Broadcast Industry Conference
San Francisco State University

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INTRODUCTION

In 1946 the Radio Department of San Francisco State College convened a meeting of students, faculty, and professional broadcasters at a function known simply as "*the banquet.*" This gathering became an annual affair and has since grown to the Broadcast Industry Conference. An enlarged and effective meeting of academic and professional men and women from all over the United States, it was expanded in 1950 to include television. The Department in due time became known as Broadcast Communication Arts. A year ago, the institution became California State University, San Francisco.

The City of San Francisco, a principal U.S. gateway to the Pacific, has had a cosmopolitan character not found in any other American metropolis. As a parallel, educational institutions located here reflect that same composition and, in turn, attract foreign students who wish to study in America. Over its history of nearly seventy-five years, the University has graduated literally thousands of students from Asian and other Pacific countries. These young incipient world citizens have returned to their home countries to become leaders in many fields. During their stay on our campus, they were given some insight in international problems and potential solutions. Hopefully, they have used their education creatively and constructively in their maturing years and have made gains from an international viewpoint as well.

The growth of foreign student population at San Francisco State has nowhere been more significant than in the field of broadcasting. The Broadcast Communication Arts Department of the University has long held academic leadership in the United States. It has a full-time faculty and staff which is among the largest in the country. There is a student population of five hundred undergraduates and one hundred graduate students. A significant and growing number of these and a heartening proportion (more than ten per cent) are from foreign countries. The Department has increasingly made its influence felt in commercial, governmental, and educational radio and television in the Pacific Basin through a steady flow of students returning to their homelands with Master's degrees.

For these and a wide variety of collateral reasons, the attention of the Broadcast Industry Conference was directed in April 1972 to international spheres. Well aware that there already existed an international conference on the East Coast, San Francisco State expanded its efforts in a principal area of this part of the world, the wide Pacific, where the University has long felt a special responsibility. The theme of the 1972 Broadcast Industry Conference was designated Broadcasting in Pacific Nations.

Pacific Nations Broadcasting II included member nations of the Southeast Asia Treaty Organization, the Western Pacific High Commission, the Asian Broadcasting Union, the Colombo Nations Plan, The South Pacific Commission, and the South and Southeast Asia Telecommunications Network regardless of any political affiliation or recognition. The University as a non-political, academic institution in pursuit of knowledge extended welcomes also to North Vietnam, North Korea and the People's Republic of China. Overtures were made to the U.S.S.R. and Mainland China with the sincere hope that they will one day be represented at the Conference. Changing international relationships indicate that participation of all countries in the Pacific may soon be possible.

The mingling of American students with professional radio and television personnel, both foreign and American, and the resultant exchange of ideas was a heartening realization of a principle goal of the Conference.

While Pacific Nations Broadcasting I undertook the exploration of the role of the communications media in the international community promoting an exchange of ideas, Pacific Nations Broadcasting II examines the utilization of broadcast media from both technological and sociological vantages, having as its goal the further development of understanding through the communications media.

Benjamin Draper
Conference Chairman, and
Professor of Broadcast
Communication Arts

San Francisco
October, 1973

PREFACE

Sometime prior to this year's international conference on broadcasting, the member states of the United Nations took an unusually united stand on the matter of internationally broadcast programs. In the spirit of autonomy and sovereignty the members overwhelmingly voted to prohibit international satellite broadcasting when such broadcasting is deemed unacceptable by the recipient state's government. In contrast however, international cooperation and exchange in many matters of broadcast communications is actively sought by most, if not all, nations. It was in this latter spirit, this recognition of both international responsibility and benefit, that the annual Pacific Nation Broadcasting Conferences were instituted.

After nearly a quarter century of broadcast industry conferences, San Francisco State University's Department of Broadcast Communication Arts restructured the conferences in 1971 to focus on communications in the Pacific Basin. Subsequently, the first Pacific Nations Broadcasting Symposium was held April 20-22, 1972, drawing representatives from Australia, Japan, Malaysia, the Philippines and the Republic of China (Taiwan), as well as from broadcasting interests across the United States.

In April, 1973, the second Pacific Nations Broadcasting Conference again invited representatives from virtually every nation in and around the Pacific Basin. The reponse was both gratifying and troubling. Gratifying because of the acceptance by distinguished broadcasters and educators from North America, South America, Asia, Australia, Micronesia and other Pacific islands; and troubling because the representatives of a few nations found it necessary to decline for international political resasons, also the representatives of a number of nations simply could not afford to attend although they wished to do so. This latter circumstance dramatically emphasized the observation by Sir Charles Moses at this year's conference banquet, that numerous broadcasting organizations in the Pacific Basin can ill afford the international exchange and discussion they deeply desire and definitely need to develop their communications media.

To balance such predicaments on the international level and on the domestic level, this year's Pacific Nations conference drew a strong response from universities, colleges and junior colleges in the United States. Faculty and students attended from Florida, Missouri, Colorado and throughout California. It is certainly hoped that students of broadcasting interested in, and representing diverse nations will continue to use the conference as a medium of information exchange.

The success of the conferences is due, of course, to the participants who came to talk, listen, debate and learn, and especially to those who have made the idea their own and begun work to develop the future confabulations. The annual Pacific Nation Broadcasting Conferences are tribute also to the foresight and drive of Dr. Benjamin P. Draper, conference chairman and orginator of the first such symposium with the cooperation of San Francisco State University's President Emeritus, Dr. S. I. Hayakawa.

Hopefully, Pacific communications organizations individually, and all Pacific Basin citizens collectively, will achieve through these round-table sessions a more pacific world.

Richard H. Veith
Conference Registrar

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PART I

International Satellite Problems

AROUND OUR WORLD—

COMMUNICATION SATELLITES SUMMARY

1972

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The communications satellites, a mere handful of the total number of satellites flashing, floating or generally wandering about the spaces above us, are no longer marvels of science. For the most part, they have settled into the routine business of handling telephone traffic.

On the international level, the largest multi-nation satellite organization, Intelsat, counts only slightly more than half of our planet's nations as members; and only one-third of all nations contain an Intelsat earth station within their borders. "*Live*" international television, though dramatic, comprises a small fraction of all satellite traffic and shows few signs of assuming larger proportions at the present time.

On the domestic level, satellite systems are seen as valuable supplements to terrestrial telecommunications especially in areas where existing telecommunications lines are overloaded, hindered or prevented. In such situations, communications satellites often offer the only practical means of relaying television. Satellites may also prove highly effective as regional switching centers for all forms of telecommunications. Direct broadcasting from satellite to television set will be initiated soon, but is deemed beneficial only in certain prescribed circumstances.

A new major use of communications satellites may well be for regional networks linking educational and social institutions via voice-grade circuits, if pilot programs in the Pacific and in Alaska are any indication.

In general, communications satellites, while still expensive to use, have nevertheless long passed the stage of novelty; satellites are now just one more transmission method at the disposal of telecommunications planners and users.

This paper has been prepared for participants in "*Pacific Nations Broadcasting II,*" held in conjunction with the 23rd Annual Broadcast Industry Conference. Consequently, special attention is given to radio and television via satellite, especially in the Pacific, and descriptions of planned regional satellite networks in Europe are omitted.

INTELSAT

The International Telecommunication Satellite Consortium (INTELSAT) operates the only global satellite system for commercial communications.[1] Created in 1964 by international agreements signed by eleven nations, the consortium presently includes more than eighty nations. Earth stations, however, are located in only forty-nine countries.[2] Satellites are located in geostationary orbit over the Atlantic, Pacific and Indian Oceans, relaying transmissions between some eighty-one antennas at sixty-four earth stations. Of the thirteen INTELSAT satellites launched successfully, four were in full time service, three were kept on a standby basis, and six were considered unusable as of August, 1972. (See Table 2).

Organization

Reorganized in 1972, INTELSAT is governed by a four-body power structure.

The principle body is the Assembly of Parties, composed of a representative of each member nation. The Assembly is a political group which reviews and comments upon matters of policy, on a one nation/one vote basis. Meetings are scheduled for every two years.

The Meeting of Signatories is composed of a representative of each national telecommunications operating entity or government entity. This body reviews and comments on technical and financial matters and other operational procedures. Voting is on a one representative/one vote basis and meetings are held annually.

The Board of Governors, with 22-27 members, has primary responsibility for design and development of the space segment and ground control and command facilities. Votes are weighted according to investment although no vote may exceed 40 percent of the total. Major decisions will require a two-thirds majority vote, but only four votes (according to initial agreements) are required for a veto.

The fourth body is the Secretariat, headed by a Secretary General, which handles financial management, public information, legal services and administration for the Board of Governors. After December 31, 1976, the Secretariat will become an executive body headed by a Director General.

Traffic Trends

INTELSAT satellites are used mostly for telephone service. Figures for 1971 indicated that 83 percent of the satellite circuits leased full time were for telephone service, with the remainder of the full time circuits devoted to record communications (teletype, data and facsimile).

Circuits for television are provided on an occasional basis and accounted for only about two percent of total revenue in 1971.

According to Comsat estimates, the market for international satellite television seems to be limited, for the near future at least. At present, satellite television is largely news and sports; any further increases in the use of INTELSAT satellites for television will probably only come with the development of other major programming requirements. In the United States, satellite television activity was greatest in the years 1967-69 and now has apparently reached a plateau. Global satellite television has continued to increase, but the increase can be attributed to the construction of new earth stations and the use of multidestination transmissions. This suggests that a plateau in over-all satellite television activity is approaching, unless it is offset by large scale demands for new uses of international satellite circuits for television transmissions.

[1]Because of the ample availability of material covering all aspects of INTELSAT, only brief highlights are mentioned here.

[2]Figures in this sentence and the next are based on March, 1972 projections for January, 1973. The figures as of mid-1972 were 68 antennas at 56 earth stations in 42 countries.

TABLE 1

INTELSAT EARTH STATION LOCATIONS IN PACIFIC NATIONS

A = served by Atlantic Ocean satellites
I = served by Indian Ocean satellite
P = served by Pacific Ocean satellites

Australia:	Carnarvon	P
	Moree	P
	Ceduna	I
Canada:	Mill Village	A
	Lake Cowichan	P (planned for 1972)
Ceylon:	Mirigama	I (planned for 1974)
Chile:	Longovilo	A
China:	Taipei	P
	Taipei 2	I (planned for 1973)
Colombia:	Choconta	A
Ecuador:	Quito	A (planned for 1972)
Guam:	Pulantat (U.S.)	P
Hong Kong (U.K.)		P, I
India:	Arvi	I
	Dehra Dun	I (planned for 1975)
Indonesia:	Djatiluhur	I
	Djatiluhur 2	P (planned for 1974)
Japan:	Ibaraki 3	P
	Yamaguchi	I
Korea:	Kum San	P
	Kum San 2	I (planned for 1976)
Malaysia:	Kuantan	I
	Kuantan 2	P (planned for 1975)
Mexico:	Tulancingo	A
New Zealand:	Warkworth	P
Nicaragua:	Managua	A (planned for 1972)
Pakistan:	Karachi	I (planned for 1972)
Panama:	Utibe	A
Peru:	Lurin	A
Philippines:	Tanay	I, P
Singapore:	Sentosa	I
	Sentosa 2	P (planned for 1973)
Thailand:	Si Racha	P, I
United States:	Andover, Me.	A
	Etam, W. V.	A
	Bartlett, Alaska	P
	Brewster, Wash.	P
	Jamesburg, Calif.	P
	Paumalu, Hawaii	P
	Andover 3	A (planned for 1973)
	Etam 2	A (planned for 1973)

Source: *Pocket Guide to the Global Satellite System*. Washington, D.C.: Communications Satellite Corp., 1972.

TABLE 2

INTELSAT SATELLITE CHRONOLOGY

	Launch/Operational Dates	Status
INTELSATE I (Early Bird)	April 6, 65/June 28, 65	retired
INTELSAT II (F-1)	October 26, 66	failed to achieve orbit
INTELSAT II (F-2)	January 11, 67/January 27, 67	no longer operational
INTELSAT II (F-3)	March 22, 67/April 7, 67	no longer operational
INTELSAT II (F-4)	September 27, 67/November 4, 67	no longer operational
INTELSAT III (F-1)	September 18, 68	failed to achieve orbit
INTELSAT III (F-2)	December 18, 68/December 24, 68	in reserve
INTELSAT III (F-3)	February 5, 69/February 16, 69	in reserve
INTELSAT III (F-4)	May 21, 69/May 31, 69	in reserve
INTELSAT III (F-5)	July 25, 69	failed to achieve orbit
INTELSAT III (F-6)	January 14, 70/February 1, 70	in reserve
INTELSAT III (F-7)	April 22, 70/May 8, 70	in reserve
INTELSAT III (F-8)	July 3, 70	failed to achieve orbit
INTELSAT IV (F-2)	January 25, 71/March 26, 71	active
INTELSAT IV (F-3)	December 19, 71/February 19, 72	active
INTELSAT IV (F-4)	January 22, 72/February 14, 72	active
INTELSAT IV (F-5)	June 13, 72/July 30, 72	active
INTELSAT IV (F-6)	late 1972	
INTELSAT IV—A & V (This series is presently being developed).		

Note: INTELSAT IV F—1 is in storage.

TABLE 3

UTILIZATION OF INTELSAT TELECOMMUNICATION SATELLITES[1]

	REGION	general telecommunications: number of telephone circuits leased on full-time basis at end of month[2]	television service: no. of transmissions	television service: transmit time[3]
Aug. 71	Atlantic	1520	215	128h. 13 min
	Pacific	787	52	39h. 37 min
	Indian	286	16	8h. 12 min
Sept. 71	Atlantic	1543	191	999h. 28 min
	Pacific	787	42	28h. 06 min
	Indian	298	19	10h. 28 min
Oct. 71	Atlantic	1558	215	152h. 39 min
	Pacific	766	52	55h. 15 min
	Indian	308	36	24h. min
Nov. 71	Atlantic	1593	177	97h. 41 min
	Pacific	769	42	43h. 13 min
	Indian	300	3	2h. 03 min
Jan. 72	Atlantic	1737	167	94h. 28 min
	Pacific	845	29	32h. 35 min
	Indian	331	10	5h. 04 min
Feb. 72	Atlantic	1774	213	111h. 43 min
	Pacific	852	137	136h. 05 min
	Indian	342	67	109h. 18 min

[1]Adapted from *Telecommunication Journal*, Vol. 39, No. 3, 1972, p. 192.

[2]Includes leased telex and data circuits.

[3]Combined total of transmission periods.

SOVIET COMMUNICATIONS SATELLITES

The Soviet Orbita communications satellite system handles telegraph, telephone, radio and television traffic primarily for remote areas of the Soviet Union. However, several earth stations do exist outside of the Soviet Union, including one yet to be completed in the United States (see below, "*Hotline Satellite Link*"), and satellite contact with stations in the Southern Hemisphere has been tested.

Orbita's Molniya satellites, series I and II, circle the earth every twelve hours, swinging high over the Soviet Union for about nine hours (with an apogee of 25,000 miles) and completing the rest of the orbit in a low quick pass (with a perigee of 300 miles). Earth stations track the satellites as they pass from horizon to horizon, picking up each successive satellite as the previous one drops behind the opposite horizon.

The nearly forty earth stations, scattered evenly across the Soviet land mass, operate on a receive-only basis for television signals with the exceptions of stations at Moscow in the west and Vladivostok in the east. (See Table 4 for station locations). The national television audience has been increased by about twenty million viewers since the Orbita system became active (the first Molniya satellite was launched April 23, 1965), according to Soviet estimates. Coverage is continually increasing since about six to eight new earth stations are scheduled for construction annually. Orbita earth stations are less complex than Intelsat earth stations because of the relatively high transmission power (40 w.) used by Molniya satellites for television transmission.

Earth stations outside of the Soviet Union are located in Cuba and at Ulan Bator, capital of the Mongolian People's Republic.

The Molniya I satellites (Molniya means "*lightning*" and also, colloquially, "*news flash*") operate in the 3.4-4.1 GHz range for television relay and the 0.8-1.0 GHz range for voice and other communications. The Molniya II satellites have the added capacity of operating at 6 GHz, which is compatible with the operating frequency of Intelsat satellites. The design life of Molniya satellites was originally one year and later increased to two years.

In January, 1972, the Soviets tested communications between Molniya I satellites and a tracking ship in the Southern Hemisphere. The series of experiments were designed to test the development of a world-wide communications satellite network.

A geostationary satellite, the Statsionar, is also planned. The first Statsionar satellite would be placed over the equator directly south of Ceylon and a second Statsionar possibly over New Guinea. The Statsionar satellites would operate in the 6 GHz range, as do the Intelsat satellites also in equatorial orbit.

Hotline Satellite Link

The agreement establishing a Moscow-Washington hotline circuit via satellite was signed in September, 1971, by Soviet Foreign Minister Andrei Gromyko and U.S. Secretary of State William P. Rogers. The system will have two telephone circuits utilizing both the Molniya and Intelsat satellite systems.

The Molniya earth station in the United States, designed specifically for the hotline, will be located at Ft. Derick, Maryland, about 45 miles from the White House. Construction was due to start before the end of 1972 under the direction of the Army Electronics Command. An Intelsat earth station will also be constructed near Moscow.

Present hotline facilities are provided by ITT Worldcom (Washington-Moscow via London- Copenhagen- Stockholm- Helsinki) with a secondary system provided by RCA Globecom (Washington-Moscow via Tangier).

Intersputnik

In 1971, a communications satellite consortium, Intersputnik, was formed by Bulgaria, Hungary, East Germany, Cuba, Mongolia, Poland, Rumania, Czechoslovakia and the Soviet Union. Under the original agreement, all equipment in the international system would remain under Soviet ownership and control. Since its formation, Intersputnik has accomplished little. Presumably, the member nations find no strong motivation to establish an operating system.

International Satellite Broadcast Regulation

The Soviet Union recently placed before the United Nations a motion asking for an international convention to regulate satellite broadcasting of television. (At the present time, television via satellite is essentially relayed point-to-point; television signals are not broadcast. The measure gives any nation the right to veto broadcasts which interfere in its domestic affairs or are considered distasteful; a UN committee would draw up procedures for dealing with such vetoes and related matters.

The motion passed the UN General Assembly on November 9, 1972, with overwhelming approval. The vote was 102 to 1, with the United States the sole opposition.

TABLE 4

MOLNIYA EARTH STATIONS[1]

SOVIET UNION

Moscow	Uray	Dudinka
Guryer	Yakutsk	Salekhard
Ashkhabad	Bratsk	Zayarsk
Murmansk	Irkutsk	Blagoveshechensk
Archangel	Chita	Zeia
Syktyukar	Ulan-Ude	Gremikha
Dzhezkazgan	Anadyr	Nebit Dag
Alma-Ata	Magadan	
Frunze	Okhotsk	
Vorkuta	Petropaulousk	
Gurgut	Okha	
Kemerovo	Sovetskaya Gavan	
Novosibirsk	Komsomolsk	
Norilsk	Yuzhno Sakhalinsk	
Krasnovarsk	Khabarousk	
Abakan	Vladivostok	
Kyzl	Ustinera	

MONGOLIA
Ulan Bator

CUBA
Havana

UNITED STATES
Ft. Derick, Maryland (Planned)

[1]Complete as of August, 1971.

TABLE 5

MOLNIYA LAUNCH CHRONOLOGY

		Status
Molniya I-A	April 23, 1965	In orbit.
Molniya I-B	October 13, 1965	Orbit decayed 3/67.
Molniya I-C	April 25, 1966	In orbit.
Molniya I-D	October 20, 1966	Orbit decayed 9/68.
Molniya I-E	May 25, 1967	In orbit.
Molniya I-F	October 3, 1967	Orbit decayed 3/69.
Molniya I-G	October 22, 1967	Orbit decayed 12/69.
Molniya I-H	April 21, 1968	In orbit.
Molniya I-J	July 5, 1968	Orbit decayed 5/71.
Molniya I-K	October 5, 1968	In orbit.
Molniya I-L	April 11, 1969	In orbit.
Molniya I-M	July 22, 1969	In orbit.
Molniya I-N	February 19, 1970	In orbit.
Molniya I-P	June 26, 1970	In orbit.
Molniya I-R	September 29, 1970	In orbit.
Molniya I-S	November 27, 1970	In orbit.
Molniya I-T	December 25, 1970	In orbit.
Molniya I-U	July 28, 1971	In orbit.
Molniya II-A	November 25, 1971	In orbit.
Molniya II-B	May 20, 1972	In orbit.
Molniya II-C	December 2, 1972	In orbit.

CANADIAN COMMUNICATIONS SATELLITE

On November 9, 1972, the first satellite in Canada's domestic satellite communications service was launched from Cape Kennedy by the National Aeronautics and Space Administration (NASA). The Canadian satellite system, operational since early 1973, is similar to the Soviet Molniya network in that the satellites handle various forms of domestic telecommunications between a large number of special earth stations. However, the Canadian system is the first domestic system to use satellites in geostationary, or synchronous orbit. With the satellite remaining in a fixed location over the equator, one satellite can transmit to all of Canada with possible exceptions of extreme northern locations. A second satellite, scheduled for launch in mid-1973, will serve as an "*in-space back-up,*" and a third satellite will be kept on the ground both for use as an emergency replacement and for system expansion; the third satellite will probably be launched in 1975 as service increases.

Telesat Canada

The Canadian satellite communications system is operated by Telesat Canada, a commercial corporation jointly owned by the government of Canada, common carrier companies, and the public. The corporation was established by an Act of Parliament on September 1, 1969, for the purpose of owning and operating a domestic satellite system. In late 1970, shares were issued to the government and to the common carriers, each acquiring an equity of $30 million in the corporation. In 1973 a public share issue is to take place for an additional $30 million equity.

The Anik Satellite

Telesat's satellites have been given the name Anik, meaning brother in the Eskimo language and spelled ᐊᓂᒃ in Eskimo syllabics. Anik I (pronounced a-nick) contains twelve radio frequency (RF) channels, each with a usable bandwidth of 36 MHz, although only ten RF channels are used in normal operation. Each channel can convey one color television signal or 960 one-way telephone signals. The capacity and efficiency of the RF channels could be substantially increased if signals are in, or converted to, digital form, *i.e.*, using pulse code modulation and time-division multiple access methods (PCM-TDMA). However, the demands for channel space will not require the relatively new TDMA techniques until after 1973, by which time valuable experience in TDMA design will have been gained.

Anik was built by Hughes Aircraft Company of California in co-operation with Northern Electric Company, Ltd., Montreal, and Spar Aerospace Products, Ltd., Toronto. The satellite stands about eleven feet high with a diameter of six feet and contains 23,000 solar batteries to power the electronics system. The frequencies used for the twelve communications channels are 6 gigahertz (GHz) for the up-link and 4 GHz for the down-link.

NASA, under contract to Telesat Canada, launched Anik I on November 9, 1972, for a total cost of about $8 million. Approximately 70 hours after launch, NASA's job was completed as Telesat's control center in Ottawa shifted the satellite from the transfer orbit to the geostationary orbit.

The Earth Stations

An initial network of 37 earth stations will handle the domestic satellite communications traffic. Not all of the stations will have the same capabilities, however; at least five classes of earth stations have been developed to provide a variety of

communication services. (The tracking, telemetry and command station, which is not part of the communications network and is classed separately, is located at Allan Park, Ontario, about 70 miles northwest of Toronto).

The classes of earth stations are: heavy route (HR), network television (NTV), remote television (RTV), northern telecommunications (NTC), thin route (TR), and a planned regional telecommunications (RTC).

Two heavy route stations are located at Allan Park, Ontario and Lake Cowichan, British Colombia. They handle all forms of telecommunications traffic, and have the means to remotely select the station transmitting to a television RF channel.

The six network television earth stations are located in the provinces of Newfoundland, Nova Scotia, Quebec, Manitoba, Saskatchewan and Alberta. (See Table 6 for station locations). All will eventually be able to transmit television as well as receive television (as do the HR stations). Each NTV station is able to receive two RF channels simultaneously and will serve as regional distributors of CBC television programming.

The 25 remote television stations are, or will be, located in areas not now served by terrestrial microwave. All RTV stations will be equipped only to receive, although transmission capability could be added in the future. Most RTV stations will receive only one television channel; a few, though, will receive two RF channels simultaneously.

The two northern telecommunications stations, at Frobisher Bay and Resolute Bay in the Northwest Territories, provide a two-way link between those areas of the north and the Allan Park HR station. Both NTC stations will primarily handle message traffic, with a transmit capacity of 132 message channels and a receive capacity of 960 message channels. Radio programs can also be received by the NTC stations, and Frobisher is equipped to receive one television channel.

The number of thin route stations is expected to be increased from two to 17 by the end of 1974. TR stations are designed for small isolated communities, handling a limited number of telephone conversations and receiving radio programs for local rebroadcast.

The regional telecommunications stations are being designed to accommodate increased numbers of telephone or television channels per RF channel by using special point-to-point techniques.

Telesat's Customers

The Canadian Broadcasting Corporation (CBC) has leased three of Anik's ten RF channels. One channel will be used primarily for French language programming originating in Montreal. The other two channels will carry English language programming in Atlantic and Pacific time-zone sequence.

Two RF channels have been leased by the Trans-Canada Telephone System and CN/CP Telecommunications for high density trunk telephone service between Vancouver and Toronto. The two channels provide for a total of 960 simultaneous two-way voice circuits. The circuits could, of course, also be used for telegraph, data and facsimile signals.

Bell Canada has leased two RF channels for telephone service to arctic regions. One channel will serve as a medium density telephone link between the south and Frobisher Bay and Resolute in the arctic. The other channel will provide two voice-band circuits to each of 17 TR stations in the eastern arctic. The satellite system will give 24-hour-a-day telephone service to areas which previously had telephone service for only about two hours a day, and even then subject to interference and fading.

In 1974, the Canadian Overseas Telecommunication Corporation will lease an RF channel to connect a new trans-Atlantic cable (CANTAT II), terminating at Halifax, to Toronto and the west.

Anik's two remaining RF channels have not yet been spoken for.

The Cooperative Applications Satellite

The first international Cooperative Applications Satellite (CAS—C) will be designed by Canada and launched by NASA in 1974. The CAS satellite is being developed to test the reception and transmission of telecommunications in the extremely high frequency band of 12 GHz, currently being proposed for satellite communication applications, and to test a new satellite power tube. The experiments will be controlled from Telesat Canada's control center.

For geographic and cultural reasons, Canada has found itself in the forefront of communications satellite development. Canadian communications planners are highly optimistic regarding the addition of satellites to the telecommunications network and expect that satellite services will provide both known and as-yet-undefined benefits for the Canadian people.

TABLE 6

TELESAT EARTH STATIONS

Heavy Route:

Allan Park, Ontario
Lake Cowichan, British Colombia

Network Television:

Edmonton, Alberta
Winnipeg, Manitoba
St. Johns, Newfoundland
Regina, Saskatchewan
Halifax, Nova Scotia
Montreal, Quebec

Northern Telecommunications:

Frobisher Bay, Northwest Territories
Resolute Bay, Northwest Territories

Remote Television:

Clinton Creek, Yukon Territory
Dawson, Y. T.
Elsa, Y. T.
Whitehorse, Y. T.
Faro, Y. T.
Watson Lake, Y. T.
Cassiar, British Colombia
Fort Nelson, B. C.
Norman Well, Northwest Territories
Fort Good Hope, N. Terr.
Yellowknife, Northwest Terr.
Frobisher Bay, N. Terr.
Fort Smith, Alberta
Uranium City, Saskatchewan
Rankin Inlet, Northwest Territories
Sept Illes, Quebec
Churchill, Manitoba
Great Whale, Quebec
Fort Chimo, Quebec
Fort George, Quebec
Goose Bay, Newfoundland
Port-au-Port, Newfoundland
Illes de la Madeleine
Inuvik, Northwest Territories
Pine Point, Northwest Territotries

Thin Routes:

Pangnirtung, N. Terr.
Igloolik, N. Terr.
Baker Lake, N. T. (1974)
Coral Harbour, N. T. (1974)
Cape Dorset, N. T. (1974)
Fort Chimo, Quebec (1974)
Povungnituk, Quebec (1974)
Big Trout Lake, Ontario (1974)
Winisk, Ontario (1974)
Sugluk, Quebec (1975)*
Port Harrison, Quebec (1975)*
Rankin Inlet, N. T. (1975)*
Eskimo Point, N. T. (1975)*
Pond Inlet, N. T. (1975)*
Arctic Bay, N. T. (1975)*
Clyde River, N. T. (1975)*
Chesterfield Inlet, N. T. (1975)*

*Tentative

THE APPLICATIONS TECHNOLOGY SATELLITES—

EXPERIMENTAL SATELLITE COMMUNICATIONS

The Applications Technology Satellite (ATS) program was begun in 1964 as an outgrowth of earlier experimentation with synchronous orbit satellites conducted by the National Aeronautics and Space Administration (NASA). Initially, the ATS satellites were used for experimentation in such areas as spacecraft design technology, meteorology, aeronautical and maritime communications, and data dissemination. As the satellites completed their schedules of technological experiments, they became available for what NASA terms "*user experiments.*" Although early user experiments involved chiefly aircraft and ship communications, later efforts have included educational and medical programs to land stations.

The first user experiment was submitted to NASA by the Corporation for Public Broadcasting. During January, February and March, 1970, educational television programs were transmitted for several hours a day, five days a week, between the East and West coasts of the United States using both ATS-1 (launched December 6, 1966) and ATS-3 (launched November 5, 1967). The television transmissions via satellite were reliable and satisfactory, but difficulty was encountered in establishing radio relay links to and from the ground stations.

Early User Experiments

In brief, experiments involving maritime communications applications, using ATS-2 (launched May 5, 1967), ATS-3 and ATS-5 (launched August 2, 1969) have been conducted by the Maritime Administration, the Netherlands Coast Guard, the United Kingdom Board of Trade, the Royal Norwegian Council for Scientific and Industrial Research, the U.S. Navy and the German DFVLR.

User experiments in aircraft communications have been conducted since 1968 by the U.S. Air Force, the Los Alamos Scientific Laboratory, and the United Kingdom Royal Aircraft Establishment.

Two experiments completed in 1971 involved the sending of fingerprint files via satellite between California and Florida, and the study of ionospheric propagation factors, conducted by the Canadian Research Center.

Among the user experiments presently underway are an educational program with ground terminals on Pacific Islands, a medical/educational program with ground terminals in Alaska, and a computer-assisted education program with ground terminals in New Mexico.

Pacific Educational Network

Since March, 1971, a group of low-cost Pacific island earth stations have been communicating with each other via ATS-1. The *Peacesat* program (Pan Pacific Education and Communication Experiments by Satellites), which handles primarily educational traffic although medical, agricultural and economic applications are envisioned, has been developed under the direction of Dr. John W. Bystrom of the University of Hawaii, Manoa.

The remarkable aspect of the Peacesat network is the low cost of the earth terminals. Suitable terminals can be constructed for as little as $1,500 and powered by automobile batteries; a relatively elaborate terminal can be constructed for about $3,000. The various terminals at educational institutions have been used to link remote members of classes and educational seminars, and for facsimile reproduction of printed material. The latter service has been especially welcome in cases where research material was available at only one

location and the delay caused by ship-carried mail (the usual practice in such cases) was impracticable.

Terminals, or ground stations, have been established at the University of Hawaii at Manoa, a component college of the University of Hawaii at Hilo, the University of the South Pacific on Fiji, the Polytechnic Institute of Wellington in New Zealand and at Pago Pago in American Samoa. Other locations are, or will be, on the islands of Saipan, Truk and Papua-New Guinea.

Although Peacesat has primarily experimented with voice and facsimile transmissions, slow-scan television and teletype experiments are also being prepared.

Alaskan Medical/Educational Network

Also using ATS-1, 28 villages and towns in Alaska have been able to communicate with each other and with large stations in Fairbanks and Anchorage, Alaska. (See Table 8 for station locations). Similar to the Peacesat earth terminals, the Alaskan earth terminals are designed for voice-band communication and are constructed for about $2,000 a piece.

Health-care experiments were begun in March, 1971, allowing medical personnel in two villages to communicate with the hospital in Fairbanks for an hour a day. After six months, service was expanded to include 18 other villages in the Tanana River region, and to encompass educational communications as well. The National Library of Medicine's Lister Hill National Center for Biomedical Communications has used ATS-1 channels to transfer medical data between field hospitals in Alaska, and the National Institutes of Health have conducted a consultation program for para-medical personnel in cooperation with the University of Washington, Stanford University and the University of Wisconsin. National Public Radio has also used the ATS-1 to transmit live program material to the remote Alaskan villages equipped with terminals.

Computer-Assisted Instruction in New Mexico

Between May, 1971, and June, 1972, ATS-3 was to be used to connect a computer at Stanford University with eight student computer terminals in an American Indian Pueblo near Albuquerque, New Mexico. The test of computer assisted instruction via satellite was developed by Professors P. Suppes and D. Jamison of Stanford.

As planned, students in New Mexico would be able to view materials on video screens, respond to questions by pressing buttons, and be answered and graded by the computer facility at Stanford's Institute for Mathematical Studies in the Social Sciences, which already has well developed programs of computer assisted instruction.

Educational Radio in Brazil

An experimental program in the planning stages involves the use of ATS-3 for educational transmissions between one or more locations in Brazil and Stanford University in California. A regularly scheduled class and an occasional seminar would use the satellite for two-way voice, electronic blackboards (devices which cause a special pen at the receiving end to duplicate the movements across a slate of a pen at the transmission end), and two-way computer links. Computer assisted instruction via satellite would also be tested in the same manner as the New Mexico experimental program.

Future ATS Projects

An ATS-F satellite, scheduled for launch in mid-1973, is being prepared for user experiments in educational and instructional television and two-way medical teleconferencing. The Corporation for Public Broadcasting and the Department of Health, Education and Welfare are planning to install 500 ground terminals in the Rocky Mountain

states and possibly Alaska and rural Appalachian regions. One year after launch, ATS-F will be shifted from its position over the North American continent to a position relative to the Indian subcontinent for an experimental program in India (see *"Satellite Instructional Television Experiment in India."*)

ATS-G, planned for launch in 1975, may experiment with increased television capacity, laser communications and thermal mapping of the earth.

Feasibility studies for various experiments using proposed ATS-H and ATS-I satellites have been conducted by Fairchild Industries and Hughes Aircraft Company under contract to NASA. The studies suggested that experiments in the areas of multiple beam antennas with shaped or contoured beams, and the use of increased signal power to reduce the cost and complexity of ground terminals were conceptually feasible but would require significant advances in engineering technology.

The continuing ATS series is proving invaluable both in developing spacecraft technology and in fostering beneficial uses of satellite communications.

TABLE 7

ATS LAUNCH CHRONOLOGY

		Status
ATS-1	December 6, 1966	Active. Solar array output degraded.
ATS-2	April 5, 1967	Shut down in October, 1967. Orbit decayed and satellite destroyed in September, 1969.
ATS-3	November 5, 1967	Active. Solar array output degraded.
ATS-4	August 10, 1968	Orbit decayed and satellite destroyed in October, 1968.
ATS-5	August 12, 1969	Satellite spinning on longitudinal axis.
ATS-F	June, 1973*	
ATS-G	1975*	

*Tentative dates.

ATS-H	(no date set)
ATS-I	(no date set)

TABLE 8

ALASKA EXPERIMENTAL SATELLITE

COMMUNICATIONS PROJECT

EARTH STATIONS

Medical Centers:

- Fairbanks
- Anchorage
- Juneau

Service Unit Hospitals:

- Point Barrow
- Kotzebue
- Tanana
- Bethel
- Kanakanak

Private Hospitals:

- Homer
- Nome
- Kodiak

Villages:

- Barter Island
- Anaktuvuk Pass
- Artic Village
- Venetie
- Chalkyitsik
- Allakaket
- Fort Yukon
- Stevens Village
- Nulato
- Huslia
- Roby
- Emmonak
- Hooper Bay
- Saint Paul Island
- Sand Point

SATELLITE INSTRUCTIONAL TELEVISION

EXPERIMENT IN INDIA

India and the United States have signed a *'memorandum of understanding'* to conduct a joint Satellite Instructional Television Experiment, called SITE.[1] The purpose of this experiment is to provide direct community broadcasting services to village receivers distributed throughout the country. Systems studies were carried out jointly by General Electric, Hughes Aircraft Company, and Massachusetts Institute of Technology for India's Space Research Organization (ISRO).

Unlike present systems, ground lines will not be used for transmission. The existing system of distributing TV programs from continent to continent calls for the use of a satellite to relay signals between ground stations. The programs are then transmitted domestically via land line. This experiment will employ specially modified or augmented television receivers which will receive the satellite signals directly from space without the use of ground lines.

In spite of the well documented relationship of the mass media to national development, the establishment of television has been a relatively underestimated phenomenom, low on the priority list for the country for four reasons:

(1) non-recognition of television as one of the important aids to developmental goals,

(2) the cost of the television receiver as compared with the radio receiver. (It is estimated that 1 to 2 per cent of the population will be able to view the programs privately; the rest will be able to view them only as part of group viewing programs),

(3) there is no excess capacity available on broadband telecommunications links to carry television programs from place to place, and

(4) in the past there was a necessity to depend upon the importation of equipment and components for the broadcasting and reception of television programs.

SITE Experiment

Television was started in India in the year 1959, primarily for use as an educational tool. The school television project was started by All India Radio in 1961, and has proven to be very successful according to research done on television learning by Professor Paul Naurath (1965). Later, more community educational programs were tried, such as the agricultural programs (Krishi Darshan), all of which have indicated that respondents in the television experimental group had significantly greater knowledge, more favorable attitudes toward improved practices, and adopted them to a greater extent than their counterparts in the groups without television. The evaluation of these experiments has shown the potential of the medium.

Satellite Instructional Television

Based upon the results of a study carried out by both agencies, the Department of Atomic Energy of India and the National Aeronautics and Space Administration of the United States entered into an agreement to conduct a joint satellite television experiment using the ATS-F satellite to be launched in 1973 by NASA.

Augmented conventional TV receivers would be capable of receiving monochrome TV transmissions from the satellite and one of two audio channels transmitted. This experiment includes the test of a hybrid system involving both direct reception by these augmented TV receivers as well as receive and rebroadcast to conventional TV receivers with the help of VHF transmitters. About 2000 direct reception and 3000 conventional sets will be located

in 5000 villages. The basic purpose of this experiment is to test a hybrid system of direct reception and receive rediffusion.

General Objectives

The general objectives of the experiment will be to:

(1) gain experience in the development, testing, and management of a satellite based instructional television system, particularly in rural areas, and to determine optimal system parameters,

(2) demonstrate the potential value of satellite technology in the rapid development of effective mass communication in developing countries,

(3) demonstrate the potential value of satellite broadcast TV in the practical instruction of village inhabitants, and

(4) stimulate national development in India, with important managerial, economic, technological, and social implications.

Specific Objectives

The Primary Instructional Objectives of the Indian Experiment are:

(1) contribute to family planning objectives,

(2) improve agricultural practices, and

(3) contribute to national integration.

The Secondary Objectives in the Indian Experiment are:

(1) provide a system of broadcast satellite TV for national development,

(2) improve the design, manufacture, development, installation, operation, movement and maintenance of village TV receivers,

(3) gain experience in the design, manufacture, installation, operation, and maintenance of broadcast and/or distribution facilities to the extent that these are used in the experiment, and

(4) gain experience in determining optimum receiver density, distribution and scheduling, techniques of audience attraction and organization, and in solving problems involved in developing, preparing, presenting, and transmitting TV program material.

Technical Specifications

The ATS-F satellite is to be located at 35°E in equatorial synchronous orbit. A C-band to UHF transponder system will receive the frequency modulated signals from India ground stations on any one of three frequencies available for reception, 5950, 6150, 6350 MHz, and will translate these signals to UHF and retransmit them back to India at 860 MHz. The power amplifiers at 860 MHz provide 80 watts of power output. The satellite will be launched into a synchronous orbit 22,300 miles above the Indian Ocean.

The satellite will have a capacity of one TV channel plus two to three voice channels to permit the transmission of programs in more than one dialect. Its special 30-foot antenna will confine signals to India and prevent interference with communications elsewhere.

Community TV Receiving Equipment

The equipment necessary to receive the satellite signals in the villages consists of antenna, a preamplifier with FM to AM converter, a TV receiver and associated power supply.

The parabolic antenna should be of diameter 8' to 10', with an operating frequency range of 800-900 MHz. In addition it should be easily erectible, on an inexpensive mount, yet it should be able to withstand 50 MPH winds.

With present technology, it is possible to fabricate a low cost preamplifier at a sufficiently low noise figure for the reception of satellite signals.

Only 60,000 to 80,000 villages out of 560,000 are electrified and therefore, there is a problem supplying adequate power to the television set located in every village. Solid state television receivers have been singled out as most useful by the studies for two reasons: reliability and low power consumption. The low power sets could then use battery supply systems.

Power supply will come from existing power lines, or extensions up to 2 miles from the existing lines, or the use of a central battery charging station for charging batteries for TV receivers up to a distance of 5 miles from the station. Wherever one would have to travel more than five miles for battery charging, an individual charging system in each village would be economical.

Geographical Location of the Stations and Receivers

Though India includes within its borders a multitude of different peoples speaking different languages, and using different agricultural practices it seems that those of one particular language and social custom are located in one area; in a small region, a 50 miles radius zone, for example these practices will not vary. Consequently, it was decided to place direct reception and rediffusion sets in a cluster form. Based upon several indicators of development supplied by the Planning Commission, cluster locations were selected from their respective position on the rank ordering of development. (See Table 9 for a list of the locations).

Statistics on the total equipment to be used in the experiment

- Two earth stations - Ahmedabad and Bombay, one earth station - Delhi
- One receive-only station, Srinigar
- Four conventional VHF transmitters - Delhi, Bombay, Srinigar, Poona
- One low power VHF transmitter - Ahmedabad, and Anand
- Number of conventional community TV sets around VHF transmitters - 2,600
- Number of augmented direct reception community TV sets - 2800

(These numbers may be revised as the experiment proceeds)

The experiment will cost the United States an estimated $40 million, plus the additional $10-$15 million it will cost to launch the satellite into orbit.

The personnel and *'software'* items for the experiment will be furnished by All India Radio, and other agencies will participate depending on the policy. Extensive study is being carried out to insure that the program content and technical quality will be successful.

The programs will include everything from literacy material to farming techniques, and will be expanded to other subjects if these programs prove to be successful. These programs will be devised by educators in Ahmedabad.

The ATS-F satellite will be launched, according to the schedule, in May, 1973, and it is expected that the SITE experiment will start in May, 1974 and continue up until May, 1975.

Eventually, the TV satellite will have to be turned over to the Intelsat consortium. The Indian government has invited other Asian nations to send representatives to Ahmadabad to learn the techniques of direct television broadcasting. Direct broadcasting satellites will produce the cost of providing mass communications in emerging nations; thus, the experiment in India will have implications for most of the people in the world.

[1]Summarized from Pramod Kale, *Satellite Instructional Television Experiment* (American Institute of Aeronautics and Aeronautics Paper No. 71-844), New York: AIAA, 1971.

TABLE 9

LOCATION OF INDIAN EARTH STATIONS, RECEIVING STATIONS AND TRANSMITTERS

Ahmedabad - Anand

a. Earth Station (ESCES) with augmentation
b. Low power VHF transmitter
c. Microwave connection from Ahmadabad Earth Station
d. Programming Facility
e. Conventional sets - 400

Delhi

a. Earth Station - 98 foot parabolic antenna
b. VHF transmitter
c. Programming Center
d. Conventional TV receivers - 400

Bombay

a. Earth Station with approximately 30 foot parabolic antenna
b. VHF transmitter
c. Programming Center
d. Conventional sets - 400

Srinagar

a. Receive-only station with a 30 foot parabolic antenna
b. VHF transmitter
c. Programming Center
d. Conventional receivers - 1,000

Poona

a. VHF transmitter
b. Link to Bombay earth station through microwave link
c. Programming Center
d. Conventional receivers - 400

The following areas will have clusters of 400 direct reception augmented TV sets and suitable program originating facilities;

Orissa and Madhya Pradesh Area

a. Direct reception receivers - 400
b. Program originating facility

Bihar

a. Direct reception receivers - 400
b. Program originating facility

Uttar Pradesh

a. Direct reception receivers - 400
b. Program originating facility

Rajasthan

a. Direct reception receivers - 400
b. Program originating facility

Mandras Area

a. Direct reception receivers - 400
b. Program originating facility

Calcutta Area

a. Direct reception receivers - 400
b. Program originating facility

Kanpur Area

a. Direct reception receivers - 400
b. Program originating facility

In addition, 200 augmented conventional types of TV receivers may be placed at various locations for technical experiments and evaluation.

MILITARY COMMUNICATIONS SATELLITES

It has been said that military satellites dominate space, that non-military communications satellites are a "*vulnerable spin-off*" of military systems. While this may be an exaggeration, it should be recognized that the development and utilization of communications satellites for military purposes has both preceded and substantially exceeded non-military satellite efforts. Consequently, a very brief treatment of military satellite systems is presented here (excluding military uses of Soviet satellites).

Score

Score was the first communications satellite. It was launched on December 18, 1958, by the U.S. Air Force to explore technical and operational problems attending the development of a military satellite communications system. The satellite and its experimental program were developed by the U.S. Army and the Department of Defense's Advanced Research Projects Agency.

Courier

The Courier satellites were launched in August and October, 1960, to test the feasibility of store-and-forward satellite communications. The Courier program was designed with military applications in mind by the U.S. Army Signal Research and Development Laboratory.

Syncom

Project Syncom was the first test of spin-stabilized synchronous orbit communications satellites, proposed by the Hughes Aircraft Company in 1959. In early 1965, after completing their experimental programs, Syncoms II and III began serving the Department of Defense for military communications to the Far East, the Pacific, and the western United States.

Lincoln Experimental Satellites

The Lincoln Laboratory of the Massachusetts Institute of Technology has been chiefly concerned, in their communications satellite research and development, with military applications. Six Lincoln Experimental Satellites (LES) have been launched since 1965 and at least three more are planned for launch by 1974. The LES program has produced significant contributions to satellite communications technology.

Initial Defense Communications Satellite Program

The Department of Defense had announced plans for a military satellite system by 1964, and on June 16, 1966, the first seven satellites of the Initial Defense Communications Satellite Program (IDCSP) were launched; the IDCSP network was an outgrowth of the Defense Department's use of Syncoms II and III. In all, 26 medium altitude satellites were launched by June, 1968 (21 were still operational as of June, 1971). Among the reasons supporting the selection of a satellite system of over two dozen medium altitude satellites were a) the minimal effect of any single satellite failure, and b) the minimal opportunity for enemy disruption and control of satellite communications.

The IDCSP satellites were used for emergency communications during the Middle East crisis in May and June, 1967, when conventional high frequency radio links suffered frequent atmospheric disruptions, and, also in 1967, for high priority military communications during submarine cable failures between Hawaii and the Republic of

Vietnam and between the Republic of Vietnam and Thailand.

Tacsat

Tacsat was launched February 9, 1969, in a U.S. Air Force sponsored test of satellite communications with the mobile tactical terminals of combat forces. Among the experiments was a test of digital voice communication coded for security reasons. Tacsat was also used in support of Apollo Millions 10 through 13.

Skynet

The United Kingdom began tentative studies of military satellite systems in 1962 and participated in IDCSP experiments beginning in 1966. Under a joint agreement, the U.S. built and launched the satellites in the Skynet system. Skynet I-A was launched into synchronous orbit in November, 1969 and Skynet I-B was launched in August, 1970, although it was a total loss, probably due to the explosion of an apogee kick motor. During 1970, the British Royal Navy began equipping most of its ships with three-and-a-half foot diameter antennas for radio transmissions via Skynet and for emergency transmissions via the U.S. defense satellite system.

Skynet II was scheduled for launch in 1972 to continue the British military satellite program.

NATO Satellites

In the planning stages since 1963/65, the first satellite for NATO communication needs was launched into synchronous orbit March 20, 1970. The NATO system offers communication links between NATO military commanders, political authorities and government officials of twelve countries. NATO-II was launched by the U.S. Air Force on February 2, 1971, to act as a system back-up.

Phase II—Defense Satellite Communication System

Six synchronous orbit satellites are planned for Phase II of the U.S. Defense Satellite Communications System (DSCS), replacing the IDCSP. The first two satellites were launched by the U.S. Air Force on November 2, 1972. Other launch dates have not as yet been determined. Eventually, the DSCS satellites will handle digital transmissions almost exclusively, meaning that nearly all U.S. military communications via satellite will be in, or converted to, digital form.

TABLE 10

TELEVISION VIA SATELLITE (INTELSAT)

Total time, in half-channel hours, per year

1965 - approximately 90 half-channel hours
1966 - approximately 200 half-channel hours
1967 - approximately 480 half-channel hours
1968 - approximately 1380 half-channel hours
1969 - 1,826 half-channel hours
1970 - 2,428 half-channel hours
1971 - approximately 3,600 half-channel hours

Notable Television Programs via Intelsat Satellites 1970

World Cup Soccer matches from Mexico City, May/June, 1970
U.S. President Nixon's visit to Europe
U.S. Vice President Agnew's visit to Japan
England's Prime Minister Wilson's visit to U.S.
French President Pompidou's visit to U.S.
Indonesian President Suharto's visit to U.S.
Charles De Gaulle's funeral
Egyptian President Nassar's funeral
Pope Paul VI's visit to the Far East
Pope Paul VI's Easter and Christmas Masses in Rome
Russian-German agreement signed
Mideast crisis
Apollo 13 mission
Aircraft skyjackings
U.S. baseball (major leagues, and World Series)
U.S. football (college and professional)
Boxing
Monaco Grand Prix automobile race
Indianapolis 500 automobile race
Le Mans automobile race
Wimbledon tennis
Davis Cup tennis
America's Cup yatch races
Basketball championships
Baseball, Little League championships
Space medicine symposium, Houston to Davos, Switzerland

Notable Television Programs via Intelsat Satellites 1971

Persian Empire's 2,500 anniversary at Persepolis
Italy's Premier Colombo's visit to U.S.
U.S. President Nixon's speech on Vietnam
U.S.—Japan Okinawa Agreement signing
Queen Juliana's visit to Indonesia
Japanese Emperor Hirohito's foreign tour
Yugoslavia's President Tito's visit to U.S., Canada

Apollo 14 mission
Apollo 15 mission
"Children of the World," hour special seen live in 45 countries
Los Angeles earthquake
Latin American Song Festival
Pope Paul VI's Christmas Mass
Pope Paul VI's Easter Mass and Blessing
Academy Awards ceremony
Emmy Awards ceremony
Miss Universe contest
Pan American Games
Boxing: Frazier-Ali championship match
Caribbean baseball series
Hawaiian Open Golf Tournament
World Figure Skating Championships
World Curling Match
NCAA basketball championship game
Libertadores Cup soccer match
Latin American soccer
Kentucky Derby
Preakness
U.S. baseball, All-Star and World Series
Belmont Stakes
Wimbledon Tennis matches
Little League baseball championships
U.S. football, college and professional
Rugby
Soccer

Television Programs via Satellite, early 1971

U.S. President Nixon's visit to China
Winter Olympics, Sapporo, Japan (167 hrs, 31 min.)
Olympics, Munich

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Riegel, O.W. "Communications by Satellite: The Political Barriers." *Quarterly Review of Economics and Business*, Vol. XI, No. 4, (Winter, 1971), pp. 23-35.

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Buckwalter, Len. "Communications Satellites." *Popular Electronics*, March, 1972, pp. 28-33.

A brief history and description of communications satellites concentrating on the Intelsat system, although the Molniya system and the planned Franco-German Symphonie system are also treated. The article touches on such things as channel capacity, operating frequencies, charges for television time and the relationships between types of satellite traffic.

Communications Satellite Corporation. *Annual Report to the President and the Congress.* Washington, D.C.: Communications Satellite Corporation, annual.

Besides being an excellent account of the activities and services of Comsat, the Report for 1970 includes a chart of television-via satellite trends for 1965-1970, and detailed descriptions of the Intelsat satellites.

The Report for 1971 is the tenth anniversary issue and is somewhat more extensive than the previous report. Included is a description of key events in Comsat history during the past ten years, a brief but adequate sketch of proposed new services, and a listing of the subcontractors in ten countries who supply parts for the Intelsat satellites.

The Comsat annual reports, containing over a hundred pages each, rank among the best sources for the lay researcher in satellite communications and, specifically, the Intelsat system.

"Communications Satellites." *Science World*, December, 1970, pp. 24-29.

Briefly describes the Applications Technology Satellites, the Intelsat satellite series, and the communications satellites prior to Intelsat. Contains a table of the launch dates, orbits and function/status reports for communications satellites from 1958 to 1969. The article emphasizes the role of the Hughes Aircraft Company in the construction and design of communications satellites.

Computer Sciences Corporation. *NASA Compendium of Satellite Communications Programs.* Greenbelt, Maryland: National Aeronautics and Space Administration, Goddard Space Flight Center, 1971.

This massive work is one of the best, if not the best, accounts of communications satellites. All communications satellites up to August, 1971, are mentioned, with detailed descriptions of experimental programs, operational use, current status, construction and design. The text is quite readable and numerous charts and figures are included. Lists of references cited and related references accompany each section.

Comsat Laboratories. *Intelsat Research and Development Program.* Clarksburg, Maryland: Comsat Laboratories, 1972.

This booklet is an introduction to the work being done in advanced communication concepts and is intended to encourage international participation. Comsat Laboratories is composed of six individual laboratories working in the areas of: spacecraft, communications processing, radio frequency transmission, physics, systems, and advanced studies.

Durrani, S.H. "Trends in Commercial Communications Satellite Systems: Present and Future." *Telecommunications*, February, 1972, pp. 17-20.

A concise overview of present operating techniques, an account of the design of the next series of Intelsat satellites, and a discussion of new satellite transmission techniques including pulse code modulation, phase shift keying, time-division multiple access, and the use of frequencies at 12, 14, 20 and 30 Gigahertz. Bibliography included.

Elson, Benjamin M. "More Attention to Satcom Users Urged." *Aviation Week and Space Technology*, June 12, 1972, p. 48.

Contains an account of remarks by Krishnan Sondhi of India's Space Research Organization urging satellite producers to develop programs for satellite use, much in the manner that computer manufacturers actively encouraged the development of computer software.

The article also sketches India's plans for communication satellites and the experimental "*Peacesat*" program in the Pacific using the ATS-1 satellite.

Kalashnikov, N.I. *Satellite Communications Systems: USSR.* Springfield, Virginia: National Technical Information Service, 1971

This publication has not been personally reviewed. The articles and bibliography (in translation) may be of use, however, to those seeking more information regarding the Orbita system.

Kale, Pramod. "Satellite Instructional TV Experiment." American Institute of Aeronautics and Aeronautics Paper No. 71-844, New York, 1971.

A very useful capsule summary of important facts about the Indian satellite experiment. Included are the objectives of the experiment, a brief technical description of the equipment, the list of ground stations and antenna locations, and several valuable appendices on Indian mass media. A must for anyone who wishes to know the important facts on the SITE program without having to look in many places.

Maddox, Brenda. "Politics of Intelsat." *Nation*, February 28, 1972.

An informative article covering the history of the development of Intelsat, and focusing on the discrepancies between what was the ideal plan and what was actually achieved. According to the author, Intelsat might have become a single communications system serving the whole world, as well as a model of international cooperation. Because of the arrangements made by Comsat of the United States, Intelsat has achieved none of these things and probably never will. The author clearly states the deciding issues which caused the French and the Soviets to desire their own communications satellite systems and which caused developing countries to become disillusioned.

Mathews, Charles W. "Communications Programs." Statement of the Associate Administrator for Applications, National Aeronautics and Space Administration, before the Committee on Aeronautical and Space Sciences of the United States Senate, March 22, 1972.

An extensive treatment of most of the uses of communications satellites launched by NASA, including the experimental programs in the Pacific and in Alaska using ATS satellites. Future plans are also mentioned, and several maps and charts are included.

Musolf, Lloyd, ed. *Communications Satellites in Political Orbit.* San Francisco: Chandler, 1968.

A collection of articles, Senate Committee Hearings, presidential speeches, etc., concerning the political implications of communications satellites and their control.

Rao, B. S., and R. P. Froom. "Broadcasting from Satellites: A Powerful Potential Aid to the New or Developing Countries." *I.T.U. Telecommunications Journal*, Vol. 38, No. 7, 1971.

Very helpful article on the special preconditions for the advantageous use of satellites in developing countries. The authors discuss the different types of communication systems and the factors which make one or the other most suitable for different countries. Some of the prerequisites for any country which plans a domestic satellite system are: 1) a well developed network of television transmitters or sound broadcasting must exist, 2) in the villages there must be adequate power, personnel and a supply of receivers, and 3) appropriate solutions to language and dialect problems must be on hand.

Riegel, O.W. "Communications by Satellite: The Political Barriers." *Quarterly Review of Economics and Business*, Winter, 1971, pp. 23-35.

A not-so-complimentary look at the contributions of commercial communications satellites. Attention is given to the power struggle in Intelsat against domination by the United States prior to the recent reorganization of responsibilities and control, and to the influence of a relative handful of political-industrial figures on the operation and use of commercial satellites. The author concludes that communications satellites have neither contributed to nor detracted from world social and political progress. Bibliography included.

"Special Report on Communications Satellites." *Aviation Week and Space Technology*, August 23, 1971, pp. 28-95.

An excellent report on virtually all communications satellites. Besides discussing Intelsat, Telesat, Orbita and Symphonie, the series of articles also look at present and future military systems, proposed satellite systems for Europe and studies for special satellites for television broadcasting over Asia and South America.

"Symposium on Commercial Satellites and America's Future Communications Network." *Journal of the SMPTE*, September, 1971, pp. 704-713.

Key men from Comsat, Rand Corporation, RCA Corporation and Hughes Aircraft Company discuss the possibilities for domestic satellite systems. Primary attention is given to a domestic system for the United States but mention is also made of proposed systems for Brazil and Indonesia and the Telesat system recently activated in Canada. A possible satellite-cable television system is described.

The history of communications satellites is also briefly recounted.

Telesat Canada. *A Canadian Satellite Communications System*. Vanier, Ontario: Telesat Canada, n.d.

Approximately half of the booklet is concerned with the organization of Telesat Canada; the rest is a description of the space and earth segments of the Telesat domestic satellite system. Charts and maps are included, and a schedule of events contains the system's proposed timetable through 1973.

_____ *Telesat Canada and Anik*. Vanier, Ontario: Telesat Canada, n.d.

Although it is not dated, this looks like the most up-to-date detailed description of the Anik system written for the general reader. The origin of the name "Anik" is explained as well as the construction and location of the Telesat earth stations.

UNESCO. "Broadcasting from Space." *Reports and Papers on Mass Communications*, No.

60, Paris, 1970.

A report of a meeting of broadcasters, social scientists, information specialists, educators and telecommunications engineers in Paris in 1969. The purpose of the meeting was to discuss the need for plans for effective use of space communications and the necessary international cooperation. The meeting examined such questions as the implications of satellite broadcasting for the free flow of information, the need for a convention to ensure the legal protection of satellite television transmission, and the assignment of space frequencies.

———— "A Guide to Satellite Communication." *Reports and Papers on Mass Communications*, No. 66, Paris, 1972.

A general introduction to satellites. This paper is intended to supply the basic information needed for those who plan communications systems. It covers, briefly, the background of the development of satellites and the general characteristics, applications and implications of satellite communication.

TELESAT CANADA—

PAST, PRESENT, AND FUTURE

Barry F. Murphy
Director, Marketing and Planning
Telesat Canada

When I began thinking about the context of my presentation to you today, I found it hard to believe that three and one-half years ago there was no Telesat Canada, and today the corporation is in operation as the world's first commercial domestic satellite telecommunications system employing a geostationary satellite. A week from Thursday ANIK II will be launched from Cape Kennedy.

I thought it might be of interest to review the events leading up to the creation of Telesat Canada, as well as the major activities of the company over the past few years. The Canadian Government commissioned a report on overall space activities which was released in 1967. This report, now commonly called the Chapman Report, dealt with the whole spectra of space endeavours, among which was the establishment of a Canadian satellite communications system.

At that time, there was a growing interest in the telecommunications industry on the one hand, and by a broadcast group on the other to undertake implementation of such a system. The Government of Canada established a Task Force to examine in detail the implications of establishing a domestic satellite system, and tabled in the House of Commons in 1968 a White Paper outlining the proposed creation of a new company to own and operate the Canadian system. This was followed by draft legislation for the incorporation of Telesat Canada, which was duly examined by the House of Commons through the Committee on Broadcasting, Films and Assistance to the Arts. Following this, the Act of Incorporation was enacted and Telesat Canada was officially created in September of 1969.

The main aspects of the company as set out in the Act are as follows:

- a Canadian private corporation
- exclusive franchise to provide commercial satellite telecommunications service in Canada on a commercial basis
- to be owned jointly by the Government of Canada, the Telecommunication common carriers, and the general public
- initial capitalization of $90 - $100 million, with provision for interim debt financing through the Government of Canada
- provisions for government approval of Canadian content in contracts, issue of shares to common carriers, etc.

For those of you who are interested, copies of the Act of Incorporation are available on request from Telesat.

So on September 1, 1969, the corporation began with, I believe, around five people including the current president, D. A. Golden, and a few members of the government task force.

In September of 1970, a contract for 3 spacecraft was awarded to Hughes Aircraft Co., with two Canadian companies as major sub-contractors; Northern Electric Co. for spacecraft electronics and Spar Aerospace for the spacecraft structure.

In May and June 1971 contracts were executed with NASA for two Thor Delta

launches; and several Canadian contractors for earth stations - RCA of Montreal for Heavy Route, Network Television and Northern Telecommunications stations; Raytheon Canada of Waterloo, Ontario for Receive Television stations; and Philco-Ford (Canada) Ltd. for the Telemetry, Tracking and Command station.

During the latter part of 1971 and early months of 1972 common share issues of 6,000,000 shares were acquired in equal proportions by the Government of Canada, and the telecommunications common carriers, who divided among them 3,000,000 shares.

By the end of 1971 Telesat employed approximately 125 people, about 2/3 of which were engineers.

In early 1972 Telesat engineers were putting the finishing touches to the satellite control center and associated computer facilities, at our Ottawa headquarters; and had virtually completed the myriad of computer programs required during the launch and insertion of ANIK into its internationally designated parking place over the equator at 114 degrees West longitude.

As a prelude to the launch of ANIK I, mid 1972 saw the spacecraft being intensively tested environmentally and electronically by Telesat and Hughes engineers; at the same time Telesat personnel responsible for the mission and satellite control were carrying out mission simulations and rehearsals. Earth station contractors were in the final phases of constructing the "*baseline*" network of 35 earth stations spreading across Canada from East to West coasts, and from the southern latitudes to the Northerly extremes of our country.

On the commercial side, Telesat had executed service contracts for 7 RF channels by the 3rd quarter of 1972. Three RF channels were leased to the Canadian Broadcasting Corporation for television distribution across Canada in both English and French. ANIK made possible for the first time live color TV to 25 new communities in Canada's north, as well as permitting radio programming in the same areas. Two RF channels were leased to a consortium of the telecommunications common carriers to provide high density (1000 voice channel) service between Toronto in Central Canada and Vancouver or Canada's extreme West Coast. An additional two RF channels were leased to Bell Canada to provide improved telephone service in Canada's northern and isolated communities, most of which have relied on H.F. radio to provide sporadic telephone and emergency communications. An eighth R.F. channel was planned to link the Canadian end of the new trans-Atlantic CANTAT-II cable at Halifax, to central Canada in Toronto. Contract negotiations are currently underway for a start of service in mid 1974.

Eight weeks before launch of ANIK I, the employees of Telesat were greeted daily with a sign in our lobby which announced the remaining time to launch. During September and October of last year minute preparations were made toward the historical date for Telesat of November 9, 1972.

At 8:14 p.m. E.S.T. on Thursday, November 9, around 300 Canadian Federal and Provincial Government, Industry and Cultural group representatives viewed the launch of ANIK I, two miles from PAD 17B at Cape Kennedy. 500 more watched the launch on a live colour television circuit at Telesat's Headquarters in Ottawa.

The launch was near perfect, despite a two-hour hold due to an instrumentation anomaly in the First Stage of the launch vehicle which was checked out and rectified by NASA and contractor engineers to permit the spacecraft to be launched in a secondary launch window thus avoiding a 1 day delay in the mission.

After separation of the spacecraft from the third stage of the Thor Delta some 24 minutes after lift-off, the scene shifted to Telesat's Satellite Control Center in Ottawa where tracking data from stations at Guam and Allan Park in Southern Ontario, was received, processed and used to execute the re-orientation manouvers over the next 3 days of the mission. The apogee motor was fired on command from Ottawa to execute the critical

insertion of the spacecraft into its geostationary drift orbit. All went well, and within 2 - 3 weeks ANIK I was reposing at 114^0 West longitude some 23,300 miles over the equator and performing as predicted.

In the next 2 - 3 months, emphasis shifted to the 37 baseline stations which were checked out and "*mated*" with ANIK to provide the services previously noted. On January 5, the first commercial service was implemented and by April 1 just past, all services were provided to Telesat's customers as planned. At the moment 7 RF channels are in service providing telephone, television and radio service across Canada which has in all cases exceeded the technical specifications of our customers. The eighth channel will commence service for the COTC in April of next year.

That pretty well disposes of the past and present. What does the future hold for Telesat and satellite communications? I suppose many of you can answer that question in the context of your own milieu. As for Telesat, the immediate future brings another launch of ANIK II on April 19 with all of the attendant anxieties associated with the event.

Telesat hopes to provide interim service in the U.S. during 1973 and 1974 until U.S. domestic satellite systems are operational. In this regard we have executed Memoranda of Understanding with RCA, GLOBECOM/ALASCOM and AMERICAN SATELLITE CORPORATION for the lease of RF channels to provide interim U.S. service. Such service would be subject to appropriate governmental and regulatory approvals and the execution of detailed service agreements between Telesat and the companies involved. These matters are currently in process.

Telesat is also discussing a number of applications within Canada for the use of satellite communications for additional commercial and educational distribution, data transmission and industrial control.

Telesat also intends to market the engineering, procurement, contract management, marketing, legal and financial expertise it has built up over the years. We are currently discussing the provision of such expertise to a number of other countries, which are planning domestic satellite systems. We are always prepared to welcome visitors in Ottawa or at any of our stations, and we are certainly interested in the plans of other countries.

As to the overall future for satellite communications, I don't pretend to know the answer. The Canadian Government is proceeding with an experimental Communications Technology Satellite with higher power and at higher frequencies which is scheduled for launch in late 1975, to acquire additional engineering data on such a spacecraft. We at Telesat will begin this summer the examination of a "*second generation*" satellite configuration as a successor to ANIK. We are also examining smaller earth station applications in slow speed data transmission, etc.,; and are currently carrying out preliminary engineering measurements on digital transmission techniques for voice, data and television.

Whatever the future brings, we at Telesat will be involved along with the other companies and agencies around the world, and we look forward to continued co-operation and technological advances over the next few years.

UTILIZATION OF SATELLITES FOR TELEVISION

REPUBLIC OF CHINA

James C. Hsu
Deputy Director Program Department
Chinese Television Service,
Taiwan

Establishment of Satellite Earth Station

The more advanced scientific invention is, the shorter the distance between human beings will be. This is especially true with the case of mass communication media. Once three communication satellites are launched to suitable positions on an altitude of 22,300 miles, the global communication network is then formed. This idea was proposed by a British scientist, Dr. Arthur C. Clarke in 1945. American scientists have gradually materialized this conception. In 1964, the U.S. signed in Washington with eighteen other democratic countries the contract to establish the International Telecommunication Satellite Consortium (INTELSAT). This new international organization has by now 77 member countries at least, and have assigned "American Communications Satellite Corporation" (COMSAT) as its managing agency. Satellite Earth Stations around the world are set up with the investment of respective member countries.

The Chinese Government Radio Administration has spared no effort in the expansion and renovation of its facilities in order to cope with China's economic development and to strengthen its overseas telecommunications.

In February 1965, the Republic of China signed the contract and became a member of INTELSAT. She made an investment of 200,000 U.S. dollars, i.e., one thousandth of whole INTELSAT investment.

On December 28, 1969, our first earth station was completed and inaugurated in the suburbs of Taipei.

The location of the station covers an area of 8.5 hectares. The giant parabolic dish antenna, 100 feet in diameter and 135 feet in height, can automatically track the Pacific INTELSAT III satellite. It is equipped with 3 carriers for transmission and 7 carriers for receiving. In addition, there is one TV channel capable of transmitting or receiving either color or monochrome TV programs. This station is now participating in commercial satellite communications network of INTELSAT III in the Pacific Region. The introduction of this earth station into China's overseas telecommunications system has thus ushered in a new era of satellite communications to provide better service to the general public.

Brief records of TV transmissions via satellite in Taiwan Area.

To celebrate the opening of the first earth station, on December 28, 1969, a 30 minute color TV program was transmitted from the Chinese Embassy, Washington, D.C. through the Jamesburg, U.S.A. earth station to the Taipei earth Station. However, the first TV program a Chinese audience watched through satellite transmission was not the one from the Chinese Embassy, but the first human landing on the moon, made by American astronauts from Apollo 12 on November 15, 1969.

Between the years of 1969 and 1972, China Television Company (CTV) made 20 transmissions through satellite, Taiwan Television Enterprises (TTV) 17, and Chinese Television Service (CTS), the third TV station in Taiwan which was established on October

31, 1971, made 5 transmissions in 1972 alone. The average length of each transmission was at least 60 minutes, and the average cost of each time was at least over 20 thousand US dollars.

Programs thus transmitted include the landings of Apollo 12, 13, 14 and 15, World Expo 1970, Olympic 1972, and Asian Olympic 1970. Most exciting among the programs thus transmitted, of course, are the World Little League Championships, held these years. Areas covered in these transmissions include Tokyo, Bangkok, Okinawa, the U.S. and West Germany.

All of these satellite transmissions are done either by one or more TV networks in Taiwan, covering the whole island of Taiwan, and are very appealing to local audiences. During the transmissions of World Little League Championships and the lunar landing on the moon, only taxi cabs were running on the streets, for nearly everyone was watching TV at his home.

The audience in the Republic of China was fortunate enough via satellite to join the world in admiring the greatest event ever witnessed by mankind on the earth--the first step by human foot on the moon! We shared with the people of the world as well as the astronauts on the moon the feeling that men on the earth, while stepping on another planet, should consolidate ourselves as real brothers and counterpartners for our cause of human welfare. With staunch determination and unflinching efforts, human beings have made things incredible to become possible and unbelievable to be conceivable.

Looking Beyond

Our second earth station is under construction and will be ready for operation by the end of this year (1973). The antenna of this second earth station will face the satellite over Indian Ocean. Its communication areas will include Middle East, Africa and Europe. That is to say, by the time this second earth station is completed, we can communicate almost directly anywhere around the world through satellites, shorten the distance to other parts of the world, hence promote international understanding as our ancient philosopher Confucius said: *"All men are brothers within the four seas."*

My fellow countrymen are greatly interested in live programs transmitted via satellites. However, we receive many more TV programs through satellite than we transmit. If anyone among you gentlemen here is interested in any news, special event or other programs, from Taiwan area, we are very glad to be of service.

Technically speaking, satellite transmissions are still too complicated, whether in transmitting or in receiving, uplinks and downlinks. The transmission fee, calculated by the minute, is even more surprisingly expensive for the time being. The awesome transmission fee is a serious hindrance to the promotion of satellite transmission. In order to increase international understanding through satellite transmission, we sincerely appeal to COMSAT to largely lower transmission fee for the benefits of ever increasing TV audiences.

TV networks around the world will naturally make satellite transmission more often if the transmission fees can be lowered and the transmission techniques can be simplified. By then, we will enter into an age of Face-to-Face international communications. But consequently the way for each member country to control its TV programs, and to select suitable programs for its TV audiences will be another political problem.

A communication satellite, is after all, just an inanimate object. It cannot speak, nor can it think. How to make good use of it for the benefits of mankind is a real challenge to our human wisdom.

PRELUDE TO THE INDIA SATELLITE

FEDERATION OF ROCKY MOUNTAIN STATES

Michaela Allen
Colorado Women's College

In April 1974 a satellite will be launched at Cape Kennedy, Florida and be positioned in an orbit 22,300 miles above the equator and 94° West longitude - approximately the location of the Galapagos Islands in the Pacific Ocean. Six and one half hours later it will be named ATS-6 and become the nucleus of the most far-reaching educational telecommunications experiment in history.

The Educational Technology Demonstration is the brainchild of the Federation of Rocky Mountain States, a Denver-based co-operative. The Federation had pressed for two years for a way of tying a satellite in with existing terrestrial communications systems. Jack Campbell, former governor of New Mexico and president of the Federation, explained the project's birth, "*A year ago Al Horley, director of telecommunications policy in HEW asked us what we would do with a satellite, if we had one, four hours a day, five days a week, for one year. We jumped at the chance.*"

The idea of satellite communications is not novel. The public has grown blase about such feats as instantaneous telecasts of moon landings or Olympic Games by satellite. The overall concept of the Federation's educational experiment is the idea that modern communications technology, whether or not involving the use of a satellite, can be used to reach widely scattered, multilingual, multicultural people and make their educational experiences far richer and far more useful.

The region to benefit from the ETD of the Federation consists of the six states of the Federation: Utah, New Mexico, Colorado, Wyoming, Montana and Idaho. Arizona and Nevada have asked to participate. Together these eight states include most of the untouched scenic beauty of the United States and a good deal of the country's natural resources, but despite growth in recent years, not much of the population. Their cummulative area is more than 860,000 square miles, a fourth of the country, but their 8,250,000 people represent only four percent of the national population. More people than that live in Michigan. Density per square mile is 9.7 people, compared with 953.1 in New Jersey-nearly 100 times greater. Surveys of the region disclosed an unevenly distributed, frequently isolated population living in many small communities and a few widely separated urban clusters; social stratification along sharply drawn socioeconomic, ethnic and cultural lines; language barriers throughout the region with scatterings of Spanish and Indian dialects as well as standard and sub-standard English; and, of course, grossly inadequate communications.

The Educational Technology Demonstration, as stated in a massive report and proposal submitted by the Federation in July 1972, "*seeks to make the first significant effort to apply new tools and techniques for the benefit of the public at large.*" The Denver-based experiment is but one of the 20 or so application objectives scheduled for the satellite in 22 states in the Rocky Mountain region, Alaska and Appalachia.

The ETD satellite is surprisingly large compared to early basketball-sized U.S. and Russian satellites. The two arms or booms supporting solar-energy panels measure when fully extended 52.5 feet from tip to tip. They spread over a 30 foot diameter parabolic reflector of lightweight metal mesh construction fastened to aluminum ribs. Fully open, the reflector is large enough to cover a three-bedroom house and is, in fact, the largest such

device ever projected for orbit. Suspended below the reflector is a skeletal reflector support-truss five and half feet long. This apparatus holds the module containing most of the equipment for conducting the various experiments and all of the earth-viewing sensors. Other components include electrical power system, telemetry and command, and position control. Transmitters to relay the Federation's broadcast signals to earth will be powered by the rays of the sun which will be converted into electrical energy by the solar panels. The satellite will weigh 2,900 pounds in orbit, about the same as an intermediate-sized U.S. sedan and its construction and orbiting cost are estimated at a mere $140 million!

ATS-6 will be equipped with two high-powered transmitters operating in the 2500 MHz range - ideal for television broadcast and promising reception in remote areas of the Rockies of the same quality as that enjoyed by urban communities over conventional commercial channels. Each transmitter will bounce a signal off the parabolic reflector to produce a southern beam and a northern beam forming a giant "*footprint*" on the earth approximately 1,000 miles long and 300 miles wide. A third "*horn transmitter*," smaller and less powerful than the others, will enable the Denver engineers to monitor all ETV transmissions. The plan is for the Federation to broadcast within the eastern half of the target area for half of the allotted time on each day, then the "*footprint*" will be shifted to the western half where the programming will be repeated. This shift takes about five minutes. It will be directed from the ground control station at Rosman NASA's Goddard Space Flight Center in Greenbelt, Maryland near Washington, D.C. Eventually when receiving sites have been selected and approved by the Federation, 300 receivers will be installed in either directly servicing a single set (such as in a community building on an Indian reservation) or tied in with existing public broadcast microwave or cable system in the area. Two color TV signals will be transmitted to cover the entire region each accompanied by four voice-channels of broadcast quality. This enables the audience to receive in English, Spanish and Indian dialects at the same time.

The receiving equipment consists of an ordinary television set, an antenna and a converter. The converter is necessary because the frequency of transmission and the modulation procedure to be used to communicate via the satellite are incompatible with an ordinary TV set. The satellite will be able to both receive and send telephone, telegraph, radio, TV facsimile and computer data impulses. This is very important in audience reactions. They can communicate instantly directly through the satellite. The audience then becomes the producing consumer.

The formation of the program modules is very important. People in the Mountain states have various perspectives, lifestyles, histories, values and attitudes as well as varying aspirations. These differences must be considered in carrying out the demonstration, if it is actually going to make the mass media, particularly TV, mean anything to the Chicanos and Indians. For them, existing programming means almost nothing.

The content components of the project are the early childhood development and career development. These are being tailor-made to fit the needs and interests of the 8-state region. The early childhood component is being developed under a contract with the Education Commission of the States. James Peterson, the director, sees the need as "*to reach the people around the child, the people who can stimulate a youngster's interest and help guide him through the learning process.*" Ninety percent of the early childhood work throughout the 8-state region is done in what are called "*home day care centers*" where one mother takes care of several children in her own home. The design of the early childhood component will give special consideration to culturally isolated ethnic groups in the region and to those who are physically isolated in the mountains.

The two-way audio and video capacities of the satellite are seen by Peterson as especially valuable in the effort to train the "*caretakers*" of children to dispense instruction

and channel reactions back to the Demonstration staff. Video is, of course, ideal in presenting the kind of material that can have full effect only when seen rather than simply heard or read and the two-way capacity will enable experts to observe and discuss with the "*caretakers*" responses to the material as indicated by the child's facial expressions, for example, or ways of movement. Two-way video also makes possible interaction between rural mothers who might not otherwise be accessible to one another.

Video, audio, computer and home visitation will be combined in early childhood development. A "*caretaker*" seeking instruction in how to improve the quality of service she can provide her children would receive TV instruction, get support data from a computer hook-up (probably with the State capital) and obtain added information by means of the two-way audio system. She could discuss her problems with a State-run office authority or with a home visitor who would come by once or twice a week to explain the materials and furnish added support.

The career development aspect of the content component will focus, according to William Rapp, who is responsible for developing it, on adolescents with parents as a secondary audience. "*We're aiming at the 14-20 year old group,*" Rapp says, "*the age span in which career choices are usually made or, as is too often the case, fallen into. In general our purpose is to use the satellite programming to help these young viewers assess their own talents and ambitions as well as learn about possible career opportunities.*"

In planning the career-oriented broadcasts Rapp and his staff are seeking not only to develop a certain kind and amount of original material but to examine existing material and update these programs and other audiovisuals as well as computer-assisted and computer-managed instruction. "*We believe that about 20 percent of our programming will originate live*" Rapp says. "*We'll mix color, sound, animation, and music and have resource people who can advise the youngsters and their parents on sound career planning. We're also thinking of a computer-managed occupational counseling program that can assist a young man or woman in picking out a job cluster for training and eventual employment. Of course, the whole thing will be personalized to the individual according to ethnic and cultural considerations.*"

Just the fact that educators and lay people can be co-ordinated in 8 states in this educational demonstration is a major feat in itself. The use of a telecommunications satellite system in this manner is history-in-the-making. The program is exciting and demanding any way it's looked at. Just to insure it's success for future projects, the planning and production are all being carefully studied and constantly evaluated by a team of Stanford University researchers. They make sure it's feasible and the end product can be evaluated from all angles.

When the satellite is then shifted to a position over Lake Victoria in Africa and begins transmitting to India, those handling the project in India will have learned by the mistakes and the successes of the team and the Educational Technology Demonstration of the Federation of Rocky Mountain States.

SATELLITE USE IN KOREA

Kyoon Hur
University of Oregon

The significance of communication satellites in world communication has thoroughly been acknowledged. Communication media specialists have deemed the satellite as the major breakthrough in the history of communication technology. Satellites have been considered as one of the best potentials in international communication. With its technology and potency of connecting the far-distanced continents and covering the largest population in the world, the satellite has presented a new dimension of global communication.

Concurrently, the significance of the satellite to developing countries has also been argued. What communication satellites might mean to the developing countries has been widely discussed and various plans have been implemented to improve satellite use in the developing countries. However, direct satellite broadcasting has currently posed problems and questions of existing satellite systems' ownership, control, financial support, and satellite programming characteristics on the one hand, and problems of international relations, national sovereignty, and national cultural sensibility on the other.

The purpose of this paper is to report issues surrounding satellite communication in Korea and to analyze problems in the adoption and use of the satellite system for the nation. It is my hope that a discussion of such issues will provide a basis for generating thought and understanding about satellites and the developing countries in the Pacific areas.

The first use of a satellite in Korea was achieved in July 1969. Between July 16th and 25th of the same year, both the government-owned Korean Broadcasting System Television (KBS—TV) and the commercial Tonyyang Broadcasting Corporation Television (TBC—TV) brought Korean television viewers the historic moment of the Apollo 11's moonlanding. The space relay via satellite was very complicated and expensive since no satellite earth station existed in Korea at that time. The program was relayed through six stages; NASA in Cape Kennedy, United States sent the signals to the Intelsat satellite in the Pacific Ocean region, which an earth station in Japan picked up and relayed to NHK—TV, Japan. The NHK—TV sent the signals to the Pusan International Telecommunication Station in Korea via microcable, which were transferred to the Seoul International Telecommunication Station and were in turn picked up by both KBS—TV and TBC—TV, and then telecast to Korean viewers.[1]

This first historic satellite use in Korea was achieved both through satellite and cable, proving that these two modern communication channels were not rivals, but had complementary values.[2]

The effect of the first satellite transmission to Korea was immediately felt by Korean broadcasters, the news media, and the Korean public. During the Apollo 11's moonlanding mission, more than 50,000 Seoul citizens watched the launch on a giant screen in the Seoul city plaza arranged by the United States Information Services.[3] The event also had an impact upon the economic aspects of the Korean broadcasting media. For the first satellite relay, KBS—TV and TBC—TV together spent eight million won, about 26,000 dollars, which is about 10 percent of the KBS—TV's yearly budget.

The broadcasting system in Korea could not afford such enormous cost for satellite use. But development of some international satellite systems, where costs and use can be shared with other countries, permitted further participation.

It is not only expensive but also technically impossible for the developing countries

like Korea to develop and launch a satellite vehicle without help from the advanced countries. The necessary launch vehicle alone would cost about 100 million dollars. Even the special purpose satellite designed to meet only the needs of a certain country operating within the national boundary would cost about five to ten million dollars. For instance, the recently-launched Canadian domestic satellite cost eight million dollars. But, such special purpose satellite would be most helpful for those countries whose people are scattered over a vast land. Satellite systems in Russia and Canada have proved that satellites are very helpful in communicating with their populace and in speeding the achievement of certain national goals such as educational growth. For the same reason, India and several other countries have made plans for their own satellite.

However, countries like Korea where people are clustered in a small territory could not justify the funds to develop satellite communication for just one country. Korea needs to use a satellite only for communicating internationally or regionally. Thus, the Korean government joined the Intelsat system in 1969 with a quota of 0.05 percent share and in the following year, the Ministry of Telecommunication with the help of the United States established an earth station in Keumsan, about 30 miles from Seoul.

The satellite system serving Korea belongs to the Pacific Ocean region of the Intelsat system, using Intelsat III series satellite F-4 which was placed over the Pacific Ocean in 1969. By 1972, the earth station in Korea maintained regular point-to-point channels with seven earth stations in the Pacific areas: Jamesburg, California; Paumalu, Hawaii; Ibaraki, Japan; Taipei, Nationalist China; Hong Kong; Vung Tau, Vietnam; and Tanny, Phillipines.

Satellite traffic demands in Korea are at present small and quite specialized with such countries as United States and Japan. As we will see later, most of the satellite television programs come from United States and Japan. Since Korea has maintained close foreign relations as well as most of its trade with these two countries, the satellite communication pattern in Korea support an assumption that the routes of world communication of various kinds are closely related to international trade and political relations.[4]

The earth satellite station in Korea was designed to suit its limited traffic needs, operating only with the Intelsat satellite in the Pacific Ocean region. However, such a small ground station is less economical to use than large ones. For example, the Korean earth station has no capabilities to receive signals from a satellite placed in the Indian Ocean region, although Korea is geographically close to this region. Such limitation in the Korean earth station results in much more technical difficulties as well as expensive costs for satellite using. For delivering the 1970 Asian Olympic Games held in Bangkok, Thailand, Korea had to use two satellites--one in the Indian Ocean region and another in the Pacific region. An earth station in Yamaguji, Japan, picked up the Asian games from the Intelsat III in the Indian Ocean region, which an earth station in Ibaraki, Japan, retransmitted to a satellite in the Pacific area, thus enabling the Korean earth station to receive the signals.[5]

This report has discussed satellite use in Korea in terms of channel availability. Now let me turn to the messages the Korean satellite system has carried.

Looking at the exchange of live television programs via satellite among nations for the last ten years, it is clear to say that the primary purpose of communication satellites is to help the rapidly growing international traffic sent by telex, telephone, telegraph, and not for global television. Only for certain important international events when simultaneity of viewing was really meaningful, has direct transmission of television been economically justified.

During 1971, according to the Comsat Report, television service accounted for less than three percent of global system revenues.[6] This situation is most applicable to satellite use in Korea. Although the satellite earth station in Korea has been engaged in the 24-hour full-time service since its opening, during the 15 month period from June 1970 to

September 1971, only 22 hours 39 minutes of time was spent for television service.

An analysis of such a small amount of satellite television time will give another surprising picture. Out of the total of 22 hours 39 minutes, 2 hours 59 minutes were receive time and only 40 minutes were transmit time. And of the 21 hours 59 minutes receive time, 19 hours 9 minutes came from United States and 2 hours and 50 minutes from Japan. Forty minutes for transmit time went to Japan. This figure represents one of the worst aspects of the flow of satellite communication between the developed and the less-developed countries.

It is imbalanced with heavier coverage of the developed countries and light or almost no coverage of the less developed countries.

For programming categories, the same satellite television time divided into 8 hours 25 minutes of news, 10 hours 55 minutes of sporting events, 2 hours 18 minutes of children's program, and 1 hour of entertainment. News programs carried via satellite in Korea were of international or national importance such as Apollo series' moonlanding missions and the Japan-Korean Economic Conference. Sporting events were also of great international or national interest including World Heavyweight Boxing Championship and the Asian Olympic Games.

The only educational program via satellite in this period was an hour special called *"Children in the World"* produced by the European Broadcasting Union at the request of the International Telecommunication Union. Such a program suggests that organized arrangements for exchanges of television program via satellite between countries, planned by agreement, are of growing importance. By satellite, countries can share programs and broadcast simultaneously. In this sense, the Asian Broadcasting Union is of great significance to Korea and other Pacific nations for possible satellite programming exchanges.

Finally, let me go back to the earlier mentioned statement that world communication routes have been determined by trade and political relations. This premise was derived from the British world communication specialist, Colin Cherry, who made a very thorough study of world communication. If his premise is correct, a question must be raised; what are effects of satellites on international relations and national sovereignty.

Unfortunately, at this time data are not available to draw conclusions about the influence of communication technology on international relations. However, any attempt to examine this influence has to take into account broadcasts made in foreign languages. It is in this realm that satellite television is likely to play a more powerful influence upon international relations than any other broadcast medium. For television is visual and dramatic and satellite systems can be directed to any point in this world. And when such satellite systems are developed on a global scale in which all parties participate, certain types of international agreements or disagreements, must inevitably be resolved.

This report has two things to mention in the Korean case. Korea has maintained a strong anti-communist policy both in its national policies and foreign relations. Korean mass media were not allowed to report any favorable attitude toward Communist countries, particularly against North Korea, Communist China, and Soviet Russia. Even photographs of North Korean Premier Kim II Sung or Communist China Chairman Mao Tse Tung could not be shown on any media. In February 1972, however, live broadcasts of President Nixon's visit to Peking via satellite brought Korean viewers live scenes of Mao Tse Tung and the streets of Peking. There was no way to stop the flow of satellite communication unless the Korean government was to prevent such live television transmission at the earth station point, which it did not. Satellites have thus helped to bring some changes in this nation's mass media policy toward Communist countries and afterward contributed to some relaxation of anti-Communist policy.

Other effects of satellites upon international relations are felt in the administration of

the international satellite systems and other related world organizations. For example, the board of Intelsat consists of one representative of each of the signatory countries authorities whose quota is not less than 1.5 percent. Consequently, countries like Korea whose quota in the Intelsat is below 1.5 percent, do not have access to decision-making regarding satellite use. This voting system has caused fear among the developing countries of dominance or control by the richer countries, although so far such fear has not proved to be well founded. For the system cannot be operated without the agreement of all interested national authorities.

Nevertheless, such fear among the developing countries was well illustrated last November in the United Nations when the United States' attempt to remove national censorship against direct satellite broadcasting was beaten by a vote of 102 to 1.

It has been argued that other and preferable forms of satellite ownership must appear, for example, through the United Nations. However, political relations still hamper certain countries even under the United Nations system. For example, Korea is not yet a United Nations member and thus lacks participation. The same situation will apply to Nationalist China who was ousted from the United Nations recently.

Any type of communication is, in the most elemental sense, sharing. The more perfect the understanding and willingness to cooperate, the more complete the communication. Since communication is an affair of mutual interest, problems involved in satellite communication can be reduced through mutual agreement and help. High costs of satellite can be shared by international agreement, or by aid programs.

By improving poor relations between neighboring countries, one country's lines of communication can cross another country's territory, thus reducing and sharing the costs. Some European countries have already demonstrated such advantages through Eurovision and Intervision. Accordingly, countries in the Pacific region can do the same job as European countries have done.

Developing countries having a need for fewer overseas channels can benefit from multi-access satellites used by developed countries. A satellite used entirely to connect only two advanced countries which have heavy traffic can be shared with other developing countries having lower traffic demands as seen in the Japan's cooperation with Korea in satellite use.

It is one of the unique advantages of satellites that they are able to perform "*multi-drop functions*" because they are really broadcast systems, capable of communicating over a wide range.

NOTES

[1]*Donghwa Year Book* (Seoul, Korea: Donghwa News Agency, 1971), p. 817.

[2]Colin Cherry, *World Communication: Threat or Promise* (London: John Wiley & Sons Ltd., 1971), p. 84.

[3]*Time* (July 25, 1969), p. 17.

[4]Cherry,p. 90.

[5]*Korean Radio and Television Year Book* (Seoul, Korea: Korean Broadcasters' Association, 1972), p. 379.

[6]"Television Via Satellite," *Comsat Report* (Washington, D.C.: Comsat, 1973).

PART II

International Broadcasting Problems

THE ASIAN BROADCASTING UNION

Sir Charles Moses, C.B.E.
Permanent Secretary
Asian Broadcasting Union

Dr. Draper has asked me to speak about the Asian Broadcasting Union - the ABU - and has also suggested that I might say something about the effect that the changing international political scene in Asia will have on broadcasters. I would rather not take up the second part of that request in any detail because the ABU is a Union of professional broadcasting organizations and our Statutes specifically state that it is non-political. The members of the ABU come from many different political and cultural backgrounds; between them they represent most of the world's great religions; they represent most of the world's racial groups, and they include practically every shade of skin colouring that can be found in the human race. But they are all professional broadcasters. And I am to be able to say of the ABU that, because its members belong to one profession, they can, and do, work together and help each other in their normal operations.

Before I talk about the ABU, I would like to commend the objectives of this Conference. The objectives are much the same as those of the ABU - to bring broadcasters from different countries together to share ideas and to plan for the future. The promotion of international understanding is most easily pursued among groups who have a common background in their daily work. Shared professional knowledge helps to overcome obstacles caused by inadequate knowledge of each other's customs, languages and way of life. Because broadcasting is the most powerful of the media, it has a special place in this effort. So it is good that your group should be working to build up links among broadcasters round the Pacific.

And may I wish you the best of success with your programme exchange project. But it would be wrong for me to suggest that this is going to be an easy undertaking. I agree with you that some of the American TV programmes that reach the other side of the Pacific - and countries further west - can give a false impression of the U.S.A. I agree also that much can be done for international understanding by broadcasting in this country, material that has come from the opposite direction. In the ABU, we have found that there are many practical problems - particularly the language problem - and I hope that you will find ways of dealing successfully with these problems. But don't be too optimistic.

The ABU is among the younger of the world's 7 international broadcasting Unions. We will be celebrating our 10th anniversary next year, on 1st July. Even younger than the ABU are the Arab States Broadcasting Union (ASBU) in the Middle East, and the body we know as OTI - the Organizacion de la Television Iberoamericana - most of whose members are TV organizations in South America.

The history of the ABU began some years before its formal establishment in 1964. The Union developed from a series of Asian Broadcasters' Conference, the first of which was initiated and organized by Nippon Hoso Kyokai - NHK - Japan's national broadcasting service. It was held in Tokyo in 1957. The second and third conferences were also held in Tokyo in 1959 and 1961. The fourth was in Kuala Lumpur, Malaysia, in 1962. It was in Kuala Lumpur that 16 participating organizations agreed to set up a union.

In December 1962 I was a member of a small committee which drafted the ABU Statutes. In October the following year, at Seoul, Korea, the drafted Statutes were approved and it was decided that the ABU would be formally established on 1st July 1964 if, on that

date, not less than 9 of the original 16 had confirmed their intention of joining.

On 1 July 1964, 11 had decided to join, so we were in business. I might add that we had no money and full-time staff--in fact very little except hopes.

Our first annual General Assembly was held in Sydney in November 1964, and I had the honour of chairing that first meeting; by then we had 27 members. Today we have 57, including 39 in the Asian/Pacific area - what we call the ABU region - and 18 associate members in other parts of the world. There are 7 associate members in the USA, including the three major networks. Others include the CBC in Canada; the BBC and IBA in the U.K., and the national broadcasting bodies of Germany, France, Holland, Sweden and Switzerland. Some of these major broadcasters, including the CBS and NBC, were among the earliest of our associate members. We have been very grateful to them - and to those which joined later - for their support and the practical help they have given us.

The aim of your Conference is to bring together broadcasters from both sides of the Pacific and from the island countries which lie between. This is a large segment of the earth; but it is considerably smaller than the ABU region. As officially defined in our Statutes, our region stretches between longitudes 30° East and 170° West - from Turkey to Tonga, from Korea to New Zealand. It is about two-fifths of the distance round our world.

The ABU region has much more than its proportionate share of the earth's human population. China and India have each a greater population than the combined total of any two of the other continents. As I have said, our region includes a great variety of cultures and languages - India alone has 124 different languages. It is also a region of great contrasts; there are a small number of technologically advanced countries such as Japan; and there are countries where there is great poverty and hunger, where up to 70 percent of the people are illiterate.

ABU members in the Asian/Pacific region range from NHK in Japan, whose annual expenditure is the highest among the world's national broadcasting services, to some which have an annual budget of well under 100,000 U.S. dollars. We have members in nearly all of the countries in our region, including the island groups in the Pacific as well as those in Asia. China is not yet a member of the ABU, but a resolution of our last General Assembly made it clear that its national broadcasting service would be welcomed as a full member. On the matter of China the ABU has taken the same stand as the UN and its agencies including UNESCO, the Food and Agriculture Organization and the International Telecommunications Union. Our Union has been formally affiliated with all of these since the early years. We have already had friendly correspondence with the broadcasting body in Peking and we expect that, before long, it will be a member of the ABU.

Most of our members in the ABU region are operating in developing countries. Most of them have inadequate facilities and not enough trained staff and, as I have just indicated, their financial resources are very limited. In eleven of the countries in which we have members there is no TV service - these include Afghanistan, Nepal, Laos, Sri Lanka (formerly Ceylon) and the small countries in the Pacific such as Fiji, Tonga, Western Samoa, the Gilbert and Ellice Islands, the Solomon Islands and so on. In many countries that do have TV, it reaches only a very small section of the people, because few can afford to buy receivers and, in any case, the TV transmitters cover only a small part of the larger countries. The main problems facing television in the developing countries are the absence of electric power outside the main centres of population and the fact that no one has yet developed a cheap, battery operated receiver. By cheap I mean under $US50 - the TV counterpart of the transmitter radio.

The principal medium of communication in most of our countries is still radio. Even in radio, in spite of cheap transistors, there are still not enough receivers. In a recent survey conducted by the Department of Information in Sri Lanka, about 35 percent of the people

in rural villages said they do not listen to radio - because they did not have the means of doing so. In many countries community receivers in villages provide the solution. However, making available and servicing radio receivers is a considerable financial burden on Governments which have also to provide roads and schools and deal with the urgent problems of hunger and disease and poverty.

But, in general, radio is reaching an increasing audience throughout our region and, in some countries, it is the only means of quick communication in remote areas. This applies, for example, in a country like Laos where there are few roads outside the cities and no railways; in Nepal which is now building its first road across the country from east to west; in Indonesia which has 3000 inhabited islands spread over a distance of about 2500 miles, from the north of Sumatra to the eastern border of West Irian. In the island groups in the Pacific, the position is the same.

In very small countries, such as Singapore and Hong Kong, complete coverage can be achieved with a single TV transmitter; but these are exceptions. Some of the larger developing countries are making good progress in expanding their TV services. Iran, for example, expects that its TV network will soon be able to serve 50% of its 29 million people. But the remaining 50% will be much harder to reach because they are scattered in remote areas; about 3 million of them are nomads.

Governments in the developing countries, quite properly, regard broadcasting as a tool for speeding up social and economic progress - for assisting in education; for encouraging the farmer to adopt modern methods: for supporting family planning campaigns,; for advising women on hygiene and care of children, and generally, for creating a climate for the acceptance of new ideas. In many of our countries there is only one broadcasting service, and that is governmental. But some of our members are commercial organizations and some of these are fully conscious of their national responsibilities. For example, one of our commercial members in Hong Kong provides daily teaching programmes in the evenings - at peak listening time - for children seeking secondary education: they must gain a good pass in a competitive examination if they are to enter high school.

Naturally, the facts of our region have influenced the kind of work the ABU undertakes. There is, for example, a very great need in many countries for the training of broadcasting staff, both existing staff and new staff for growing services. For 6 years the ABU has been working with UNESCO towards the establishment of a regional Training Institute to train instructors; to provide assistance in setting up national training schemes and to provide specialist and advanced courses. This project is faced with financial problems: we hope that these can be overcome.

But there are other ways in which the ABU helps its members. The very existence of a Union which arranges for them to meet regularly; encourages them to help each other. One example of this which may surprise some of you is in the advertising field. Although many of our members in developing countries are governmental organizations, most of them accept advertisements because the extra revenue enables them to carry out their national responsibilities more effectively. Since 1966 one of our members in Australia, the FACB, the Federation of Australian Commercial Broadcasters, which represents the 118 commercial radio stations in Australia, has been providing training for other ABU members - governmental organizations - to help them to get better results from their commercial services. This scheme, which is entirely financed by the FACB, takes the form of sending an expert, once a year, to one or more of our small members in the Pacific islands to provide advice on the spot. Starting this year, NAB, the commercial federation in Japan, in association with Fuji Telecasting - both ABU associate members - have agreed to start a similar project in TV for our smaller members.

We are very concerned about the effective use of radio and TV in all types of

educational work and in meeting the needs of special groups. Last year in Tehran, just before our annual conference, we held a Seminar on Programmes for Young People. We arranged this with the financial help of UNESCO and the Prix Jeunesse Foundation of Munich; specialist staff from our members were able to exchange experiences and to explore together the problems of reaching teenage audiences in Asian countries.

Six weeks ago on ABU delegation of specialists in school broadcasting went to an inter-Union meeting in Abu Dhabi to discuss with colleagues from other parts of the world a proposal for organizing a series of regional educational broadcasting workshops. The broadcasting Unions have been exploring this idea for some time and, as a result of the meeting in Abu Dhabi, it now seems likely that within the next two years, each of the Unions will arrange a Workshop in its own region. These workshops will all be coordinated in various ways, so that the results could be of world value. We hope that the educational broadcasters of North America, where there is no Union, will join in this project.

For early next year we are planning, in collaboration with the Asian Mass Communication Centre in Singapore, a seminar on the use of radio and TV in support of national projects. In the developing countries there is a real need for broadcasting to involve the people in community effort whether it be a National Five Year Plan or a campaign to "*keep your city clean and green.*" We believe that not enough thought has yet been put into the techniques of effectively presenting this kind of information. Here we will need the help of our commercial members - the techniques that sell cosmetics could be just as effective for family planning. Indeed our member in the Gilbert and Ellice Islands has already reported positive results with '*singing commercials*' about family planning!

News broadcasting is very important to all our members. For many people radio is the main, sometimes the only, source of news. TV news, where it is available, is also very important. In many developing countries there is much less illustration in TV news than here in the USA, and film from other countries is usually several days old before it can be put to air. In November 1971 we had an Asian Broadcast News Workshop in Tokyo, arranged by the ABU with the help of the Friedrich-Elbert Stiftung (Foundation) of West Germany and the International Broadcast Institute. It brought together, for the first time, senior news editors from most of our members in the ABU region for talks with colleagues from major broadcasters from America and Europe. Its aim was to explore means of increasing the international flow of news.

As a logical successor to that workshop the ABU is organizing, later this month, the first truly international Broadcast News Workshop. There will be experts from all the broadcasting Unions, as well as top broadcast newsmen from North America. Delegations will come from western and eastern Europe, from South America, Africa, the Middle East and our own region. The world's major news and newsfilm agencies will also be represented, and the carriers of news. It will be the first time that senior people in the broadcast news from all over the world will sit together to discuss common problems and to look into the future. This Workshop will be held in Cologne which is central for most of the participants. It has been made possible with the help of the Friedrich-Elbert Foundation of Bonn and the Westdeutscher Rundfunk in Cologne. Naturally, the ABU is proud to have the responsibility of organizing such an important international meeting.

In mentioning these examples of our work, I would not like you to think that our efforts are concerned only with programmes. We have a lively Engineering Committee which provides for exchanges of information and other co-operative activities among the engineering staff of our members and with other Unions. It is undertaking some very useful researches through a series of Study Groups. For the past year one of these Study Groups has been preparing for a seminar on frequency planning in Djarkata in November. It is being organized by the ITU - the International Telecommunication Union - in conjunction with

the ABU. This seminar will enable our engineers to prepare for the very important 1974 ITU conference on frequency planning for our region.

This leads me to one of our continuing problems: the vast size of our region and the consequent high cost of travel. Our members need to know each other and to discuss their common problems, but many of them cannot send even a single delegate to our General Assemblies. We are therefore, very grateful to the organizations which have made it possible for most of our members to be represented at seminars and workshops such as those I have mentioned and at the ABU's annual meetings. We owe a particular debt to the Asia Foundation which has its headquarters here in San Francisco and which has helped our members on many occasions.

In addition to this problem of travel costs, financial problems will probably always be with us. The few large organizations among our Asian members and our large associate members in other parts of the world give very important financial support. But most of our members in developing countries cannot contribute substantially to our funds.

Our Secretariat comprises only 10 full-time employees, 4 of whom are secretaries or typists. We have to work hard, and we must look to our stronger members for help in keeping up with the projects which our members want us to undertake. But our staff are all enthusiasts - they include, incidentally, people from 5 different national groups. We manage to deal with a wide variety of activities and to turn out two regular publications, a monthly ABU Newsletter and a bi-monthly Technical Review for the engineering staff of our members. These are not by any means *'glossy'* publications but they are widely read.

Let me say at once that we could not have reached our present stage of development without the help of one American organization which I have not yet mentioned - the Ford Foundation. In our early years revenue from member's subscriptions was small and we could not increase subscriptions until we could demonstrate that the Union was genuinely useful. After all, many members had to ask their Governments for this money and the Governments would want to be sure that they received value for it. Frankly, we would not have been able to operate at all in the first two years without the help of two members - NHK in Japan and the ABC in Australia - which provided most of such staff as we then had. But we had to find a means of bridging the gap until activities could grow. Fortunately, the Ford Foundation believed in us: it agreed to make a grant to the ABU of $US200,000, spread over a five-year period beginning in 1967. This grant enabled us to strengthen the Secretariat, to start our publications and to develop various types of activities.

The Foundation gave us the money on the firm understanding that the ABU would be self-supporting at the end of the 5 years. I am happy to be able to say that this objective has been achieved. Without the grant it would have taken us many more years; possibly we might never have succeeded.

I have referred indirectly to the broadcasting Unions in other parts of the world, so perhaps I should say something about the ABU's relations with them. At our first General Assembly in Sydney the ABU laid down a firm policy of seeking to collaborate with the other Unions. This was mainly due to the wide vision of our President, Mr. Yoshinori Maeda - the head of NHK in Japan - who has been the ABU's President throughout its history. Whilst our members were then principally concerned with our Union's problems, Mr. Maeda clearly saw the possibilities and the long term importance of collaboration among broadcasters on a world scale.

From that time on, we have invariably invited the other Unions to be represented at our annual General Assemblies and we have warmly welcomed their representatives. We were the first to extend such invitations - to open our own meetings to the broadcasters from other regions. The other Unions have since followed suit.

It would be fair to say that the ABU has played a leading part in the development of

inter-Union co-operation. It was an ABU initiative that resulted in the first conference of broadcasting Unions. The subject was satellite broadcasting and that first meeting was held in Paris in January 1968, with UNESCO as convenor. The ABU, too, organized one of the first inter-Union meetings on a specialist programme subject: that was on the broadcasting of major sporting events of international interest and it was held in Venice last October. And, as I have already mentioned, the ABU is responsible for organizing next month's inter-Union Broadcast News Editors's Workshop in Cologne - another first.

In November this year, the second World Conference of the Broadcasting Unions will be held in Rio: the first was in Rome in March 1972. (The UNESCO convened meeting in Paris in January 1968 was attended by only 3 Unions). For Rio all 7 Unions, with representatives from North America, have indicated that they will participate. While the first confere · in Rome was mainly concerned with the problems of satellite broadcasting, the agenda for the second will be much wider ranging in its scope.

I am sure that our President, Mr. Maeda, feels highly gratified that, at last, the world's broadcasters are coming to realize the potential value of getting together to discuss important matters of mutual concern. This is what the ABU, under his leadership, has sought for nearly 9 years.

It is my conviction that the Rio conference will clearly point out to areas of common interest - programme, legal and technical - in which the industry must co-operate. It will lead to further conferences at regular intervals in which national and regional interests will give way to discussions on matters of world-wide concern. I believe that broadcasters are coming close to the stage when their industry will be able to speak with one voice about those matters whether of practice or principle which are of vital concern to all.

Our relations with the other international broadcasting Unions are well established and are on a very friendly basis. At our last General Assembly in Tehran last October 6 of the 7 Unions were represented. On our part, an ABU representative has attended recent meetings of Arab States Broadcasting Union (ASBU), of the African Radio and Television Union (URTNA), of the European Broadcasting Union (The EBU) and of OIRT whose headquarters are in Prague. On more than one occasion I have personally represented either the African Union or the Arab States Union at international meetings which they were unable to attend.

Apart from our direct affiliation with UNESCO, the ITU and FAO, we have established cordial relationships with the International Broadcast Institute, with the UN Radio and Visual Services Division, with the Economic Commission for Asia and the Far East (ESCAFE), with the United Nations Development Programme (UNDP) and with various other important international bodies. I have already spoken of the very valuable help we have received from the Asia Foundation and the two West German foundations - the Friedrich-Elbert Stiftung and the Prix Jeunesse Stiftung. None of these bodies throws money away: their readiness to assist us in our work is a measure of their confidence in the ABU.

In its short life of a little less than 9 years, the ABU has grown remarkably and it has achieved much that we are very proud of. With justification, I believe the next 10 years will see a continuation of our progress. Assuming I am still its Secretary-General in 1984, I hope you will ask me to come here again - to tell you about the ABU's first 20 years!

WHAT'S HAPPENING TO MASS COMMUNICATION?

Penny Tung
President
China TV, Taiwan

Nobody would deny that the mass media of communication have a very influential effect on human society. Because they have the whole people as an audience; wars waged with mass population require mass media of communication and they provide almost all of the information we receive.

In view of the vast influence of mass media, we, the broadcasters who hold the most powerful medium of all, are therefore, more obligated to keeping them free and responsible if we want truth and justice to prevail.

Theoretically, mass media are expected to maintain freedom of speech and discussion. But they are also often under heavy pressure from interest groups to become partial and biased. It needs high professional ethics, personal integrity and courage to ward off temptation and intimidation.

Squabbles and disputes between individuals as well as nations are often the result of misunderstanding. Through exchange of information and personal contacts, better understanding can be easily attained. If we want to live in a peaceful and harmonious world, constant and free interflow of news and information must be maintained.

With the advent of modern electronic media, particularly the introduction of communication satellites, news dissimination has become so fast and so far-reaching that happenings in the remotest corner of the world can be brought to the eyes and ears of millions upon millions of people throughout the world in a split second's time.

We are a group of very fortunate people who have entrusted in our hands the most powerful medium of mass communication. At the same time, we are expected to make the greatest contribution to the lasting and just world peace. As I mentioned earlier, keeping the world well informed is the best security for peace. Positive result could only be achieved with positive efforts toward this direction.

Thanks to the advanced technology and mass production methods, cost for radio and TV sets has been cut down considerably thus providing easy access to everyone. Another task of ours is to take advantage of the easy accessibility and big following of the electronic media to upgrade the knowledge level of the masses. With higher and better knowledge, a person is likely to make more sensible decisions and have a higher sense of responsibility; both are instrumental in maintaining a congenial society.

I personally believe that mass communications affect individual political and moral decisions and, in the long run, decide the shape of group attitudes and institutions. Materials that the mass media disseminate enter the minds of many. Mass media make heroes in all walks of life such as sports, adventure, business, military life, government, entertainment, etc.

Since mass media possesses such a force in the formation of opinions, the greatest care has to be made in selecting and preparing materials for the public. When a person is exposed to a certain influence long enough, he will be subdued to that particular influence. A Chinese saying has it that *"it gradually becomes red when it is placed near the red; it turns black when it is close to the black."*

We have heard a great deal of criticism about the non-objectivity of mass media. US Vice President Agnew had once lashed out at the American press for their biased coverage of

Vietnam war and their exaggeration of racial problems in the United States. All these have aggravated the domestic unrest and resulted in the tarnished international image of the United States.

Modern means of transportation and communication have shrunken the world to such an extent that no place is too far away to be able to stay aloof from world affairs. Music, songs, fashions, to name just a few, are being spread worldwide in a very short period of time with the help of mass media. The vogue of miniskirts, for instance, started in Europe and in no time girls all the world over are wearing them. In a same manner, the Beatles have become the international symbol of pop music.

The war in Vietnam seemed so close to everyone because the mass media have devoted so much to it. However, still so many people don't know what's really going on in Asia. Lack of analytical reporting on the problems of Asia is a major cause for such ignorance. To be qualified to tackle such a task, we should pay more attention to the Asian problems ourselves first.

Asia, like other parts of the world, has its own tradition and culture. To help solve the problems of the Asians, we must get to understand them. Sometimes, the Western way of approaching is not necessarily applicable.

We should look squarely upon the problems now confronting Asia. Many Asian countries are under constant threat of Communist expansionism. It is beyond the capability of many Asian countries to fight the Communists alone. Therefore, collective security is the only way to keep Asia free. Particularly at this moment when people are full of illusion about peace. People think the Communists would respect the ceasefire in Vietnam. Our experience in dealing with them has told us the other way round. The Communists are known for using negotiation and ceasefire as smokescreens for their sneaky tricks of infiltration and subversion.

TELEVISION AND RADIO NEWS BROADCAST IN

THE REPUBLIC OF CHINA

Peter Chang Chin
Correspondent, China TV

I take this opportunity as a great honor to talk about TV and radio news broadcasts in the Republic of China in Taiwan. The history of radio news broadcasts began more than 40 years ago but TV newscasts in Taiwan are just 10 years old.

There are three television corporations in Taiwan - CTS, TTV, and CTV with transmitters, microwave relay stations and rebroadcasting stations. There are more than 1,000,000 TV sets in Taiwan. Two years ago China TV started color telecast in news reporting, the Republic of China has become the ninth country in the world to begin color TV newscasts.

News broadcasts in radio stations in Taiwan have grown rapidly; as of January, 1973, there were 36 broadcasting companies, 78 radio stations and 28 relay stations. There is at least one radio station in each country and municipality of Taiwan.

At the end of December 1972 the number of TV news viewers and radio news listeners, excluding those in armed forces, was estimated at more than 3,000,000 each day.

There were a total of 214 transmitters with a total of 2,516.75KW output, including 177 medium-wave transmitters with a total capacity of 1,937.50KW, 4 FM transmitters with a capacity of 5.75KW and 33 short-wave transmitters with a capacity 573.50KW.

The equipment both in TV and radio news is advanced. Every TV and radio department has its own modern studios with at least a mobile unit and of course, film, tape library, telegraph rooms, projectors and film editing equipments indispensable for the newsroom. When using an international circuit to send live news reports to Taiwan or to conduct two broadcasts, we often use special studios; in case there is a breakdown in the line, the engineers are able to take immediate measures.

In regard to TV, there is the afternoon news at 12:30, the evening news at 6:30 P.M., the late news at 11:30, (CTS has morning news at 7:00 A.M.). They all last 30 minutes. Radio news is around the clock. There are various forms of five minute scripts. Fifteen minute scripts, in depth reports, backgrounders, and descriptions of a wide range of activities, such as: politics, education, religion, sports, health, money, science, farming, foibles, anything of interest or importance.

Ordinarily there are eight to ten reporters and four to five cameramen in the newsroom. Local correspondents are not included. Each reporter has his own responsibility. In addition we also have foreign correspondents in the U.S., Patrik Mo and Vivian Yang in Hawaii, and Pablo Fong in Washington, D.C., and I am responsible for the news in San Francisco as well as on the west coast.

Continuously China TV has sent reporters to other countries to send live reports to Taiwan or to bring back some films to promote better understanding among different peoples. We also pay more attention to live news reports and telecasts such as the Olympic Games in Rome, Tokyo, Munich, Expo '70 in Osaka, and the Asian girls basketball game in Seoul.

China TV reporters also left footsteps in Saigon, Bangkok, Manila, Okinawa, Cambodia, Singapore, New Zealand, Hong Kong, London, The U.S. and small places around the world. There are many contracts with NBC, ABC, CBS and NHK, etc., via Satellite and

communication Satellite earth stations. Audiences in Taiwan seem in front of us. So the world is getting smaller and smaller.

The China Government in Taiwan holds a favorable attitude toward journalism. Sometimes the journalists lead the public opinion, and sometimes they follow it. Journalism is more and more influential, critical news programs and commentary are also paid close attention by the government and the public.

News broadcasting is governed by rules and regulations based on the codes of Japan and the United States. News censorship is carried out by the cultural bureau after the news broadcast. There is an investigation if something is wrong. Crime, sex and scandalous news are not allowed to be played up. Of course, breach of social safety is prevented as in any other country. In any event, freedom of speech, and press, as well as news broadcast is absolutely protected by law.

Take farming news for example. In October 1972 some reporters in China TV found that the average income of farmers had decreased. They took a trip around the island, visited hundreds of peasants and interviewed 20 of them. Farmers' opinions and suggestions caused close attention by the government and the public. At the end of 1972 some new policies were enacted to improve farming. The central government appropriated 2,000,000,000 dollars N.T. to solve the problems which the farmers encountered. This is just one of the exclusive stories and successful instances.

A considerable amount of effort has to be made by journalists. We would like to share the task as well as the success with you.

CHINESE TELEVISION PHILOSOPHY

Wen-wei Tseng, Manager
Planning and Management
Chinese Television Service

China is an old and civilized country with a history of over four thousand years. It is also a large country with a large population. Within such a large territory throughout such a long history, there has been a fundamental philosophical thinking serving as a guiding principle for the conduct of people, in terms of politics, economics, education and human relations. This fundamental thinking is based on the thinking of our great sage--confucious, in what we call Confucianism. The highlight of Confucianism is the doctrine to manifest the truth of human relations, to induce people to behave themselves and lead people to go on a way of righteousness, justice and harmony. It is aimed to make people live in peace, freedom and happiness. For reaching this goal, Confucianism seeks the way to cultivate people to regulate their conduct consciously rather than to force them to follow a principle which they are not familiar with. Therefore, cultivation by way of teaching and moral influence has been the method utilized. In Chinese political philosophy, the relation between morality and law has been most thoroughly studied and analyzed. Chinese political philosophers advocated a parallel application of moral standards and legal precepts, though specifying that the former are more fundamental than the latter. We use propriety as a check before the act, while law as a remedy after the act. Therefore, moral influences comes before punishment. The first thing people should deal with is self-respect or self-control, thus the social order can be well formed. Benevolence and kindness are the main teachings in promoting relations between each other. We have been led by the benevolent spirit of "*restoring the vanquished and re-establishing the fallen*" and "*helping the weak and supporting the tottering,*" and we have acted on the precepts: "*As you wish to establish yourself, so you must help others establish themselves; as you wish to develop yourself, so you must help others to develop themselves.*"

Based on the above-mentioned fundamentals of philosophy, Chinese people have concentrated on moral teaching and cultivation throughout the centuries. No matter in politics or in art, the goal is mainly to educate or to regulate people by moral conduct.

As you know, ancient China was an agricultural country. Land tilling was the most important work for the agrarian people. Public education was therefore neglected in ancient times. There were not many public schools for students. The places that they could turn to were the few so-called "*private tutors*" where there were not more than 20 students to study with only one teacher for years. Therefore, almost 80% of the total population were uneducated. Many were even illiterate. However, the traditional Chinese culture and moral doctrine still prevailed with deep influence among our countrymen. How could this be done? The reason is: In early ancient centuries, Chinese sages advocated the application of music and dances as the important tools for cultivating people. Music and dances in China were not merely the fine art work for people to enjoy. As everyone knows that traditional Chinese are freedom and peace-loving people. This was the function of music and dances. Chinese classical music is very soft and harmonious with a nature of tranquility. It carries the mood of peace. Chinese classical dance is very specific in its way of dancing. The action is slow. In ancient times, dance was not used to make people relax but to function for the purpose of education and cultivation. When people were dancing or playing music, they had to concentrate themselves to meditate or recall what they had learned from the sages. To

people, sending their children to dance or to play music seemed to be the same as to send them to schools. That was why the action of dances and the sound of music were slow and peaceful.

In every city, town, or village, people were organized by the learned into many small dancing groups and music bands. When they were free from farm work, they sometimes got together for music playing and dancing. Therefore, propriety and music were closely related and China was therefore called *"the country of music and propriety."*

In medieval periods in our history, music and dance were combined into drama, which was soon developed and prevailed. People learned everything merely from various kinds of plays, stage shows and operas. Temporary and permanent stages could be found everywhere in the country-in villages, towns or cities. Chinese drama relies not on its presentation as the western drama does, but rather on its content. Although the way of presentation should be very artistic, the thing that people paid attention to was still the content. Judgment of a play was always concentrated on the story itself by seeing whether it contained virtue or not. Otherwise the audiences would not be satisfied. Therefore, contained in the drama were all the stories of loyalty, filial duty, kindness, love, righteousness, faithfulness, harmony and peace. Although people lost their opportunities of education in actual schools, they still acknowledged the principles of conduct, which were the basic strength to form social order and to unite people in integrity.

Now in the Republic of China, the situation has been much more improved than before. Public schools are scattered everywhere throughout the country. Colleges and universities are quite enough to cover most of the high school graduates.Since the nine-year term compulsory education started in 1968, almost 98% of our children have had to attend school at the age of six. In Feb. of this year, there are 251,058 college students, 1,323,253 junior and senior high school students and 2,459,743 primary school students. Education is fully developed.

With the heightening of the standard of living, theaters with modern facilities are very common in every city and town. Drama and opera are still the main programs to be presented, with the same content as those of the olden days. However, the method of presentation has been greatly improved, emphasizing also the beauty of art. Temporary stages can still be found everywhere with traditional style of presentation. No matter whether they are in old or modern style, the stories presented are still those to reveal traditional Chinese virtue.

In 1962, television was developed in the Republic of China and it soon became popular in every corner of the country. People could directly enjoy programs in their homes, thus reducing the times to go to the theaters. Television therefore served as a substitute for the theaters, taking the responsibility for cultivating people as the theaters previosuly did. Television programs, therefore, are still mainly drama, drama serials and operas, which are the most popular programs, especially in local areas. All the stories found in ancient times as well as in modern days can be constructed as plays and drama serials to show on the screen. However, television may lose its effect if the broadcasters do not treat the programs well by presenting poor stories merely for teaching purposes. In avoiding this bad result, they have to organize the best talents to produce the best programs which, with morality teaching contained, have to be most artistically made. This shows the difficulty that the television broadcasters confront: they have to skillfully and artistically produce the best programs to meet the needs of the audiences and, at the same time, they have to insert moral teachings to meet the requirement of the government. In other words, they have to satisfy both ends naturally without artificial devices. They should be the ones who are very well learned in Chinese culture, masters in art and also the social educators.

Classification of Television Programs in the Republic of China

The programs in the Republic of China are classified into three categories, namely: Educational, Public Service, and Recreational. As a rule prescribed in Television Program Regulation set by our government, the percentage of these three kinds of programs is as follows:

a. Educational programs should not be less than 35%.
b. Public service programs should not be less than 15%.
c. Recreational programs should not be more than 50%.

Educational programs are: news report, news footage, panel discussions, important personnel interview, news commentaries, high school and college teaching courses, scientific technology, art and culture, and knowledge and talent competitions.

Public service programs include: government announcements, principle of conduct, patriotic songs, social security and welfare, religions, weather forecasts, industry and commerce, and home economy.

Recreational programs are: drama, drama serials (in national language and other dialects), plays, Chinese opera, puppet show, cartoons, films, variety shows, popular songs, classical music, dances, and sports.

Television Stations in the Republic of China

Television industry in the Republic of China is a newly developed business with a history of only ten years. With its amazingly rapid development, our television industry has now advanced into the world of colour and the utilization of satellite transmission as the other advanced TV systems in the world. So far we have three television networks in Taiwan Province, namely: Chinese Television Service, Taiwan Television Enterprise and China Television Corporation. They are all commercial stations depending upon the income of advertisement. The first network, Taiwan Television Enterprise, was set up in 1962. The second network, China Television Corporation, was founded in 1969. Our network, Chinese Television Service, was established in 1971 and began its telecasting just one year and a half ago.

In 1970, the number of TV sets throughout Taiwan Province was eight hundred eleven thousand six hundred and ninety-one (811,691). In February of 1973, the number has increased to one million and five hundred thousand. The population now is fifteen million. This means that every 10 person may have one TV set on the average. Included in these TV sets are fifty thousand colored ones.

Characteristics of Chinese Television Service

Chinese Television Service, aside from offering regular programs as other stations do, has two characteristics which are different from TTV and CTV in our country. Due to the rapid development of economic construction in the Republic of China, commercial and industrial enterprises have been constantly built up with booming business. Offices and factories have been set up here and there in cities and towns, thus providing more opportunities for people to get their jobs. Many young people quit their schooling for the purpose of going into factories. After working for one or two years in the factories, they are faced with certain difficulties in their daily work owing to the lack of fundamental or professional knowledge and techniques. The result was that these incompetent workers had badly influenced the progress of regular work.

In solving this problem, the government therefore decided to utilize TV stations as regular schools to broadcast all the courses needed in high school, vocational school and college, serving as a remedy for those who have not finished their school education. With the positive support of the Ministry of Education, Chinese Television Service was thus

established to meet this need. Television school was immediately founded at the same time when our station began its first day of telecasting. Students who have enrolled in the school should attend their classes regularly before their TV sets in their homes or anywhere else. On the Sunday of every other two weeks, they have to go to the classrooms as appointed by the television school to have their tests on the courses they have taken in the previous two weeks and to attend extra curricular activities. The whole educational system is coordinated and jointly organized with the famous universities and high schools throughout Taiwan Province, as a regular school under the supervision of the Ministry of Education. Any student, when he finishes his study, will get a formal diploma, which is recognized as the same as that of the other regular schools.

Educational programs of this kind start at 5:40 each morning and ends at 8:10 a.m. Each period of class lasts for 20 minutes. The programs for the morning classes will be rebroadcast again in the afternoon from 1:30 to 2:30 every day. On Sunday, the programs start at 5:40 in the morning and end at 10:40 a.m. We have cooperated with 28 radio stations to rebroadcast some courses of the day over the radio every night.

Among the three stations in the Republic of China, CTS is the only one to have television schools. This is one of the characteristics of CTS.

Besides TV school teaching programs, Chinese Television Service also provides the programs for the armed forces, totaling one hour and a half each day, presenting the most popular dramas, news programs and variety shows. These programs contain the most touching patriotic stories, which can enhance the morale and stimulate the fighting spirit of the soldiers. This program is another characteristic of CTS, which is also the unique one.

Problems of Chinese Television Industry

The most serious and overwhelming problems that we are confronting are: (1) the contradiction between commercial advertising and the public welfare and (2), the lack of scholastic writings of research and analysis on the current situations of Chinese television for our reference and guidance. I think these are the common problems for many TV stations.

In solving the first problem, we are planning to establish other related business, in the hope that we could use those profits to support the costs of the TV stations without relying solely on advertising income. As to the second problem, we are offering scholarships to the academic circle for their study and research on television development. We also need your experiences and suggestions as our important references. We will appreciate that very much.

Ladies and gentlemen, I have prepared a 5-minute film made by our station to be screened before you immediately after my speech. The film is a collection of the preludes of some of the programs that we showed in our country. It can help you know better about the programs produced by Chinese Television Service.

TELEVISION, EDUCATION, AND SOCIAL DEVELOPMENT

T. Ranald Ide, Chairman
Ontario Educational Communications Authority, Toronto, Canada

Twenty-three years ago, Clarence Faust, vice-president of the Ford Foundation, writing in **The Educational Record** stated: *If our purpose is the development of intelligence, if the essential function of education is the development of the mysterious ability of men to reflect, to take thought to judge and to weigh, then we certainly need to look hard at the new means of communication available. . . . . We need to consider what new possibility exists because of television for confronting the students with the most exciting minds of our day, when new materials otherwise not possible in the curriculum may be introduced by it, and not least of all, what curricular reforms will result when we begin to examine and readjust our means of education . . . .* "

Since then, with varying emphasis in individual countries, the key role for educational television has ranged from providing learning opportunities to those who live great distances from schools and universities or those not able to make use of conventional institutions, to providing a medium for inexperienced teachers to observe teachers in action and to become familiar with new curricula, to enriching or supplementing existing educational practices, all within the context of the established formal approach to schooling.

The fact that educational television did not meet the expectations of its early advocates was largely a result of the tendency to consider it a self-sufficient medium. Therefore, it was in recognition of this fact that the mandate of the Authority was made to include the communications media in general, and OECA educators and producers encouraged to design materials appropriate to expressed educational objectives.

While the majority of learning materials developed have been designed to aid instruction in the various educational institutions of the province, there has been a growing awareness of the demand by adult audiences for a range of programs which supply everything from nonsequential learning opportunities to full-scale courses not essentially different from those offered by the traditional school, college or university.

The effect of this has been to place considerable stress on the programming capabilities of the Authority. Not only must it satisfy the legitimate needs of the educational community through the production of specialized programs, it must also examine the needs and wants of the larger constituency that makes up the general public. In addition, while a sizeable library of excellent programs has been built up, the demand for fresh material is increasing and, at the same time, innovative educators associated with the Authority are discovering new approaches to the use of audio-visual materials for social and professional development which portend major changes in the methods used for both the production and utilization of the media.

The Authority was aware that it was critically important for the OECA to be prepared to meet the challenges that the 1970's would inevitably bring. In essence, there were two very practical problems that had to be considered: production and distribution. In production, while our programs had earned international acclaim for their excellence and a major sales agreement had been concluded with NBC, it was realized that funding for the development of new concepts was inadequate and the physical and human resources needed to cope with ever increasing requirements for fresh material on the Authority's Channel 19 were limited. At the same time, the lack of distribution facilities outside the Metropolitan

Toronto area was the cause of justifiable charges of discrimination from regional council members, community groups and individual citizens.

The dilemma faced by the Authority, then, was that, given the financial restrictions faced by all educational institutions, if it did not shift funds from production to distribution, not only would a system which deprived the majority of the Ontario population of access to most of our programming be permitted to continue, but also the utilization of existing materials at far from the optimum levels could not long justify even the present level of expenditures if it did make such a shift, either the quality or the quantity of the program materials would be inadequate to make the system viable. Some additional, if relatively small, resources were obviously necessary. Therefore, the Government was asked to review its budgetary priorities with respect to the OECA.

At the same time, the Authority staff was asked to evaluate and bring forward recommendations pertaining to the cost of low-power UHF broadcast transmitters, CATV delivery systems and a video-tape program service. It was obvious that no single system by which the majority of citizens in both urban and rural areas can be reached in their homes, and it is also the most economical method of providing programs to the head ends of cable companies in relatively densely populated areas. In a study conducted prior to the decision to apply for Channel 19, the costs of using broadcast television for this purpose were at least one third of those utilizing any other physical or electronic delivery system. Cable, on the other hand, can be an extremely effective method of supplying a variety of signals simultaneously. The IRTV experiment in Ottawa used 12 channels to provide school programs to classrooms virtually instantaneously. The costs connected with the project were such, however, and the software (program) requirements so great, that the Ottawa Board decided to modify the system, so that more schools and classrooms could be reached even though the retrieval possibilities were reduced. While broadcast television is ideal for reaching relatively large audiences and much of the Authority's production is obviously appropriate to this purpose, individual selection of programs or material within programs is impossible. On the other hand, cable, while possessing the technical capability to permit more selective access, is at present too expensive to be used extensively for this purpose.

It was for this reason that the Authority decided to pursue the advisability of providing a program service to educational institutions using video-tape. This format was selected since video-tape is not only cheaper than film, but is re-usable too. The economies promised were great - at least ten to one - for video-tape over film. It was encouraging to learn that 79% of secondary schools and 13.4% of elementary schools had already provided themselves with the necessary equipment to play back the material. The Authority, for itself had earlier established a media resource centre and had accumulated a library of some 8,000 programs, with the capability of making copies for distribution through the mails to individual school boards, schools, colleges, universities and other recognized educational institutions. The costs involved turned out to be remarkably low and, in April of 1972, a VIPS catalogue (video-tape program service for educational institutions) was announced. In essence, it offered to provide educational institutions programs on half-inch or one-inch, monochrome or colour, video-tape. The initial price was based on the length of the program, that is, 10 or 11 cents a minute depending on the format used. These costs, together with a small handling charge when considered along with the re-usable capacity of video-tape, promised easy access to the finest audio-visual materials in the world for the first time in the history of education.

That this service will have profound implications for the future is obvious. In his book Prints and Visual Communication, William M. Ivins, Jr., stated: *"Whatever may be the psychological and physiological processes which we call knowing and thinking we are only able to communicate the results of that knowing and thinking to other men by using one or*

another kinds of symbolism. Of the various methods of making such symbolic communication there can be little doubt that the two most important are provided by words and pictures." Educators have long been aware of this, and also that words and pictures are different in many important ways. It was obvious to them that any system which relied on one or another would become very limited in scope. Nevertheless, schools have continued to be print-oriented, designed and organized in such a fashion as to enable easy progress to be made by people who read and write effectively, since access to information has been easiest through that medium. It is true that educational films offered some hope earlier in the century that the development of non-verbal intelligence might be effected. However, the high costs involved in outright purchases of film prints, the often limited relevance of the content to the curriculum, the awkwardness of the projection process with the necessity to darken the classroom and the difficulties associated with ordering and receiving films on a loan basis discouraged many teachers from using them. As a result of these difficulties, planners for educational communications have yet to fully come to grips with the problem of how individual differences and variations in learning styles can be taken into account.

One current problem associated with using television material for individual instruction is the lack of a system of classification, both of the programs and the material found in them. Most books with any pretence to scholarship have been classified and indexed so that the learner may select specific information he may wish to know without reading the entire book. The educational video-tape, however, has not been indexed in a similar fashion and hence, despite a technology that will permit the viewer to look at any selected segment of the tape almost upon command, it is virtually impossible for the viewer to identify those portions which may be relevant to his needs. Conscious of the fact that new material is being recorded at accelerating rates and that the lack of an early attempt to come to grips with this problem may well prove to be the biggest obstacle in promoting the use of the medium for individualized learning, the Authority initiated a research and development project to develop such a system. A survey of the field confirmed our belief that there were no entirely suitable models in existence and, therefore, the OECA Research and Development staff was authorized to proceed with the experimental indexing and classification of some 200 programs. This project has already generated considerable excitement and, if pursued successfully, may establish a new standard.

It is difficult to assess at this time the effect that this new venture of the Authority will have on the social development of the province. If, as Alfred North Whitehead has said "*education is the acquisition of the art of the utilization of knowledge,*" then the future of our society depends on the quality of its educational system and the accessibility of the opportunities it provides to all of its citizens. Too often we have assumed that, because our educational institutions are open to all, equal opportunity exists. That is only true if they are equally available, equally accessible and if they make provision for individual differences - not just of the conventional type - but differences in the kinds of intelligence to which they are designed to serve. Harold Barrows of McMaster University, in a paper presented to the National Conference on Multimedia in the Health Sciences (1971) stated: *Recent work in learning disorders and psychophysiology show that although many students are verbally oriented, many may learn more effectively through more non-verbal media. . . . Video-tape, audio-tape, motion picture film . . . can offer distinct advantages in transferring certain varieties of information to the cortices of the learner.*"

It is becoming increasingly obvious that we cannot neglect the tremendous challenge presented by the whole concept of non-verbal intelligence. To address ourselves to this problem implies an insight into the nature of visual perception, an understanding of the visual language, the ability to translate abstract concepts into visual images and a dedicated

and creative staff. Fortunately, the Authority has both. It is only through a sense of commitment, a willingness to persist and a determination to succeed that the other qualities can be acquired. We are fortunate that Ontario has seen fit to establish this organization and that so many people from across the province have given us their support.

CANADIAN CABLE TELEVISION

From Here to Where?

F. C. Garrett
Canadian Cable Television Association

The erection of the first television master antenna 20 years ago gave no indication of the impact which cable television would have in Canada in the seventies. It was intended to improve reception for a few neighbouring families! To-day over 6 million Canadians view TV via cable.

Significant social and technical changes -- particularly in the past decade -- have generated a favourable climate for the cable television industry. As the industry continues to foster and grow, it is becoming much more than just a sophisticated extension of the rabbit ear antenna on the television set.

The timing, as well as the benefits of this electronic throughway into the home, fortunately has coincided with the orientation of Canadians into identifiable areas of viewer interest. Audience specialization has been evident in the print media for some time. It is now also apparent in the electronic media.

Cable television found its genesis in the early 1950s. Communities shielded from reception of off-air television signals by mountains, or located long distances from television broadcast transmitters, were unable to receive satisfactory signals. By erecting a sophisticated antenna in a favourable location, it was possible to receive these signals, amplify them, and transmit them over coaxial cable to homes in the community.

London, Ont., and several communities in British Columbia and Pennsylvania, share the honour as the birthplace of this new technology. In many cases, the systems were founded by two or three enterprising neighbours pooling their resources, with more entrepreneural faith than financial acumen.

Obstacles to through-the-air television broadcasting increasingly interfered with reception in metropolitan centres. In the early nineteen-sixties, the advent of highrise buildings and various sources of man-made electrical interference compounded reception problems. These situations presented special difficulties to the reception of colour TV signals. Colour receivers require stronger and more stable signals than black-and-white receivers for satisfactory reception. By providing both a better quality signal and greater program choice, cable television became popular, therefore, not only in remote communities, but in metropolitan centres as well.

In some cities today -- Victoria, Vancouver, Sherbrooke, London, Ont., and Montreal, Que., for example -- over 85 per cent of the population are connected to the cable television distribution system.

On a national basis, over 80 per cent of the urban residences in all of the areas licensed by the Canadian Radio-Television Commission have access to cable television.

Canada is a leader in this new technology. Several Canadian companies are larger than any single system operating anywhere in the world. Thirty per cent of the Canadian population view their television by cable, compared with 9 per cent in the United States! Canadian companies have also designed cable systems in Europe and the United States which they own and operate.

Greater choice, and not just a greater volume of conventional mass-audience programming, is the rationale of this new home-delivery service knowledge, entertainment,

and information. The forward march of the will of the people for greater choice demands a communications system that can specialize as well as carry mass programming.

The need for flexibility in communications is heralded by changes in society which highlight individuals and their uniqueness. The "*average man*" is disappearing; the common mask is being replaced by the private face.

Advertising, product design, communications, and services that will continue as the vehicles and voices of the times must respect this new environment of individualism and specialization. Failing this, they will go the way of the Saturday Evening Post, Look Magazine, and Life. Those who would try to hold onto past practice by limiting choice in purchasing, reading, listening, or viewing television, are suggesting old answers to new situations and going against a definite social trend.

Cable television is a new technology whose effects mesh with and promote this new environment of individualism.

Cable expands television's capacity to serve the public viewer by supplying more mass-appeal broadcast programs than would otherwise be available off the airwaves and by adding to the choice of programming available with locally produced and distributed signals. Special interest groups can be catered to through so-called narrowcasting.

The limited 12-channel VHF (Very High Frequency) over-the-air broadcasting capacity of television can be unlocked by the multi-channel capacity of cable television. There are a few systems now installed with as many as 60 channels available, and a number are being wired for 30-channel, two-way cable communication.

More than 100 of Canada's 300 cable companies now transmit programs originating locally in company studios, with programming specifically designed for their communities. The programming provides a distinct alternative to mass-appeal programs of off-air broadcasting. The success of such programs is measured not by ratings of the numbers of viewers but by enjoyment and interest of those who watch.

There are some interesting case histories of local programs which have outdrawn network broadcasting. Some have even polled higher in their communities than Hockey Night in Canada during the same time period. Generally, the community channel has been most successful where other media are not proving adequate local coverage. Absence of adequate service by other media is more significant than the size of the community in determining the success of a local channel.

The cable industry does not have the traditional characteristics associated with public ownership. It is reserved for Canadian investors by law, with foreign ownership limited to a maximum of 20 per cent. The industry has been built up totally in the private sector, with no single company dominating the service across Canada.

Cable television is not a competitor of the telephone industry. Its coaxial cable is capable of transmitting a large number and variety of informational signals into the home. The system has two-way capability, but cannot easily be switched between different points like a telephone connection. The cost of switching broadband coaxial cable is extremely high. It is the switching function which will continue to separate telephone industry activities from cable television services.

Nor is cable hurting broadcasting. The Special Senate Committee Report on Mass Media States:

> ". . . . . *there is no evidence of cable television seriously injuring television broadcasting in Canada to date.*"

Private TV broadcaster revenue in Canada has grown during each of the past five years along with the rapid growth of cable television, according to Statistics Canada. Applications for new TV stations and networks continue to share the CRTC public hearings with cable TV applications. The members of the cable industry are trying to cooperate with

broadcasters to strengthen the total Canadian communications industry. The re-running of good Canadian broadcast programs at the convenience of viewers is an obvious role for cable to play in strenghtening the Canadian program production industry.

The real social significance of cable television, however, is not just the interconnection of population through the cable distribution system, but the interaction now possible with two-way multi-channel systems. Subscriber response services are indeed in harmony with the mood for greater individualism.

Pay TV is to be developed through the licensed broadcasting undertakings in Canada according to a CRTC announcement of October 4, 1972. The hardware for subscription television is now readily available. Several cable companies, in response to the CRTC announcement, have now submitted Pay TV proposals to the Commission.

Subscription television will further expand viewer choice and permit narrowcasting of programs to small special interest groups who are prepared to pay for them. It is estimated that the cost per viewer is 3 cents per half hour for a mass audience production. Viewers will pay a good deal more than that for something in which they are really interested. The off-air signals will be provided at a base monthly rate. An extra charge will be made for premium packages such as special concert series, sports events and first-run movies.

Multi-channel capacity is also the key to off-campus adult education, enabling people to retrain for economic survival in the 21st century. Scholastic credit courses can be given at home at times convenient to the viewer, thereby overcoming geography, motivation, and educational status, some of the traditional obstacles to adult education.

Technical standards, the areas served, the rates charged and the programs carried by Canadian cable systems, are all closely supervised by the federal government. Through the Department of Communications, all users of the radio frequency spectrum are controlled through stiff engineering regulations. The CRTC sets the pace for all other aspects of the cable industry.

The Broadcasting Act of 1968 took cable television out of its legal seclusion and named it a "*broadcast receiving undertaking.*" Cable officially became part of the Canadian broadcasting system, and was put under the regulatory authority of the CRTC. Prior to 1968, the only regulation of the industry was through the Radio Act, at that time administered by the Department of Transport.

Order has come to the cable industry under the CRTC. Each operating company has a designated service territory assigned by the CRTC after open competitive public hearings. Regulations govern operating practices, rate setting, and the specific broadcast programs carried on the system. At regular intervals, the cable companies must apply to the CRTC for an examination of their past performance, their promises of future development, and renewal of their licences.

Through the Commission's public hearings, individuals and groups may not only comment but may also effectively influence the licensing, regulation, and supervision of cable television systems to meet the unique social needs of Canadians. Anyone may express opinions on any licensed system, either at the time of public hearings or at any time during the period of the license. Written submissions to the Commision may be followed by an invitation to participate in a public hearing if elaboration is required.

All technical facilities of a cable company must be approved by the Radio Regulation Branch of the Department of Communications. A technical operating certificate must be obtained for the erection and operation of the antenna structure and the associated electronic equipment needed to process the signals transmitted to cable subscribers. Also, an elaborate set of technical standards, specifying the quality of transmission, ensures that the subscriber receives high quality signals.

Traditionally, governments have not been successful in anticipating new technology. It

is, therefore, not surprising to observe that cable television does not fit, with precision, into the established operational areas of government.

The position of the cable television industry with respect to regulation is consistent, whether regulation is federal, provincial or municipal. The regulatory jurisdictional discussion is the responsibility of the elected officials of the people. The single most important factor to the industry is that people want cable television services, and through their elected representatives, will determine appropriate regulation.

There is a place for federal, provincial, and municipal government in the development of cable services. Unlike broadcasting, cable services depend on provincial and municipal rights-of-way for the physical emplacement on the ground of the cable distribution system. In many cases, cable companies depend on provincial and municipal hydro companies and telephone companies which have existing pole networks for their own cables. The provinces have correctly determined that the multiple use of distribution structures to carry all wired services in the community is in the public interest to prevent wasteful duplication.

Regulation of cable television should be balanced to protect the public interest but still provide sufficient freedom to the cable companies to respond to the wishes of the people. This will require communication and cooperation between all levels of government to prevent regulation that duplicates, conflicts, or is excessive.

The Canadian Cable Television Association, as the industry's spokesman, has opposed and will continue to oppose legislation which restricts reasonable freedom for cable companies to meet customer demands for service. The association has fought and will continue to fight any laws or by-laws that it considers to be illegal.

Appropriate freedom for development of cable services is a dedicated objective of the association. CCTA stands prepared to share information, knowledge, and experience with all levels of government to encourage communication and further understanding.

Federal, provincial, and municipal governments should act to encourage investment in cable companies which are reserved for Canadian ownership.

Where we go from here, of course, depends on the wishes of the people. The fact that new types of service are technically feasible does not guarantee their public application nor acceptance. The market place will dictate the nature and scope of future services. Cable companies must keep close to the people they serve, for their subscribers are their only source of revenue. Cable systems are prohibited by CRTC policy from selling advertising.

Public response can bring many cable services into being for which the technology presently exists:

—Pay TV
—channels devoted to full-time reporting of news and current affairs
—information retrieval from data centres, a form of electronic public library
—interactive instructional programs using two-way cable
—residential monitoring to detect abnormal conditions such as fire or intrusion and to measure consumption of electricity, gas, and home heating oil
—teleshopping with comparative purchasing date
—real time reports of the stock market
—interactive TV games
—transportation schedules visually portrayed with reservation services
—banking services
—local auction sales
—interactive vocational counselling

During the coming decade, cable television systems will receive signals through satellites such as Anik I, the Canadian communications satellite launched November 10, 1972. The cable system's head end or receiving antenna will be an earth station from which

local distribution of the signals can be made efficiently.

The U.S. Rand Corporation has predicted that by the end of the century there will be cable systems with 400 channels delivering 40 per cent of the mail in the United States. It foresees channels serving in-home computers, which can produce facsimile print-outs from the home television receiver providing newscasts and any other data for which a permanent record may be required.

These potential applications highlight the importance of the local distribution function of cable. We are already living with revolutionary advances in long distance transmission including the substitution of microwaves for wires and the introduction of communication satellites.

But communication bottlenecks are occurring in local distribution. The development of the broadband cable, an electronic throughway in the home, is an effective solution to the problems of local distribution which will escalate with more demands by the public for audience specialization in the electronic media.

PART III

AMERICAN BROADCASTING PROBLEMS

THE ESSENCE OF TELEVISION

Dr. Herbert Zettl
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San Francisco State University

The topic of my talk is relatively simple: the essence of television. To get to the essence of television is somewhat more complicated. The problem is not necessarily the complexity of television itself, but that of isolating and defining the experiential field in which television functions: our relationship to the medium and the medium's relationship to us.

All we really know about television is that it works. Well, indeed. Television has become a member of the family for millions of people all over the world; it has even penetrated such venerable institutions as education, the military, the Bank of America, the government, and the bedroom of the private citizen.

Since we all use it, since we all talk and write about it, since we hold conferences about it, and since we spend billions of dollars on it, we should assume that we know what television is. But do we?

The term gives us little help: it simply means "*far seeing.*" Does it mean the box at home? The television station? The programs? The transmitter? Cable? Satellites? All of these? Some of these? The sizable literature on television should help us to answer this simple question. But it really doesn't. The problem is that most studies look at what television has done and is doing, but not necessarily at what it could and should do.

I pulled two of the more recent books off my bookshelf to see whether they could shed some light on what television is, what it could and should do. The books were:

THE TELEVISION YEARS by Shulman and Youman, and
SPECIAL: FRED FREED AND THE TELEVISION DOCUMENTARY
by David Yellin.

The one purpose to be a "*rich feast of nostalgia, in pictures and text, from Milton Berle and John Cameron Swayze to Archie Bunker and Walter Cronkite--from Roller Derby and Studio One to Howard Cosell and The Forsyte Saga.*"

The other, slightly more sophisticated, claims to "*chronicle the development of the television documentary--from its beginning after the World War II to the present-- through the life and work of Fred Freed, pioneer in the radio and television documentary.*" Both books do exactly what they said they would. But they, too, fail to get us closer to what television really is, to the essence of television.

But even the more rigorous academic studies on the subject often do little more than to establish a significant or non-significant difference between insignificant variables. In our quest for scientific accuracy, we tend to strip the television of its immense complexities--simply to make the problem fit the already existing research design.

Small wonder, then, that television is still regarded to be in its infancy. But, it is not television that is in its infancy; it's a fairly fullgrown medium. Rather, we seem to be in our infancy when looking at the medium of television.

We seem to restrict our view of the medium to its outer shell, to isolated instances of its operation. We describe -- in loving detail-- the hand, the foot, the body, the eyes, the ears of a person. But we do not seem to be able to perceive the man-- or woman-- in his or her totality; not simply as an aggregate of parts, but as a loving human being. Even when we study the medium functions and their effect, we do so *ex post facto*, after the fact. This

seems to me like giving the weather report for the days past, not for the ones to come.

How can we ever hope to think and to talk about the essence of television? Well, let's relax a little. Let's look at television not from the outside in--from what television does, that is, who says what to whom with what effect-- but rather from the inside out: what elements are there that make up the television image? In short, what are the basic aesthetic elements of television? What are the images made of which we perceive and to which we react in a certain way? They are: light, space, time-motion, and sound.

When examining these elements carefully within the context of the specific medium of television, we will be surprised to find, not only ample explanations and proof for the way we have been using the medium, but also, if not especially, how the medium might be used in totally new ways-- ways which are more in accord with the complex needs of our global society, our *"now-generation."*

Let's take the first aesthetic element: light, for example. When we define the first aesthetic field in television, that of light, we discover that we operate, at least aesthetically, with two types of light: *external* light that comes from a normal light source such as the sun, or a Fresnel spot light, and an *internal* light, the light effect produced by the electron beam on the television screen. What we have, in effect, is a new additional aesthetic element which helps us speak with clarity and impact.

Let me give an example.

In *The Godfather*, death is treated with great skill and effectiveness. The actors, and particularly the special effects people, obviously had their field day. They produced a spectacle whose theme is death, very much like the Renaissance painter who has the ugly skeleton clutch the pale maiden's breast.

But, if we would show the close-up of a woman or man on television, and then control the internal light by debeaming the image, we would no longer *watch* a spectacle, but we would *witness, sense*, a structural decay, the literal disintegration of a living, breathing image, the destruction of Life, the release of seemingly uncontrolled energy like cancer on a rampage.

On the movie screen, we *watch* death; through internal lighting on the television screen, we *experience* it. In a similar way the spatial dimensions has certain aesthetic requirements and potentials.

The small, low-definition, television screen demands a spatial control which is quite different from that of the large, high-definition, cinemascope motion picture image.

In television, we can more effectively structure the picture field inductively, by moving from detail to detail, often leaving it up for the viewer to complete the event in his mind. On the motion picture screen, we frequently move deductively, from overview to detail. But the deductive approach to an event acts as a perceptual one-way sign: it prescribes for the viewer how he should interpret the picture detail. The overview determines, at best colors, our interpretation of the detail. But if, as in television, we are presented with a series of significant detail, we have an option--the option our experience provides--to put the significant detail together into a significant experience.

The dimension of television sound again reveals startling insights; not only to the housewife or househusband who misses important information when the sound portion fails during her or his favorite soap-opera, but also to the sensitive television artist, who will find that he must use sound as an essential structural and informational element, or equally important, as aesthetic energizer of the inductively presented visual images.

A synthesis of these aesthetic elements can help us at least in creating fresh and hopefully unique television images. But we haven't quite defined the essence of television. The real essence of television is probably to be found in the fourth-dimensional field -- that of time.

Let's go beyond the structural analysis of aesthetic elements -- and join me in sort of an intuitive leap. Let's simply look at the fourth dimension, time, and see how it relates: to us and to the medium. I really think that it is *time* that will most fruitfully define the experiential field in which television functions: our relationship to the medium, and the medium's relationship to us.

Man has always been concerned with time. We are born and die at a certain time. We experience recurring phenomena that suggest the passage of time: day and night, and so forth. We learn to record the past, and live in the present. We try to predict the future, to cheat human mortality. We construct theories and hold beliefs that suggest another life after death. We seek to manipulate, control time.

In our efficiency-oriented society, time has attained a new existential significance. Time is money. There are time salesmen and time buyers who shrewdly bargain for the price of time. They have tables which list the price of time. Some time salesmen refuse to sell time in bulk. And all this without really knowing what time is.

Time is an essential factor in measuring the worth of work. We build machines that break own or at least become inefficient at a particular time, and we accelerate this carefully calculated obsolescence with periodic style changes. We demand, and often get, immediate gratification. We have become a mobile instant society: physically as well as psychologically, if not spiritually. We have a new, intense, unprecedented awareness of time. Time and motion have become almost the essence of life. We are, indeed, a now-generation.

Small wonder, then, that this now-factor, this new time concept, has penetrated all media: painting, sculpture, motion picture, dance, music, and has probably demanded and created television. After all, it is the only medium that allows a clarification and intensification of an event while the event is still going on. Television can elevate an event into an aesthetic experience while the event is in progress and it can let an almost unlimited number of widely dispersed individuals experience this clarification and intensified event simultaneously with the development of the event itself. Rather than watching carefully reconstructed records of the past, as in film for example, television can let each member of its audience participate in the process of *becoming* let him experience change while change is going on, let him participate, literally, in the creation of the world.

Live television can let us experience the instantaneousness and irrevocability of each precious moment, of each significant now. Quite contrary to film or any other audio-visual medium, television can reflect true experience: a time continum as represented by an intregrated, continuously moving image. The now is no longer artificially arrested; it cannot be pinpointed. It is rather, like the Bergsonian durée, in constant flux.

The live television image is never quite complete as an entity, a picture which we can hold, put in the drawer, or hang up on the wall. While film consists of a series of discrete, past, television (live television) is a reflection of the living present. It is living reality. Since perceptually, there is no time lapse between the actual event and the live television translation of the event, there is very little, if any, entropy through time. Television has the ability to transmit faithfully the energy of the moment to us. A high-energy event will be perceived as high-energy, a low-energy event as low energy, without the necessity for undue event-distorting medium manipulation.

It is a very positive trait of television to be able to reflect accurately the various energy levels of an actual event. The rhythm of life, the fleeting moment, is comprised of stresses and strains, of energy peaks and low points. There is no need for *artificially* manipulating such a rhythm. When things are exciting, we should experience excitement. When things are dull, we should experience dullness. That is reality.

This minimum of entrophy between the energy of the actual event and the television screen event, the possibility of the television viewer to participate and experience in the *act*

of becoming rather than to witness a reconstructed series of past events, might well be the essence of television.

Does the essence of television, the aliveness, mean that we should try and telecast everything live as in the old, but not always very good, days of television?

Not at all. There are many programs which gain nothing by being telecast live. Whether the underarm deodorant is sprayed on live or not makes very little difference. Whether Cannon is shown live or on film while he talks about his favorite gourmet dinner, calmly shooting the bad buy in the process, makes almost as little difference.

But whenever the instantaneousness and irrevocability of the moment is of paramount importance, whenever change, however subtle, is the essence of the intended communication, then live television becomes a must.

For example, the way we have been treating drama on television, shows little cause for presenting it live. Why go through the hassle of presenting live a script in which the characters and especially their actions are carefully constructed, with due respect to the dramaturgical requirements of the classical stage play. Even as good a writer as Rod Serling simply squeezed the traditional dramatic format to make it fit the constructed space of the television screen. Summer stock in an iron lung needs not to be live. The traditional television drama uses, as so much other nice but relatively insignificant program fare, very little of television's aesthetic potential. But, if we re-think drama in the context of television and complexities and intensities of the now-generation, as the vehicle to prove into the human mystery with understanding and compassion, rather than simply to tell a story, then the alive moment, the instantaneousness and irrevocability and complexity of the moment, must be reflected as it occurs, when it occurs. Live television, then, is a must. We are all familiar with the electrifying quality of a live sports telecast, for example.

Or take news. If we consider news as the more or less careful collection of events to fill a predescribed time slot, or worse, as the conglomeration of the day's most gruesome events that will most likely succeed in keeping the television viewer from switching channels, then live television is not necessary. We can even do away with the live announcer. I suggest totally computer-controlled screen readouts.

But if we consider news as an essential element in our social structure and for our social actions, as an element essential for individual, societal and cultural growth, then live television may well be the option to follow.

We may want to think of a continual, instantaneous exchange of information from all corners of the world to all corners of the world. We would have access at any time to the type of information and developmental processes which are necessary, if not essential, for decision making in a global society.

Then we too, and not just the military, could give our communication satellites real purpose. We could create a live information grid from which anyone could draw at any time any amount of information, according to need or whimsey.

But more importantly the prudent use of television's essence, its aliveness, would help us to reduce the distance from actual event and screen event, from symbol and referent, and help us to overcome, or at least reduce, the existential *Angst*, the continual anxiety about which is real and which is not; that which should be trusted, and that which should not.

Above all, the prudent use of television's essence could help us to reach even a minimal degree of emotional literacy that contributes to self-awareness, self-respect, and ultimately, love.

THE AMERICAN TELEVISION PHILOSOPHY

William E. Wuerch
Vice President
AVCO Broadcasting

It's a pleasure and an honor to be here as a representative for American Television Broadcasters. However, it would be presumptuous of me to even consider to speak for *ALL* American Television Broadcasters. The competition between us is intense at times and there are thousands of differing operating philosophies. However, we are all licensed by the Federal Communications Commission and, thus, have certain common responsibilities, and we do find unanimity in opposing those who would capriciously attack television. These days it takes a kind of thick skinned sensivity to operate in television. For about 20 hours out of every day we are held completely responsible for what comes out on a little rectangular screen. And, per square inch of space, possibly nothing can equal it for the sheer volume of opinions, praise and brickbats it brings forth.

We can be heroes and we can be villains. . . . all in the course of 24 hours. *EVERY* 24 hours.

We have been accused of being the cause of assassinations, drug abuse and juvenile delinquency. . . . of promoting violence . . . . of eroding moral standards . . . . of ignorning minority groups and, at the same time, of overemphasizing their activities . . . . of ignoring children . . . . of slanting the news . . . . of programming nothing but PAP . . . . . and, recently, the American networks have been accused of spreading elitist gossip and indulging in ideological plugola.

Yes, we do need a thick skin when we are surrounded by alligators. That's right, by alligators. We have at our station a favorite saying *"when you are up to your 'fanny' in alligators, it's sometimes very difficult to recall that your initial goal was to drain the swamp!"*

GOALS - most commercial broadcasters do have admirable ones. We believe that we have a deep responsibility to entertain, enlighten and inform the people who live in our communities. We have an obligation to respond to their needs and, in some way, help improve the quality of life around us. At the same time, we understand that we must provide reasonable access for the variety of differing viewpoints that exist in our communities. You are probably well-aware though, that pleasing our audience is just *one* aspect of our existence. We are constantly reminded of our obligations towards the FCC in Washington. There are demanding voices also emanating from Congress, the courts and the Administration. We also hope to provide an effective service for our sponsors and there are influential people who run the communities in which we operate--businessmen, civic leaders, educators, religious leaders, all of them are important opinion molders. They cannot be overlooked.

But, if audiences, opinion leaders, government, the courts and even our own Boards of Directors have diverse opinions on television programming, so do broadcasters. Get a group of us together anytime . . any place . . and you will be lucky to find two of us agreeing on how to handle our multiple people-pleasing responsibilities.

Several basic choices are open to us. First, there's network programming. From it we get high budget entertainment with top stars, expensively filmed documentaries, and world-wide from-the-scene news coverage. We can also buy syndicated programs and feature films. All across the country local commercial television stations are placing an increased

emphasis on local news programming. In each of the marketplaces news programming has become an extremely competitive arena with most broadcasters believing that the station which achieves the largest audience for news will eventually obtain the greatest measure of viewer respect and loyalty, and a resultant financial acceptance by sponsors and advertisers.

However, if you call the roll you would probably find most stations choose to use network and syndicated programming, plus local news and sports with some children's programs, to fill their daily schedules. I certainly can't belittle this programming method . . . . it has proved very successful for many broadcasters. But, we at Avco Broadcasting have deliberately chosen to go a different route. Long ago we decided the solution, for us at least, was to build our stations on the pulling power of live personalities, and vital news organizations. It is on this concept of live programming and news that we sink or swim.

We believe local live programming is the best way to build a strong local identity. We believe it is the best way to sell product. And, we are convinced it is the most successful way to become a vital part of our communities. As Herb said, we are dealing with the "*now.*"

Despite this, we have few broadcasters joining us. Why? No doubt there are many reasons. And one might be that live programming creates many problems you don't have to face when you push buttons for network and film. As we well know, talent seldom comes without temperament. Live music means musicians, and musicians mean more union cards. Staff requirements in the way of floor crews, cameramen, set designers, producers, artists and directors soar enormously. And, still we think we're on the right track.

But, if I'm going to convince you, I'd better have some pretty persuasive case histories. To begin with, the AVCO Broadcasting stations like many others have network affiliations. So we're primarily interested in programming some of the open daytime periods. We're also a group owner, which makes it possible for us to feed our live programs to several of our TV stations. Four of our company's five television stations form a regional network of their own through Indianapolis, Indiana; Cincinnati, Dayton and Columbus, Ohio. This is the heart of AVCO's live programming operation. To this network in America's midwest the names of PAUL DIXON, BOB BRAUN have been household words for more years than the TODAY SHOW or any other regular network program has been on-the-air.

PAUL DIXON'S live show starts at 9 o'clock in the morning - 90 minutes - 5 days a week. ZANY. . . is the only word to describe it. As Paul says. . . "*this dumb show.*" It includes two talented female vocalists, a live orchestra; starring Paul and his live studio audience. There is a full complement of sponsors and it's been a success for 18 years.

Bob Braun is host of the 50-50 Club, a show that began on radio 28 years ago. His program airs at 12 noon, 5 days a week and for 90 minutes,. Bob, a rotating staff of four fine vocalists, a live orchestra and nationally known guests laugh, talk and sing together to the delight of our viewers.

The Phil Donahue Show is another live programming venture produced by our company and is scheduled at varying times on our stations. This program is one hour daily and it is also syndicated to approximately 50 stations across the country. Phil and a prominent guest discuss important contemporary issues in a four way dialogue that includes the studio audience and viewers on the telephone. The Donahue program originated at our Dayton station over five years ago and our Avco Program Sales Division was an outgrowth of this project.

We now have a number of other programs in syndication including: A half hour version of the Paul Dixon Show, now in a number of major cities. The Johnny Bench Show, a sports/variety format hosted by the baseball superstar. Two pilot programs have been produced and projected for this fall . . . a game show entitled ON THE MONEY and a stunt program named ROLLER JAMMERS.

In addition there are a number of specials including Orson Welles, Hannah/Barbara cartoon holiday specials and Children specials.

AVCO Broadcasting *has* met the challenge for relevant children's programming by creating a Children's Programming Unit, staffed by award winning professionals, to produce a series of nine Prime Time specials a year. Designed to be entertaining as well as educational, the programs cover a variety of subjects and formats all of them intended for the 6-15-year old age bracket, which our research showed to be a group that could use additional television programming. These young peoples specials have already been commended with a 1973 Achievement Award from A.C.T. (Action for Children's Television). Kindergarten college - daily live hour.

In 1971, the preparation for the FCC rule limiting national network programming, AVCO Broadcasting determined that its stations would move more strongly into prime viewing time with locally produced programs exploring important community issues. One of the results of this endeavour was WLWI's program series . . . Issues in the Light . . . I have had the honor of accepting a number of awards for these programs including the one presented at this conference last Sunday evening.

Our station in Indianapolis airs two Issues in the Light documentaries each month in prime time . . . 24 half hours a year . . . with repeats on the weekends and additional repeats on the local Public Television station. And we're proud of the fact that they are fully sponsored adding the prestige of a community minded client.

These Issues in the Light programs involve our news anchorman and many other of our on the air journalists, thus substantially enhancing our image of authority and community concern. This has resulted in outstanding audience increases for our news programs . . . . moving us from a poor third in the marketplace into a leadership position in most audience categories. Obviously this growth brings greater sales acceptance and provides revenues which enable us to even further strengthen our Community Service efforts. It is certainly one measure of the effectiveness of our philosophy of news emphasis and live programming.

Rounding out the live Programming Philosophy of AVCO Broadcasting is our extensive list of sports coverage. We have served as the nucleus of the Cincinnati Reds Baseball TV Network since 1956. WLWI alone carries 20 Reds Telecasts each year. And in the Indianapolis market we have had the exclusive rights to the Professional Basketball games of the Indian Pacers . . . . most of our 21 games a year are carried in prime time and in this "*heartland*" of national basketball interest . . . they are outstandingly successful. We call it Hoosier hysteria. We top off our live sports coverage with a massive effort during the entire month of May . . . leading up to the internationally famous racing spectacle . . . . The Indianapolis 500 Mile Race. Approximately 50 special programs about the race preparations, the 500 festival and time trials are aired during the month.

Now, there is another part of our people pleasing act which is lesser known and sometimes unheralded, but is an important factor in our total operating philosophy. . . it is . . . personal involvement in our communities. We believe that community involvement is good business. It's also an obligation, we, like every other commercial enterprise, have toward society. Involvement comes with *belonging* to a community and caring and our management and talented staff have readily accepted the challenge. When you are actively involved with organizations you have a greater grasp of the needs and problems in the community and can be more posed to respond with programming which will serve those needs. Paradoxically many of our activities and leadership efforts are more impressive off the air than on.

I'll not elaborate extensively . . . just a couple of examples . . . a news reporter finds a need for downtown sidewalk ramps for people in wheel chairs and shows the city government how it can be done . . . . accomplished in 8 months. The mayor appoints the

general manager as chairman of a citizens Task Force on Drug Abuse and within 12 months the city moves from no programs to a system of multiple treatment with funding of a million dollars and a committment for over 8 million more for 8 years. The news anchorman hikes 25 miles and helps raise a record amount for the march of dimes . . . . that's community involvement.

Finally, each of us who runs a Broadcasting operation has, in addition to programming beliefs . . . a more basic operating philosophy . . . it determines our way of doing business . . . of dealing with employees . . . of recognizing, encouraging, and stimulating talent . . . and of just generally running our company.

Television Broadcasting has reached another critical phase of its existence . . . no longer a young industry, we can enjoy some of the privileges of maturity, but we can never afford to lose the fresh, inquiring, questioning, daring spirit associated with our younger days. The key to television future, lies in the courage to experiment . . . to innovate . . . to inquire why . . . to search for a better way to do things and to more effectively utilize our potential.

A challenge like that isn't met by building an average organization. It must excel!

The answer is people. . . . creativity and innovation come from people, not machines or technology. Necessary change is brought about by people who effectively use the new tools of their trade.

We made each job in our organization big and demanding. Give people room to grow. Expect a lot from them. Insist on fresh ideas, and have the courage to give them a trial. Above all we build our organization based upon enthusiasm. In my opinion, ethusiasm is often a surer key to communication success than a phi beta kappa key.

I am confident that with the right combination of enthusiastic, talented people, we can *drain the swamp* and the alligators will lose their appetite when they find such a changing and effectively fast moving target.

THE CHANGED PATTERN OF RADIO

Michael E. Isaacs
Station KSFO
San Francisco

Broadcasting in the United States did not become an important agency of mass communication overnight. It developed slowly, and after a half a century of broadcasting, it is still changing.

Although during the middle 1920's some stations carried sponsored programs, their revenues were very small. During 1926, all radio stations combined probably received no more than $200,000 from sales of commercial time. However, after the major networks had come into being, expenditures for radio advertising showed a rapid increase. In 1929, with annual station revenues averaging only about $12,000 per station -- including whatever payments networks made to their affiliates -- it is doubtful whether more than 80 or 100 of the 618 on the air stations had revenues exceeding operation costs.

However, by the beginning of 1930 the foundation had been laid for what was to become one of America's most important industries.

Radio's possibilities as an advertising medium are naturally dependent on the number of prospective buyers of advertised products who listen to the broadcast programs. From 1930 to 1941, the number of radio - homes rose steadily from 12 million in 1930 to 34 million in 1940. Automobile listening increased during this period also, seven million autos were equipped with radio in 1940. By 1940, the average listening per home was four hours per day; more good programs were on the air, stations were operating on a full-time basis, and people had developed the habit of depending on radio as their major source of entertainment. In 1940 any evening network program of average quality and appeal attracted an audience of from four to seven million listeners. On the other hand, favorites such as the "*Jack Benny Show*," or the "*Edgar Bergen-Charlie McCarthy Program*" attracted an estimated audience of nine or ten million listeners.

As radio listening increased, network and station revenues increased. Industry revenues doubled between the years 1940 to 1945. In 1940 the total net time sales for the radio industry was set at $155,686 and in 1945 the figure rose to $310,483. Almost equally important was the fact that an ever increasing amount of the industry's revenues went directly to stations and not to networks.

In January, 1940, the four networks combined carried sponsored programs totaling 156 hours per week, including 87 hours of daytime programs.

That year, with four major coast-to-coast networks, more than 700 commercial stations on the air, and revenues of more than $150 million a year, radio had become a major business enterprise. The new industry also spawned other businesses such as radio production agencies, wire services, etc.

Although much of the public's attention was centered on radio, the ground work was being readied for a new form of broadcasting which would gradually replace radio as the primary source of entertainment in the home. In 1928, the General Electric Company broadcast the first television drama. By 1937, 17 television stations were operating under experimental conditions. In 1939, the RCA station in New York broadcast daily from the world's fair. The following year, portions of the Democratic National Convention held in Chicago were aired over WBKB in that city.

Commercial television was introduced in 1941 with five stations signing on the

air: WNBC-TV, New York; WCBS-TV, New York; WPTZ, Philadelphia (owned by the Philco Corporation); WRGB, the General Electric station in Schenectady; and WBKB, Chicago (owned by Balaban and Katz Motion Picture Company.

Although these stations held valid commercial licenses their operation was only nominally commercial because fewer than 10,000 television sets existed at the close of that year. The commercial significance of the audience was very small. As the U.S. entered into WW II late in 1941, commercial television was practically abandoned.

During the war, both industry and the public were subjected to wartime restrictions and broadcasting was directly affected. Broadcast manufacturers shifted to production of materials used by the armed forces. In spite of the shortages of equipment, there was an increase in the number of operating radio stations; by December 1945, 940 stations were licensed and on the air. The number of radio homes rose to almost 34 million in 1945.

At the close of the war, radio was in an enviable position as an influential American institution. Radio time sales revenues reached $310 million in 1945. This was the peak of radio's importance to the American public. It enjoyed the confidence and approval of the people to a degree rarely attained by other institutions in the nation's history. But radio was confronted with serious problems, problems which would produce revolutionary changes in programming and the broadcast industry as a whole.

In October, 1948, the Federal Communications Commission ordered a "*freeze*" on the processing of applications for new television stations, to permit channel allocations for communities throughout the nation, and to allow for decisions on the requirements for color broadcasting and development of educational television. At the time of the freeze, there were 109 stations either operating or that had been issued licenses.

The "*freeze*" lasted four years. During this time period the number of television-equipped homes increased rapidly. By the end of 1949, there were an estimated 2.8 million television homes in the U.S.; by the end of the "*freeze*", January, 1952, 15 million families could receive television programs.

January, 1952, marked the end of the era of radio dominance in broadcasting and the beginning of the television age in America. Ironically, this was the first year in which television revenues surpassed the combined revenues of the four radio networks.

Through programming and finance, television owes a great debt to radio. Practically all of the program forms used on television were developed by the radio industry. Not only the forms, but actual programs which had been popular as radio offerings, were moved over from network radio to network television. The first two years of network television operation saw 20 of television's most popular shows taken directly from radio schedules. Programs such as Arthur Godfrey's "*Talent Scouts*," "*Suspense*," "*Lights Out*," "*The Goldbergs*," and "*Break the Bank*," all contributed to the early success of television.

Radio broadcasting since 1952 has been filled with contradictions. Radio continued to grow at the same rate as in the years following the war. The sale of radio sets continued to climb, the number of stations grew tremendously, industry revenues also increased; the estimated total from the sale of time in 1954 was 451 million and in 1968 the figure reached the billion dollar mark.

However, this expansion did not deter the circumstances that caused serious damage to the industry. As TV developed, the public spent more time watching than listening. True the revenues of radio increased, but the number of stations over which this was spread created serious financial problems for over half of the stations on the air.

Programming suffered also; the winter of 1955-56 found a total of 35 hours of evening porgramming provided by the four networks each week. These diminished rapidly so that by 1962 only one program, "*Johnny Dollar*," broadcast by CBS remained.

By 1964-65 only headline type news programs, talk shows of short duration, and a few

feature shows were supplied by the networks to their affiliates, an average of less than two hours a day.

Some radio stations have managed to sustain substantial revenues from the sale of time to advertisers. However, these stations are those with high power and in metropolitan areas.

Most of the stations eked out a nominal living by cutting program costs to bare minimum. The difficulties of these stations have had a serious effect on the quality of programming which radio provides.

As network programs left the air, affiliates filled air time with local programs of music, talk, and audience participation shows, and even daytime variety shows. However, by the late 1950's, 80-90 per cent of the stations were programming only musical programs, short news programs, and no diversity.

It was in the late 1950's that two men having a drink in a local bar formulated *"Top 40"* radio. Tod Storz and Bill Stewart watched a barmaid play the same song over and over again on the juke box; sometime later they applied the same principle to a radio station in New Orleans, WTIX. The station was owned by Storz. Stewart was the national program director for all Storz owned stations. Stewart took a list of forty records and gave it to all the *'disc jockies'* saying these are the only songs to be aired for the time being. *"Top 40"* today is one of the most viable formats in radio.

Another innovation to come about in the late 1950's was *"Wall-to-Wall"* music. KABL in San Francisco is a prime example of this type of format. It consists of very easy listening music, very few commercials, and very capsulated newscasts. Gordon McClendon was the so-called father of this form of radio entertainment.

Bill Stewart and Gordon McClendon were also among the first to advance station and audience promotion to the point it is today. Stewart developed the first radio station *"Jingle"* for the Storz station in New Orleans.

Other stations gave special interest to farm audiences; and thus the rise of the *"country and western"* format. A considerable number devoted themselves to the interests of the black listeners and other minority groups. Many stations gave emphasis to sports broadcasting and called themselves *"Sports Stations."* Others developed the *"All News"* format and KCBS in San Francisco is a good example. A somewhat larger number of the all news stations became *"all talk"* stations and again San Francisco has the example of that in KGO.

On the network level, an ingenious flexibility was introduced by NBC in 1955 with the premiere of MONITOR, a 40 hour weekend show which provided for network programming with both local and national spot advertising. MONITOR represented a new concept in radio programming, with its combination of interviews, remot pick-ups, comedy, news, and music. It eliminated the set time period and worked on a *"as long as it takes"* basis.

The stiff competition of television in the 1950's forced radio to provide for more *"service"* programming and programs of the kind television could not do well. A greater emphasis was placed on the mobility of radio, with an increase in on-the-spot news coverage, the use of mobile transmitters (in cars, planes, boats), and short-wave units on the news reporter's person. The vast car-radio audience was given special attention and today commute hours are the most lucrative time periods for selling advertising.

The *"disc jocky"* became a figure to contend with in the fifties. He brought *"Personality"* to radio and is an integral part of today's radio industry.

In conclusion, it's clear to see radio became one of America's most successful and respected industries by the end of the 1940s. With the development of television as a powerful competitor, radio's success declined to frightening levels. By 1952, the industry (radio) realized it must find a new image to serve the public if it was to survive. This brought about the *"personality," "top forty," "country and western," "all news/talk."* and

"*service*" formats in modern day broadcasting. Today radio enjoys a prosperity as never before and the respect of the American public is higher than that during the so-called "*Hayday*" of American radio broadcasting during the 1940s.

UNIVERSITY TELEVISION: "A PROMISING BABY TO A WAYWARD CHILD"

Edward L. Herp
Florida State University

Today we look back on what are called "*The Golden Years*" of commercial television. We read names and look at pictures of performers and scenes in the book *How Sweet It Was*. Reminiscing about programs like "*Playhouse 90*," "*Studio 1*," "*The Robert Montgomery Playhouse*," "*Sid Ceasar Hour*," "*The Garroway at Large Program*," and other variety and game shows too numerous to mention–all the way back to Mr. Television himself, Milton Berle.

The reason I refer to this era is because in retrospect it's now very obvious commercial television seemingly didn't have any particular course mapped out for it -- no particular direction -- no particular philosophy to guide it, at least not a generally accepted one. Naturally, the objective always is *making money*. It seems to me commercial television met its downfall when Hollywood decided to join its ranks. As you know, Hollywood used every possible innovation to fight its battle with TV back in the early fifties: cinerama, with its 3 screens; 3 D, with its red and green glasses; etc. When none of these techniques worked -- it was a matter of "*if you can't beat them, join them.*" This was the beginning of full-scale packaged television film programs. It was the day when a program director for a local station was more concerned with the logistics of scheduling film products than having thoughts about creative programming -- aimed to serve the specific needs of the community.

So, today, is it any wonder that commercial television finds itself in such a dilemma? It took many years before the climax arrived -- urged on, of course, by license renewals and a speech here and there by *Vice President Agnew* - and lately by a rather outspoken fellow named Whitehead.

Anyway, you're probably thinking '*what's this got to do with university television.*' Well, in many ways similar situations occurred on the educational television scene -- perhaps in a different order of time, but the basic weaknesses -- of mismanagement and lack of direction -- or philosophy if you like, are just as evident.

I titled my remarks -- University Television: "*A Promising Baby to a Wayward Child*," -- I believe this says it in the briefest of terms. But I will go into a little detail.

When television hit the university scene it was looked upon as a delightful little plaything with a great deal of promise. Some academic people looked upon it as a wonderful way to serve many students on a mass scale -- thus saving precious faculty time -- and resulting dollars. Others looked upon it as purely an instrument for personal aggrandizement. Yet others feared it almost as much as a new father does when mother's time is completely taken up with a new baby. The only theory they could see was *substitution*.

Out of this the new baby didn't develop very well. In fact, he became pretty much of a spoiled brat. Spitting out meaningless pictures and sounds -- in a rather unrefined and undisciplined way. Soon he got the reputation of being very expensive to feed and house. Sort of an uncontrollable monster -- and in some cases he was placed in the underprivileged class.

Well, this didn't stop the new-born university television. He found that he could serve many interests at the university, and being the undisciplined type – he suddenly started

delving into all the different facets of the university and the community that could hear and see him. He actually cut across all lines of communications and organization: from press conference for the President, public relations, development, general information service -- to continuing education and general extension, adult education, seminars and educational conferences, and ITV.

Through all this the administration of the university was definitely befuddled -- as the where this *upstart, television*, should be placed in the over all organizational pattern. (I would venture to say that the majority of university presidents still aren't sure). In 1966 and 1967 I made surveys of this situation and it was not surprising to find great variance in the organizational patterns. So, as you can see, it is impossible, at this point, to state any specific direction or particular philosophy for university television -- actually this is a rather individualistic matter.

But to return just for a moment to a parallel between commercial and educational or public television -- let's look at the programmed packaged and distribution situation. ETV has tried and is still attempting this method. It still needs to be proven successful when it comes to instructional television -- perhaps the consortium type of arrangement will work. But again many faculties and teachers believe the local approach designed for their specific needs in content and individual scheduling patterns must be met. The non-credit type of instructional or informational program has a much better chance of success, of course.

Let's get to the nut of the matter -- as far as the *direction* of university television is concerned: *First*, the overall objectives of the system should be determined and specific priorities must be identified. *Secondly*, the system should be placed in the proper position within the university organization. (This is nothing new -- but I'll venture to say that most university systems are still uncertain about these two major points).

It is my belief a university television system should be directed to the following:

1. Its broadcasting facilities should be primarily concerned with serving the needs and dealing with the problems of the university and community-at-large. This includes public and cultural affairs, children's, women's and general informational programs. Further it includes the open air distribution of national public television.
2. The broadcast facilities should provide the university with the instrument for maintaining the desired public relations and information services to the community -- and wherever possible extend this service to statewide and/or regional distribution.
3. The broadcast facilities should maintain a schedule of credit and/or non-credit courses in continuing and adult education. Every effort should be made to demonstrate the capabilities of extension through the television medium.
4. The closed-circuit instructional services should be an integral part of the over-all university television system. It should provide a continuous training program for faculty members desiring to produce course materials for television distribution, provide a laboratory situation for all students pursuing television training at the university, and establish workable liason with local cable TV operations for extending the distribution of instructional television.

In essence there are the major objectives. Naturally there are many other minor services which relate to these objectives.

To effectively meet these objectives -- and give meaningful direction to the system, it is extremely important that it be placed in an organizational position which links it to all operational facets of the university. So, the system is not caught in the dilemma of being responsible to any one particular segment: the academic or non-academic. It should be placed directly under the office of the president of the university. In our particular case, this would mean reporting to the executive vice-president. In any event, the system should

report to a direct assistant to the president.

It is my belief university television has a better opportunity for a successful future than ever in its history. There is an awakening by universities that a television broadcast facility and its related systems is -- or can be -- a valuable asset.

These days I feel like Rosey Rowswell, the old-time sports announcer for the Pittsburg Pirates, who originated the phrase "*how sweet it is.*" I sincerely believe that the "*Wayward Child,*" (The Television System on the University Campus), will find a permanent home.

PART IV

BROADCAST FACILITIES OF PACIFIC NATIONS

RADIO IN AFGHANISTAN

The kingdom of Afghanistan is a landlocked country which is bordered by the Soviet Union on the north, China and India on the northeast, Pakistan on the south and southeast, and Iran on the west. Three-fourths of the total land area of 250,755 square miles is covered by the Hindu Kush mountain range and its branches.

Afghanistan, which is 90 percent agricultural, is divided between two languages, Pashto and Persian. Among its total population of 17,124,583, there are 700,000 radio receiving sets. A 1969 figure revealed that there was a total of fourteen radio transmitters in the country, as compared to five in 1966.

The radio stations in Afghanistan are owned by Radio Kabul, a government operation which is supervised by the Ministry of Information and Culture. Radio Kabul, headed by Dr. A. L. Jalali, is located at Ansari Wat, Kabul. The main transmitters are located in Kabul, which is the Nation's capital, while subsidiary radio stations are located in the principle cities of Kandahar, Herat, and Mazar-i-sharif.

In the King's modernization plans for Afghanistan, one of the major goals is an increase in communication with the outside world which would help to raise the living standards of the country. Presently there is a world-wide radio installation which connects Kabul with the other countries of the world. A telephone and telegraph system now links the various provinces with the capital.

To date, there is no television in Afghanistan, although it is expected to begin under government auspices in the near future.

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AMERICAN SAMOA

American Samoa lies roughly 2,300 miles southwest of Hawaii and 1,600 miles northeast of New Zealand. It consists of six small Pacific islands lying east of 171° West, plus Swains Island, 210 miles to the northwest. The islands are composed of volcanic rock with coral reef coasts. There are many dormant volcanoes and lava fields.

The 1970 census showed 31,000 people living on the 76 square miles of the islands. The capital, Pago Pago, has 1,250 people and is the largest city. The people are Samoan and English. American Samoa is a territory of the United States.

Radio is government controlled. There is one station, WVUV, located at Leone in West Tutuila. It is a standard programmed station that broadcasts sixteen hours a day and is regulated by the American Federal Communications Commission.

Television is also government controlled and operated. There is one television station, KVUV, with studios at the Instructional Resources Center in Utelei. It broadcasts thirteen hours daily, providing classroom education in the daytime and adult education and some entertainment at night.

Educational television was begun in September, 1964. It is the core of the educational system of the public schools. There are eight transmitters that serve not only American Samoa but Western Samoa. As with radio, the television operation in American Samoa is regulated by the FCC. Programming and day-to-day operation is under the territorial administration, U.S. Department of Interior.

AUSTRALIA

Radio and television servision services in Australia operate under the Broadcasting and Television Act of 1942-1971, and function either commercially or governmentally. The latter system, sometimes called national, is provided by the Australian Broadcasting Commission (ABC) which is solely responsible for its content. The commercial services are licensed by the Postmaster-General, but he is advised by the Australian Broadcasting Control Board. This Board, which works under the jurisdiction of the Postmaster-General, consists of five members appointed by the Governor-General. The Board has authority to determine location, operating frequency, and power of radio and television stations alike. With the commercial services, the Board is responsible for ensuring for adequate and comprehensive programming. It also prescribes program standards and advertising regulations, hours of transmission, and guidelines for technical equipment operation. In addition, the Board advises on matters of broadcasting policy and holds inquiries into applications for commercial licenses.

Radio

Radio started officially in Australia at 8:00 p.m. on November 23, 1923. On that night Station 2SB, transmitted a concert from a Sydney studio. In 1924, existing and new stations were licensed for five years and graded into "*A*" (non-advertising) and "*B*" (advertising) stations. In 1929, the Federal Government required the Postmaster-General's Department to take over the technical operation of the Class "A" stations and that a private organization, the Australian Broadcasting Company, should provide the programs.

In 1932, the Australian Broadcasting Commission came into existence. It's task, formerly that of the Australian Broadcasting Company, was to provide programs for the Class "A" stations, which were redesignated commercial stations. As of June 30, 1971, broadcasting services were being provided by 191 medium-frequency stations (75 national and 116 commercial), and nine high-frequency facilities for listeners in sparsely populated areas such as the north or Western Australia, the Northern Territory, northern and central Queenland, Papua-New Guinea, and the adjacent islands. There also exist eight broadcasting stations authorized under the Wireless Telegraphy Act in Papua-New Guinea. In 1970, with a population of 12,552,000, there were 2,625,000 radio receivers, or 209 sets per 1000 persons.

Television

Television began in 1956, when TCN 9 Sydney started regular transmissions. By June 30, 1971, there were 94 television stations in operation. Forty-eight were national and 46 commercial, reaching about 95% of the population.

In addition to the high-powered television stations, translator stations are also used to extend coverage. A translator station is a low-power device designed to receive the signals of a parent station and retransmit them on a different frequency. It does not originate programs, but is designed to improve service to fringe areas and to places which, for reasons of topography, do not receive adequate service from stations in the area. As of June 30, 1971, there were 36 national and 43 commercial translator stations.

Commercial television and radio licenses are granted and renewed by the Postmaster-General after hearing recommendations of the Australian Broadcasting Control Board. The initial fee for television stations is $A200 on the granting of a license and $A200 a year thereafter. For radio stations, the cost is $A50 on the issue of the license and $A50 annually. In the case of both radio and television, an amount ascertained by applying the following rates to gross advertising during the preceding financial year is also charged. (One

percent up to $A1,000,000; two percent to $A2,000,000; three percent to $A4,000,000 and four percent over $A4,000,000.

Color transmission is expected on March 1, 1975, at an estimated cost of $A60,000,000. In 1970, there were 2,950,000 black and white receivers, or about 235 sets per 1000 persons.

The Australian Broadcasting Commission

The Commission is repsonsible for the provision of programs for the national broadcasting and television services from transmitting stations made available by the Postmaster-General's Department. The body consists of nine members, at least one of whom must be a woman. Its expenditure is met from funds provided by Parliament in accordance with estimates annually submitted by the Commission to the Postmaster-General and approved by the Treasurer. The agency provides symphony orchestras in all states and controls Radio Australia, the nation's overseas broadcasting service.

Programming by ABC ranges from music, news, light entertainment, drama, documentaries, religious, education, sports, rural, and children's sessions. Allocation of time to main program types is as follows:

(a) Radio: Entertainment, 30 percent; classical music, 26 percent; news, 9 percent; spoken word, 8 percent; sporting, 6 percent; Parliament, 4 percent; drama and features, 4 percent; education, 3 percent; religious, 3 percent; light music, 2 percent; rural, 2 percent; and children, 3 percent.

(b) Television: Drama, 29 percent; education, 23 percent; sporting, 10 percent; news, newsreels, variety, weather, 7 percent; news comment and topical items, 6 percent; cartoons and animation, 4 percent; and documentaries, 3 percent.

The ABC employs 5700 persons, including many of the nation's leading musicians, actors, writers, and singers. Although some of its features are imported from Great Britain and the United States, many programs are of Australian origin. The ABC is particularly important in the field of news commentary and news services.

Radio Australia

Nine high-frequency and three repeater transmitters carry programs from the Overseas Service's Studios in Melbourne, Victoria. Radio Australia broadcasts in eight languages, English, Indonesian, Mandarin, Cantonese, Japanese, Vietnamese, Thai, and French. The transmissions are directed to most parts of the world, but with special emphasis on Southeast Asia. Forty-six news bulletins are included daily.

Because of simultaneous transmissions each day, Radio Australia beems 60 broadcast hours in a 24 hour period. It receives an average of 700 letters from listeners daily and supplies programs heard on 60 stations in 38 countries.

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BROADCASTING IN BANGLA DESH

The new nation of Bangla Desh (formerly East Pakistan) faces the Bay of Bengal and, except for a small strip on the southeast adjoining Burma, is bounded on all remaining sides by India. The land is basically a flat alluvial plain formed by the branches and tributaries of the Ganges and Brahmaputra Rivers. The temperatures average around 84 F all year round, and the country receives one of the highest rainfalls in the world--85 inches annually throughout the delta area, and up to 250 inches annually in the northeast.

Broadcasting in Bangla Desh assumes an extremely important role since some 80 to 90% of the country's more than 70 million people (1969) cannot read. And since these 70 + million citizens are spread out rather evenly over the country instead of concentrated in the large urban centers, the need for radio connections is obvious. Density of population peer square mile is 1270, one of the highest in the world. Broadcasting is centered in Dacca, the capital city, still a part of India in 1939 when that station first began to broadcast. Then in 1947, when Pakistan was formed, the Dacca station was one of the first three stations operating in the new country.

In 1949, the addition of a 5 kw. station at Dacca and a 7.5 kw. short wave station also in Dacca began operation. Radio Bangla Desh as it is now known, came into being with the emergence of the independent nation of Bangla Desh in 1971 and by now maintains six full-fledged stations: Dacca, Sylhet, Chittagong, Rajshahi, Rangpur, and Khulna.

While still part of Pakistan, this region took part in the Five Year Development Plans. The Third Plan was to increase coverage to the entire population as well as to the off-shore islands with a new relaying station at Khulna and a 1000 kw. medium wave station at Dacca. Projected plans also included a 100 kw. transmitter (short wave) at Dacca.

Home service from Dacca broadcasts daily for about 14 1/2 hours and includes Commercial Service, Transcription Service, Farm Broadcasts, Youth Forum and Educational Broadcasts.

Regional news broadcasts are usually in the Bengali national language or in English, but additional local bulletins are broadcast in local languages as well. Besides news and newsreels, a number of spoken word items including talks, plays, features and skits, discussion and interviews, women's programming, children's material, and national and international music is presented.

While Chittagong and Rajshahi stations broadcast about 13 hours of programming daily, including Farm broadcasts, Rural programming and Youth Forum, Sylhet and Rangpur stations broadcast about 10 hours a day of mostly talk and music programs. Khulna station has been temporarily out of use since the transmitter was destroyed during the war of 1971.

External services originating from the Dacca station broadcast for about 6 1/2 hours daily in the following languages: two Bengali services, two in English, one in Nepalese, and one in Hindi. With the commissioning of two more high-powered transmitters in the near future, expansion is likely for the external services of Radio Bangla Desh.

An experimental television station was opened in December, 1964 in Dacca, and was operated under a governmental contract by the Nippon Electric Company of Japan (coordinated program with the lahore experimental station in West Pakistan). Within the year 1968-1969, a television station with a 6 kw. transmitter was set up in Dacca. The fundamental objective of the Television Corporation is to provide knowledge and information through intelligent entertainment. This objective is put into practice through programs on literature and culture, quiz shows, dramas, interviews and discussions, documentaries and programs directed toward national integration. The Executive Committee of the National Economic Council approved a plan for General Purpose

Television Service in 1968 for what was then East and West Pakistan. The main feature of this plan was to be the creation of three-telecast stations for East Pakistan at Chittagong, Khulna, and Rajshahi. Three more of these re-telecast stations were to be included in the second phase of the plan for 1970-75, but plans have been affected by the disrupting war during 1971.

Compiled by:
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Letter from Mr. Nurannabi Khan, Special Duty Officer for the Director General of Radio Bangla Desh, dated 27 November, 1972.

RADIO IN BRUNEI

Brunei is a small British protected State situated on the north-west coast of the island of Borneo. It covers a total area of 2,226 square miles and is divided into two parts by Sarawak which is an eastern state of Malaysia. The western districts of Muara/Brunei, Tutong and Belait are predominantly hilly lowlands while the eastern district of Temburong is mostly rugged mountanous terrain with a wide swampy plain near the coast. Brunei has a tropical raining climate with constant temperature, humidity and rainfall.

Early history of Brunei indicates envoys from China in 518, 523 and 616 A.D. Brunei played a major role in spreading Islam in the 15th and 16th centuries. Two Sultans, Sultan Bolkiah, the 5th Islamic Sultan of Brunei and Sultan Hassan, the 10th Islamic Ruler, extended Brunei's power. Under Sultan Hassan, Brunei's most famous and powerful ruler, the territory included the whole island of Borneo.

British influence began in 1609 and a trading post was established in Bandjarmasin in 1701. Brunei and the British signed a treaty in 1847 to further commercial relations and the suppression of piracy. In 1888 Brunei became a British protected State. A new form of government, including a State Council, emerged between 1906 and 1941. Oil, which provides almost all of Brunei's wealth, began commercial production in 1929, but was not actively developed until after World War II. The Japanese occupied Brunei for 3 1/2 years during the second World War. After the war, Brunei moved forward under Sultan, Sir Omar Ali Saifuddin. The Brunei Constitution of 1959 establishes the protected State with external affairs, defense and security the responsibility of the United Kingdom. A British High Commissioner advises on all matters except the Muslim religion and the custom of the Malays. His Highness the Sultan remains supreme executive authority in the State and is assisted by five councils including the Religious Council, the Privy Council, the Council of Ministers, the Legislative Council and the Council of Succession.

There was a small rebellion in December, 1962, which was quickly suppressed. In October, 1967 Sultan Omar Ali Saifuddin abdicated the throne in favor of his son. The new Sultan became known as his Highness Sultan Hassaual Bolkish Mu'izzaddin Waddaulah, the 29th Sultan of Brunei.

The main internal communications of Brunei consist of radio and newspapers. There are four newspapers including one daily and three weeklies. All communication is government controlled under the Brunei Department of Broadcasting and Information which operates as the mouthpiece of the Government. The Department maintains Reading Rooms situated in Brunei Town, Kuala Belait, Tutong, Bangar and Seria.

Radio Brunei is made up of four medium wave band channels plus two short waves (62 and 41 meters). Programs are broadcast in Malay, Chinese and English for a total of 114 hours per week plus an additional hour every evening in Gurkhali. Brunei is an associate member of the Asian Broadcasting Union. Radio Brunei started an analysis of listeners mail in 1965 in order to obtain some information about their audience. Accordingly, in 1969 the monthly average of letters received by the three language services were:

Malay	Chinese	English
1,886	790	490

With no radio licensing system it is difficult to assess the number of listeners. Using import figures for radios it is estimated that there are at least 12,000 receivers in the State. To help inhabitants of remote villages the Government is subsidizing the sale of transistor radios to approved applicants on an installment plan.

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BURMA

Burma lies in the Indo-Chinese peninsula surrounded by China, Laos, Thailand, India, Pakistan and the Bay of Bengal.

The United Nations estimated the population in 1969 to be nearly 27 million people, most of whom are of the Buddhist religion. Burma is about 262 thousand square miles, though the population is concentrated more and more in two urban areas--Rangoon and Mandalay.

Britain controlled Burma from 1824 until 1884, but Burma did not become part of the British commonwealth until 1937 at which time they also instituted a parliamentary form of government. In 1962, General Ne Win successfully overtook the Burmese government from U Nu, and allied the country both politically and economically with the socialist world.

BROADCASTING: Radio listening is very popular in Burma, and is available to almost everyone. The number of radio receivers was stated by United Nations sources to be 388,000 in 1968. Most of these were equipped to receive short-wave broadcasts. Radios receive maximum usage because privately owned sets are usually turned up so high in volume that people in the street can listen. The teashops where Burmese go for conversation and gossip all have radio sets available for their patrons, and the army also has its sets which are placed in the central meeting places or villages in the most remote regions.

There is only one broadcasting service, the government-owned and operated Burma Broadcasting Service (BBS). The entire system is located at Rangoon and operates over twelve transmitters. Two of the transmitters are medium wave using 50 kilowatt and 5 kilowatt power on wavelengths of 955 and 1135 kilohertz respectively. Nine of the transmitters are shortwave; all are of 50 kilowatt power and operate in the 4, 5, 6, 7, and 9 megahertz bands as required. One transmitter is a low-powered (250) watts) FM installation for local Rangoon coverage only.

Only programs in the domestic service are broadcast as there is no international service. Approximately two thirds of the BBS programs are in Burmese, a little less than one third in English, some in Hindustani, and a small portion of the newscasts are broadcasts in the Shan, Karen, Kayah, Kachin, Chin and a few other local languages. Program content is devoted to news (30%), talk (10%--education, and government information) and entertainment (60%--folklore, and popular music). News is presented in a noncontroversial manner emphasizing national affairs and the progress of government programs. Educational broadcasts are usually pitched at the secondary school level, but many include vocational training for persons of all ages. Occasionally, programs are devoted to English-language lessons. Government information programs concern rural development, civics, art and sciences, and health and hygiene.

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"Electronics Market Expands in Burma." *Foreign Commerce Weekly*, 65 (34), April 3, 1961.

DIRECTORY

Burma Broadcasting Service
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Major K. Sunn, Director
Kyaw Nyein, Deputy Director

RADIO AND TELEVISION IN CAMBODIA

All radio and television in Cambodia is government controlled and operated by Radiodiffusion Nationale Khemere. In 1968 the nation operated eight radio transmitters, with a total of 262 kw. of power. Four were long and medium wave transmitters, three were short wave, and one was ultra short wave. Also in 1968, there were an estimated one million radio receivers. The principle broadcast languages are Cambodian, French and English.

One television receiver was operating in 1969. In 1970 there were an estimated 25,000 television receivers.

Compiled by:
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DIRECTORY

RADIO: Radiodiffusion Nationale Khmere:: 28 Ave. Preah Mohaksatryan Nossamak, Phnom-Pehn. Director General: Lim Sainvar.

TELEVISION: Radio Combodge-Television: 28 Ave. Preah Mohaksatryan Nossamak, Phnom-Pehn.

BROADCASTING IN CANADA

The major task facing Canadian broadcasting, today as well as throughout the past, is the development of truly Canadian programming which reflects and strengthens Canadian culture. From the earliest days of radio, broadcasters have endeavored to surmount the difficulties posed by the vastness of the land, the diversity of the people, and the disturbingly powerful influence of the United States broadcasting industry. Consequently the structure and scope of Canada's radio and television industry has been continually evaluated and occasionally redrawn, although the desirability of a public corporation has apparently always been recognized.

The Canadian Radio and Television Commission is the regulatory authority overseeing all broadcasting; the dominant feature of Canadian broadcasting, in appearance if not in practice, is the publicly owned Canadian Broadcasting Corporation (CBC).

The CBC carries programs in English, French, and Indian and Eskimo languages over networks of both CBC-owned and privately owned stations. In fact, the majority of stations carrying CBC programming are not owned by the Corporation. Approximately three-fourths of CBC's income is provided by funds voted annually by Parliament; the remainder is derived from advertising. The privately owned stations in the CBC networks, supported by their own advertising, do not pay for the use of CBC programs; if such programs have been sold by the CBC to national advertisers, the private stations receive a percentage of that income.

Within the last year or so, the CBC radio services have shifted from a French-English alignment to an AM-FM structure. The five year change-over plan calls for Radio One (AM) to emphasize news, information, community programming and light entertainment in both English and French; Radio Two (FM) would concentrate on extended programs of music, the arts and documentary material, also in both languages. Doubtlessly, one of the major reasons behind the total re-examination of the radio services was the fact that, in areas where other signals were available, CBC radio stations attracted relatively few listeners.

During the past several years, the CBC has devoted more of its energy to television (which began in 1952) than to radio. Among other things, the CBC has continually increased the percentage of Canadian content in its television programming; CBC may well be the major developer and employer of Canadian talent. The French-language television network, with most of its stations in the province of Quebec, has been especially successful in attracting a loyal and often enthusiastic audience. The network claims to have more French-language programs than ORTF in France. For both the English and French networks, a new CBC television center costing some $66 million has just been completed in Montreal; it is described as the most modern television facility in the world.

Several other networks besides the CBC are also part of the television picture in Canada. The independence commercial CTV network, begun in 1961, has twelve stations located in all the major cities with the exception of Quebec. The CTV affiliated stations own shares in the network and have considerable voice in programming decisions; CTV has been somewhat unique in that the network did not own any stations or production facilities. Because of the location of the member stations, the CTV network does not reach rural areas to any great extent. An independent French-language network, TVA (Television Associates), was established in late 1971 with three stations initially.

Cable television is spreading faster in Canada than anywhere else; by the end of 1971, approximately one-fourth of all homes were receiving their television signals via cable. Some observers see the cable system's capacity to carry United States stations, as well as all available Canadian stations, as a new threat to the continual efforts to promote Canadian talent and programming.

Canada is also ahead of most of the world in the realm of domestic satellites. In 1973, Telesat Canada, the Canadian member of the international satellite consortium, expects to have its Anik satellite system in operation. The Anik satellite will have channels for both television and telephone; of the television channels, the CBC will lease two for their English-language network and one for their French-language network. In 1974, Canada and the United States will join in testing new satellite transmission possibilities on a Cooperative Applications Satellite; Canada will build the CAS-C satellite and control the experiments.

International broadcasting is conducted by the external services division of the CBC, with shortwave broadcasts in eleven languages, program exchanges and foreign marketing of CBC productions.

The history of Canadian broadcasting reaches back to at least 1919 and perhaps to spurious broadcasts in 1918. For almost a decade afterwards, radio broadcasting was allowed to develop freely; licenses were dispensed by the Department of Marine and Fisheries and regulations were minimal. Several times, however, interference from stations in the United States prompted joint frequency allocation negotiations. The first network was begun by the Canadian National Railway in 1923 to serve radios in their passenger cars; the network was operating on a regular basis across Canada by about 1919. In 1928, the three-man Aired Commission, the first of four royal commissions to make major studies of broadcasting, proposed some sort of public ownership of radio stations. Four years later, the Radio Broadcasting Act of 1932 set up the Canadian Radio Commission (1933) which could not only regulate but also own and operate radio stations. After several years of continual administrative and financial difficulties, the Commission was replaced by the CBC, under the Broadcasting Act of 1936. The CBC also was empowered to regulate all broadcasting besides conducting its own broadcast activities. In 1951, the Massey Commission devoted part of its study on culture to the current situation in broadcasting, and in 1957, another report, this time by the Fowler Commission, looked at broadcasting and concluded that a separate regulatory agency was needed. The Board of Broadcast Governors, established by the Broadcasting Act of 1958, then replaced the CBC as the regulatory and licensing authority. The fourth prominent study of broadcasting by a royal commission was the Glassco Report in 1963. Five years later, the Broadcasting Act of 1968 reconstituted the Board of Broadcast Governors as the Canadian Radio and Television Commission, under the leadership of Pierre Juneau.

	Transmitters	Sets	Sets per 1000 pop.
RADIO	579 AM 82 FM (1971)	17,133,000 (1971)	803
TELEVISION	413 (1971)	1,070,000 (color) 6,630,000 (B&W) (1971)	350

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BROADCASTING IN CEYLON

Ceylon, a pear shaped island of about 25,000 square miles, is situated off the southeast tip of India. The country has always been nearly entirely agricultural, with farming dominating the economy, as the lands are very fertile and well irrigated. About 70% of the land and population is associated with agriculture, and 95% of Ceylon's exports are agricultural. The bulk of these exports is mainly tea, rubber, coconut, and rice. About one third of the world's tea supply is grown in Ceylon.

Ceylon has no significant industries, except those associated with the tea, rubber and coconut supplies. The island produces highgrade graphite and is famous for its gems, but like many other non-industrialized countries, which export agricultural products rather than manufactured goods, Ceylon is at a disadvantage in the world market.

On the other hand, during the past decade, conditions on the island have been modernized considerably. One major result of the government's drive toward modernization is the literacy rate of nearly 80%, quite high by any standards, especially Asian.

Language differences have posed problems for years, but recently Sinhalese has named the official language of Ceylon; this decision was the basis of a drive toward improved communications systems. Since the language decision, Ceylon has expanded its network: there are 1700 post offices, a complete network of telephone and telegraph lines, 900 miles of state railways, and over 10,000 miles of concrete highways, all of which are owned and operated by the government.

Radio Ceylon is also owned and operated by the government. Broadcasting dates back to 1925, but until the late 1930's listening was a privilege of the upper classes only. The greatest expansion facilities of radio took place during the period between 1950 and 1960. Facilities were improved during the war and later, as the forces withdrew, they turned over the equipment to the government in time for their independence granted in 1948.

During the decade of the 50's, the number of licensed radio sets rose from 32,000 to 352,000. Growth since 1960 has been slow because of the ban on the import of radio sets. In 1968 licensed sets were estimated to be 550,000, 31% of these being located in the Colombo area, which while being the capital city, has 16% of the population.

Since 1966 radio broadcasting has been the responsibility of the Ceylon Broadcasting Corporation (CBC); previously Radio Ceylon was administered as a government department. CBC, now an independent corporation under the Ministry of Information and Broadcasting, is less restricted in terms of financing and commentary.

The CBC is divided into national and commercial services. *The national service*, as its name implies, is a nation building service. and is intended to serve the nation's needs of education, entertainment and instruction through the medium of broadcasting. It is further divided by languages and the nature of programming. Each of the following units works more or less as a self-contained unit, uses separate transmitters, and different wave-lengths: Sinhalese, Sandhaya, Tamil, English, and External and School Service. A complete service of news, commentaries, interviews, drama, religious programs, and music is broadcast in each of three languages--Tamil, Sinhala, and English.

In 1970 the national service broadcast more than seventy hours in Sinhala, about sixty in Tamil, and thirty-five in English. About twenty hours of school programs are broadcast each week in all three languages. These educational broadcasts are prepared by the educational Department and are intended for children up to the age 18. In addition to children's programs, there are discussions on numerous subjects aimed at informing the teachers. There are also daily rural programs and regular adult education broadcasts. News bulletins account for approximately 10% of the broadcast time and the English section includes relays from the BBC.

In addition, a Sinhaha service called "*Sandhya Sevaya*" (Evening Service) was introduced in 1963 as an alternative light entertainment program. In the late 1960's school programs, which according to a government official, were not being put to full use by schools, were rebroadcast on the Sandhya Sevaya program for more adults to receive. The Sinhalese Service is the most popular and has by far the most listeners. CBC is the main source of entertainment for the Sinhalese listeners as there is no other station in the world which broadcasts in this language. Unlike the English and Tamil services, the program staff has to depend entirely upon the programs produced by the station. Except for the weekly BBC program in Sinhalese, the Sinhalese speaking citizen must rely upon CBC as his/her sole source of intellectual matters.

In the late 1960's all programs originated in Colombo, and were fed via cable and very high frequency (VHF) to medium and short wave transmitting stations at Ekala, Diyagama, and Welikada, which are at a distance of about 15 miles from Colombo. The range of the medium wave transmitting stations doesn't exceed thirty miles. In 1968 West Germany agreed to provide two medium wave transmitters with fifty kw. generating power, and one with ten kw. After installment these transmitters were expected to double the listening range and triple the number of listeners. One station was inaugurated in February, 1970 at Maho in the North Western Province.

The national service also maintains an external service beamed to South East Asia and Central Europe in order that those areas might study Ceylonese culture, religion, and music.

The Commerical Service was started on an experimental basis in 1950. It has proved to be an outstanding success in terms of money and popularity. Surveys conducted by various organizations have established that it has by far a greater number of listeners than any broadcasting station in South East Asia. This station's programming reaches portions of the Soviet Union, China, the Middle East, East Africa, and Malaysia. The programs are especially popular in India. According to CBC daily reports, the programs are also heard in several European countries, the United States, South Africa, Australia, and New Zealand. The very popularity and reach of this station has caused some problems when discussing the issue of international rights and laws regarding programming which crosses international borders. It is primarily an advertising medium with an advertising philosophy in contrast to All India Radio; since CBC broadcasts in Hindi among other languages, it is in direct competition with AIR in India. The Commerical Service of CBC has also been accused of political bias, which is the cause for concern on a government owned station. The main relay station of the Voice of America for South and Central Asia is located in Colombo since the signing of a treaty between the US and Ceylon in 1951. Since the Voice of America is not permitted to broadcast in India, the issue of international communications law continually comes up.

A rediffusion service was introduced in 1950--Ceylon rediffusion Service, Ltd. It was granted a license in 1950 for twenty years in order to relay Radio Ceylon programs by a wired network. Development of this service was also adversely affected by the ban on radio imports. Music programs in each of three services have predominated, especially in the Sinhala service, which in 1965 accounted for more than 50% of the programs. Efforts were made in the late 1960's to accent rural and development programs.

The broadcasting commission report recommended the introduction of television but recognized the heavy financial cost. In 1970 the government was negotiating with West Germany for setting up a station in Colombo.

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CHILE

Radio was initiated in Chile in 1922 in the form of a radio club located in the capital city of Santiago. By 1928, the government had created the Chilean Transradio Company to establish wireless communication with other nations and to avoid competition among large international companies. The chief stockholders of CTC included Radio Corporation of America, Varconi Wireless and Telegraph Company, and the two major wireless companies of France and Germany. Since that time radio has evolved into a way of life for most of the nation's 9,780,000 persons. With 2,500,000 receivers in 1970, it was estimated that 90 percent of all homes owned a radio.

Until recently the ownership and control of most of the country's 150 stations (of which 24 are in Santiago) were concentrated in less than a dozen national chains dominated by industrial, publishing, mining, church, and wealthy landowner interests. All were commercial and supported themselves through advertising. During the past year, however, declining advertising revenue has intensified competition. Several sales and ownership tranfers have occured. The Christian Democratic party, which opposes the current administration, has recently acquired stations and is being consolidated with television channel owned by the Catholic University of Chile.

The three major television channels in Chile are those of the Catholic University in Santiago, the University of Chile in Santiago and Valparaiso, and the national system. The Catholic University's channel 13 is Santiago's most popular station, with 56 percent of the city's viewing audience in June, 1971. It began in 1958 as a university station and has always accepted advertising. About 55 percent of all programming is of national origin, with the rest being imported. Of the foreign shows, 99 percent are from the United States' ABC network. In March, 1972, projections were that imports would increase because they are less expensive than those locally produced.

The University of Chile's channel 9 claims about 20 percent of the Santiago audience. It accepts advertising but due to its Lenin-Marxist editorial policy, it is not used by anti-government sponsors. In the spring of 1972, its programming was 60 percent national and 40 percent imported, with hopes of eventually reaching 75 percent national production.

Channel 7, the national system, is the only one which is distributed across the entire 2,800 mile-long country. Its structure reflects Chile's current political turmoil. It is headed by Political Unity (the ruling party) appointees but other staff members are holdovers from the past regime who sympathize with the new administration. Programs are 55 percent domestic and advertising is allowed. In June, 1971, the channel was viewed by 30 percent of Santiago audience.

In 1970 there were 400,000 receivers or 40.9 sets per 1000 persons. All equipment is on a 525-line standard.

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DIRECTORY

RADIO

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Pasaje Matte, 956, Oficina 801
Casilla 10476, Santiago, Chile
Exec. Director, Jorge Quinteros Tricot

Radio Difusas Australes Society, Ltd.
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Santiago, Chile
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Compania 1264, Santiago
Director, T. Lefever

Nueva Radio Chilena
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Universidad de Chile
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Director General, Eliodoro Rodriguez Matte

NATIONALIST CHINA

Republic of China, Taiwan, in Chinese, implies a "Dais rising from the sea." Formosa is the Portuguese word for beautiful and was applied to the island by mariners coasting along its shores in 1583. "Ilha Formosa!" they exclaimed -- "Beautiful Island!" Although the name "Formosa" is widely used in the west, most residents of Taiwan have never heard of "Formosa."

Off the eastern coast of Asia lie the mountainous island acres of the western Pacific, Taiwan lying between 21°45'25" and 25°37'53" north latitude and 119°18'3" and 122°6'25" east longitude. Shaped like a tobacco leaf, Taiwan is 394 km long and 144 km broad at the widest points.

With an area of 35,691 sq km. Taiwan is the smallest province of China. It is slightly larger than Massachusetts and Connecticut and Rhode Island combined, slightly smaller than the Netherlands.

With population of 14,994,822 at the end of 1971, Taiwan has more people than Australia and Norway combined. Density is 417 per sq km, the world highest.

Mandarin is the official language of Taiwan and is spoken by most people. Native Taiwanese speak a variant of the Amoy dialect. Nearly every dialect of China is represented among the mainland Chinese on the island. As a result of 50 years of Japanese rule most adult Taiwanese also speak Japanese. English is taught in every high school.

Broadcasting in Taiwan is a very promising business. The programming of radio and television stations is operated under the supervision of the Bureau of Cultural Affairs, Ministry of Education. But the technical aspect, like the assigning of channels, is regulated by the Ministry of Communications.

RADIO

Taiwan probably has the world's largest number of radio stations per capita. Radios are registered with the Ministry of Communication and owners are required to pay an annual license fee of NT$30(US$.75).

In June, 1971, there were 36 broadcasting companies, 78 radio stations and 28 relay stations. There is at least one broadcasting station in every county and municipality. The number of receivers is about 3 million, or more than one for every 5 persons.

The major broadcasting companies are:

Broadcasting Corporation of China [BCC]

The largest network in Taiwan is privately owned, operated under government contract. The station operates 69 transmitters totaling 2,105,35 kw output, including 44 medium wave transmitters with a total capacity of 1,558.1 kw, 3 medium-short wave dual purpose transmitters with 57 kw and 25 short-wave transmitters with 570.25 kw.

There are three systems in BCC's service:

Overseas Service: Known as the Voice of Free China; it is on the air some 550 hours daily in 17 languages and dialects.

Mainland Service: Known as the Central Broadcasting Station, offers 52 programs daily with the accent on news.

Domestic Service: There are three island-wide domestic networks broadcasting in Mandarin and Amoy dialects. One of them is primarily educational.

Armed Forces Radio Network: Operates 14 stations.

Fu Hsiung Radio Network: Operates 13 stations.

Cheng Sheng Broadcasting Co.: Operates 6 stations.

The Police Department has its own station in Paipei; the U.S. Armed Forces operates two transmitters of 1 kw each in Taipei.

Most of the remaining stations are small operations of 1 to 3 kw. with a total programming of about 1,913 hours daily. For most stations, 10% of air time is devoted to news, 15% to educational broadcasts, 50% to entertainment, 5% to community service programs, and 20% to commercial advertising.

TELEVISION

There are three television networks in Taiwan. A 525-line standard system M is used. Color is the NTSC system. Program selection is governed by rules and regulations based on Japanese and United States Codes. Dramatic programs are very popular in Taiwan. There are Peking Operas, Mandarin dramas, Taiwanese dialect shows, children's dramas and puppet shows. More than half of the commercial broadcasts are live: news, drama, children's and homemaking programs, Peking Opera, sports, quizzes and variety programs. Most filmed shows are imported from the United States, the others are from Germany and England. Chinese subtitles are superimposed on all the foreign films.

Live broadcasts transmitted via satellite, since 1969, included the United States landing on the moon, Vice Premier Chiang Ching-Kuo's visit to the United States, the grand opening ceremony and the China Day celebrations of Expo 70 in Japan, the Olympic Games in Munich and Little League baseball playoffs in Japan and in the United States.

More than 600,000 TV sets were in use in Taiwan as of June, 1971. Most receivers are made in Taiwan, using both Taiwan-made and imported components.

Taiwan Television Enterprise, Ltd. [TTV]

TTV was the first private commerical television enterprise in Taiwan. It went on the air on October 10, 1962. The total investment ranges from NT$30,000,000(US$750,000) in 1962 to NT$160,000,000(US$4,000,000) in 1970.

The network was first operated under the supervision of a Japanese television station and most of the early facilities were from Japan. Since October 6, 1969, the station has been capable of transmitting color, using cameras imported from the U.S. There are 2 AMPEX VR-1200 and 2 AMPEX VR-2000B color VTSs in which tape more than 50 telecast hours of programming a week. Sixty-four percent of programming is local-live, 36 percent is imported films, such as Peyton Place, Ironside, Mission Impossible, Mary Tyler Moore Show, and Marcus Welby, M.D., etc.

Since TTV is a private enterprise, 80 percent of its income comes from advertising, the rest comes from the sale of self-produced TV sets. TTV's advertising rates are divided into 4 classes by telecast time. The total commercial time is 13 percent of over-all transmission time. This is 20% less than the government standard.

China Television Company, Ltd. [CTV]

CTV began on October 31, 1969; this second private commercial network has a total investment of NT$100,000,000(US$2,500,000). The Broadcasting Company of China holds 50% of CTV shares while the remaining 50% in the hands of 28 local radio stations and other individual investors.

Telecasting both in monochrome and color, CTV has three 10 kw. transmitts, in Northern, Central, and Southern Taiwan, and 9 relay microwave stations.

CTV broadcasts are 32.1% imported films and 67.9% local programs with 50.5% Mandarin and 17.4% Amoy dialect.

Chinese Television Service [CTS]

This education/commercial network went on the air on October 30, 1971. CTS is jointly sponsored by the Ministry of Education and National Defense. Fifty-one percent of the total investment is from National Defense and Ministry of Education, and 49 percent is from private investors.

There are three transmitters in Northern, Central, and Southern Taiwan, and 3 microwave relay stations.

The main objective of CTS is to provide effective educational programs, such as high school courses and college lectures. They have also established "Education on the Air." This special program offers a high school degree which is accepted by the Ministry of Education.

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Television Factbook 1970-71. Washington, D.C.: Television Digest, Inc., 1970.

U.S. *Foreign Broadcast Information Service.* January, 1971.

TTV WEEKLY

CTV WEEKLY

CTS WEEKLY

DIRECTORY

Broadcasting Corporation of China
53 Jen Ai Road, Sec. 3
Taipei, Taiwan
Republic of China 106
Chairman, Liang Han Chao
President, Lee Shih-Feng

Cheng Sheng Broadcasting Co.
433 Chung-King N. Road, Sec. 3
Taipei, Taiwan
Republic of China
President, Lee Yeh
Gen. Mgr., Lee Lien

Fu Hsiung Radio Network
P.O. Box 799
Taipei, Taiwan
Republic of China
Dir. Gen., C. King

Taiwan Television Enterprise, Ltd.
10 Pa Te Road, Sec. 3
Taipei, Taiwan
Republic of China
President, Thomas S. Chou
Chairman, Lim Peck-Siu

China Television Company, Ltd.
53 Jen Ai Road, Sec. 3
Taipei, Taiwan
Republic of China 106
President, Tung P.Y.
Chairman Pgm. Dept., Chang Tse-han

Chinese Television Service
100 Kung Fu South Road
Taipei, Taiwan
Republic of China 105
Chairman, Prof. C.C. Liu

China Youth Broadcasting Station
131 Don Hua North Road
Taipei, Taiwan
Republic of China
Dir., Johnson T.S. Cheng

Voice of Victory
16 Jiankang Street
Tainan, Taiwan
Republic of China

China Radio Company
P.O. Box 210
Taipei, Taiwan
Republic of China

PEOPLE'S REPUBLIC OF CHINA

The early development of radio broadcasting in China reflected changing and chaotic times. In earliest years transmitters and stations were operated by various government agencies, political parties and private concerns. A Trans-China network was established in the 1930's by pulling together many private systems. The Communist Party developed its own broadcasting system during this period.

In 1949 the often haphazard development of Chinese radio ceased. With the formation of the People's Republic of China all broadcasting came under government control. The Government Broadcasting Administration, realizing the need for effective communication with the entire population, set out at once to blanket the country with a broadcasting network. Broadcasting in the rural areas was develped under the the Basic Plan of Agriculture Development. Under this plan radio receivers were introduced into villages and communes for group listening. In some areas wired broadcasting centers were established. All of China was covered with a radio broadcasting network.

The center of China's domestic service today is the Chinese General Broadcasting Station in Peking. This central station controls 117 of the 133 major stations. In addition to these major stations there are more than 100 transmitters and relay stations throughout the country. The programming of Radio Peking is devoted to education, cultural activities, and news.

Education has a top priority in the programming of Radio Peking. There are two types of educational programming. First there are the radio universities. The radio universities are supplemented by written materials supplied by correspondence. Some of the university programming is national such as *Sunday Radio University*. There are also local radio universities. In the city of Shanghai many of the residents speak a few words of English. The city's radio station broadcasts beginning lessions in preparation of President Nixon's visit.

Educational broadcasting also includes programs which are not university courses. One of China's most effective programs is *Popular Science*. A 15-minute program it is broadcast 8 times a week. Another popular program is *The Pages of History*. In all there are programs covering politics, history, geography, literature and the arts. All of these programs, which educate as they entertain, have met with success.

News programs hold an important position in the programming of Radio Peking. Normally some 15 hours of news programming is broadcast every day. The programming include both hourly reports and longer news summaries and analyses.

China's foreign service broadcasting covers the entire globe. From telecommunications centers in Peking and Shanghai over 500 hours per week in 28 foreign languages are broadcast. International Chinese broadcasting gives moral support to revolutionary movements all over the world. China also strives to reach all the Chinese communities in the Pacific area.

May 1958, saw the opening of China's first television station located in Peking. Like radio, all television broadcasting is state owned and controlled. After the Peking station was established, other stations followed in Shanghai, Canton, Changchun and Shenyang. There are now some 30 television stations in China.

Television receivers are, for the most part, installed in public places for group viewing. Television follows radio in the extensive development of educational programming. Television universities have been highly successful. The Peking TV University has 23,000 full time students. The students view classes for 8 hours a week and supplement this with individual work. TV universities have been established in Shanghai, Canton, Tientsin, and Harbin.

The most recent development in Chinese television has been the addition of satellite relay ground stations. The first of these was purchased from the United States after the recent visit of President Nixon. There are now ground relay stations in Shanghai and Peking. These stations will allow China to make use of the satellites now in orbit. These ground stations can be used for radio and telephone transmissions as well as television.

The recent emergence of China from her long isolation into the international scene has sparked new interest both within China and outside in the further development of her communications systems, especially her broadcasting.

Compiled by:
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DIRECTORY

Government Broadcasting Administration
Fu Hsing Nen, Peking, China
Director General, Mei Yi

Chinese Central Broadcasting Station
Hsi Chang An Chieh 3, Peking

China Press Agency
Peking, China

COLOMBIA

Colombia's radio audience has expanded during the past decade as a partial result of the introduction of inexpensive transistor radios. In 1969, among a population of 21,120,000 persons, there were six million receivers. That same year there were 225 private and church-owned transmitters. The former are commercial and present news, commentray, educational and cultural programs with advertising restricted to 20 percent or less of airtime. Most of the latter church financed operations belong to the Accion Cultural Popular (ACP organization which is partly subsidized by the national government and UNESCO. In addition, there also exists the National Radio and Television Institute (INRAVISION), the government owned network of eleven stations. It offers news, educational, and cultural broadcasts.

Telecommunications are regulated by the government under a series of rulings initiated in 1936. All frequencies are governmental disposal and may be subjected to censorship in times of national emergency. The state also reserves the right to utilize stations for broadcasts for "cultural and information purposes." Stations must be Colombian or at least 75 percent of their paid-up capital must be in Colombian control. Other regulations specify the percentage of music of Colombian origin, proportion of live broadcasts. Authorization is also needed for rebroadcasts of programs originating abroad and for airing recordings made in other countries. All stations are licensed by the Ministry of Education and in the 1960's, all stations were members of the National Association of Broadcasters.

Education is an important basis for Colombian broadcasting. Radiodifusora Nacional, the network controlled by the Minister of Education and funded by the government, has done much to promote public interest in cultural programs. Another successful plan is the radio school system initiated by Monsignor Jose Salcedo in Sutatenza, an Andean Mountain community. Begun in 1947 with a 100 watt transmitter, the station developed into the Radio Sutatenza network sponsored by the Jesuit Movement for People's Cultural (ACPO) to increase literacy and to provide practical instruction in hygeine and agriculture. In 1955, after 100 half hour lessons repeated four times daily for five months, 93,000 pupils were able to pass written literacy tests. In 1970, there were 16,000 radio schools, most of which were located in Catholic areas close to Sutatenza. Of 130,000 students, 64 percent were literate after a year of instruction. Teaching is done by specially trained ACPO assistants. Broadcasts do not reach the Atlantic Coastal communities and certain remote areas.

TELEVISION

During the 1969's, the Peace Corps and the Ministry of Communications began a massive education program financed by the Colombian government and the Alliance for Progress. Television sets were installed in primary schools to receive daily broadcasts in math, natural sciences, social sciences, language and music.

In 1969, there were more than 600,000 sets in the nation. INRAVISION operated one education-oriented station in addition to 17 transmitters. One commercial station on a channel leased from the government network had one programming and one transmitting operation. All equipment utilized the 525-line definition.

Television was first introduced on June 13, 1954, in the capital city of Bogota and has grown rapidly in the past ten years. Commercial advertising through the network is a major source of income and all operations are controlled by the Ministry of Communications. Programming includes plays, ballet, music, and educational and children's shows. By 1969, some programs were being imported from North America.

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UNESCO. *World Radio and Television.* Paris: UNESCO, 1965.

DIRECTORY

Radiodifusora Nacional. Transversal 17, No. 25/65. Bogota.
Director-General, W. Fadul

Radio Cadena Nacional. Apdo. Aereo 1244. Medellin.
President, Roberto Jairo Arango Mejia

Caracol-Primera Cadena Radial Colombiana. Calle 19, 8-84, Bogota.
President, F. Londono
Dir. General, A. Toro

Circuito Radial ABC. Apdo. Aereo 1771, Apdo. 206, Cartagena.
Prop., R. Fuentes

Instituto Nacional de Radio y Television. Centro Administrativo Nacional,
Apdo. Nacional 1824, Bogota.
Dir. General, Luis Eduardo Fonseca

Cadena Radial Independiente, Aero 6301, Bogota.

Circuito Todelar de Colombia. Aero 4666, Cali, Colombia
President, B. Tobor de la Roche

Corporacion Radial Colombiana, Aero 10951, Bogota.

Radio Systema Tricolor, Aero 7766, Bogota.

Telebogota, Calle 22, No. 6-27, Piso 6, Bogota.
Dir. General, Consuelo de Montejo

Ministerio de Communicaciones, Division de Telecommunicaciones, Bogota.
Dir. General, A. Tapias Rochas

COOK ISLANDS

In 1965 the Cook Islands became a self-governing territory associated with New Zealand. The islands first became a British protectorate in 1877 and were later transferred to New Zealand. Although these islands were subject to the laws of the New Zealand Parliament, the road to self-rule began as early as 1915 when an act was passed giving the Cook Islands an island council, public schools, and courts of justice. In 1946, the Legislative Council was estalished and the Legislative Assembly, with its much wider powers, was established in 1957. Finally, in 1965, the Cook Islanders held their first general election for the Legislative Assembly.

New Zealand still maintains jurisdiction over the foreign affairs and defense of the Cook Islands, and the islanders have retained their New Zealand citizenship with the advantages of annual grants-in-aid. The New Zealand government is represented in the territory by a high commissioner who sits on the Cook Islands Council of State.

Relying largely on the New Zealand markets, the Cook Islands are unique for the number and diversity of their commercial crops. Crops of importance include: oranges, bananas, pineapples, tomatoes, coffee, swamp taro, and yams. The few manufacturing industries are comprised of clothing and jewelry and the canning of fruit juices. While the government employs a large number of workers, most of the population receives its income from farming and fishing.

Radio communications has largely removed the former isolation of the islands, there being now no permanently inhabited island without a radio station. The chief station is Rarotonga Radio, which maintains direct communication with the substations and with Wellington, Apea, and Suva. The five stations are under government control. Radio Rarotonga, operating on a broadcast wavelength and four short-wave frequencies, broadcasts 32½ hours of programming each week in both English and Maori languages.

The information section of the Internal Affairs Department transmits information directly from its own offices, and the Shortwave Division of the New Zealand Broadcasting Service transmits programs nightly to the Pacific area, including the Cook Islands. In 1970, according to the World Radio-TV Handbook, there were 2000 radio receivers on the Cook Islands.

Compiled By:
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U.S. *Foreign Broadcast Information Service.* January, 1971.

DIRECTORY

Radio Cook Islands
Rarotonga, Cook Islands
Director, T. Aiturau

COSTA RICA

Born out of experimentation with shortwave radio clubs in the 1920's, Costa Rican radio has developed into the nation's primary source of information and entertainment. Part of the popularity is attributed to the introduction of inexpensive Japanese transistor radios in the last decade.

Because of the rugged terrain, there are numerous stations which reach relatively small areas. In 1972, there were 51 AM stations (seven of which were shortwave) with an operating power of 250 to 50,000 watts. Of these, 29 were in San Jose, the national capital, and each provincial capital had at least one station. There were six FM stations in San Jose and one in Cartigo.

Today most stations are commercially operated and feature popular and classical music, news, sports, soap operas, and political speeches, although some stations specialize in only one particular area of interest, such as sports. Nine stations operate 24 hours daily but the majority broadcast eight to ten hours a day.

The Catholic church, Protestant missions, and the University of Costa Rica own the non-commercial stations. The latter's broadcasts include classical music and language instruction while the church stations emphasize religious and cultural programs. The government owns one station in San Jose and one in Colorado.

In 1970, with a population of 1,800,000, there were 650,000 radio receivers or 361.1 sets per 1000 persons.

In May, 1969, Television de Costa Rica (TITVCR) inaugurated broadcasts in San Jose. By 1967, it had established four relay stations in Palmira, Villa Mills, Turrialba, and Golfito. Thirty-five percent of the company, which is associated with the Central American Network, is owned by the American Broadcasting Company, International. Another station, Radio Television Tic-Tac, began in 1962, and has a repeater for another channel. Two other stations also operate in San Jose.

Programs are imported from Mexico and the United States on a regular basis. According to a mid-1969's survey, 65 percent of air time was devoted for entertainment, 20 percent for news, and 10 percent to educational and scientific programs. In 1969, a microwave link with Panama was established for program exchange.

Most stations broadcast from early evening to 11:00 p.m. In 1970 there were 120,000 black and white receivers and 200 color sets, or 66.8 receivers per 1000 persons.

Compiled by:
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World Radio TV Handbook. 26th ed. Hvldovre, Denmark: World Radio-TV Handbook Co., Ltd., 1972.

DIRECTORY

Televisora de Costa Rica
Apt. 3876, San Jose
Pres., O. de Picardo
Mgr., A. Carballo
Dir. Tec., G. Guzman

Corporacion Costarricense de Television
P.O. Box 2860, San Jose
President, Mario Sotela P.
General Manager and Film Buyer, J.J. Ortiz Pacheco

Televictoria
P.O. Box 5542, San Jose
Manager, S. Lechtman

Radio Rumbo
Cartago, Costa Rica
Director, C. Lafuente

Radio Libertad
Apt. 4075, San Jose
Director, S. Bermudez

Radio Television Tic-Tac
Apt. 4666, San Jose
President & General Mg., A. Vargas
Dr. of Administration, C. Reyes

Empresarios Radiodifusoras Associados
Apdo. 111
San Jose, Costa Rica

Radio Fides
Apdo. 1933
San Jose, Costa Rica
Director, Gonzalo Jimenez

Radio Turrialba
Turrialba, Costa Rica
Director, H. Sabario

Radio Universitaria
San Pedro, Costa Rica
Director, C. Salazar

Telesistema Nacional
Apdo. 2869
San Jose, Costa Rica
Gen. Manager, Jose J. Ortiz

Voz de la Victor
Apdo. 1079, San Jose, Costa Rica
Director, Santiago March P.

Departmento Control Nacional de Radio
Apdo. 3483
San Jose, Costa Rica

Radio Popular
Apdo. 341
San Jose, Costa Rica
Director, R. Baragona

ECUADOR

Broadcasting in Ecuador began in 1931 with the establishment of a shortwave station by the World Radio Missionary Fellowship. Entitled La Voz de los Andes, the Protestant operation beamed cultural and religious programs throughout the world in various languages. By 1950, 34 shortwave and 35 medium wave stations had developed. From that point, medium wave systems multiplied to 135 in 1960 to the present 316. Today there are 312 AM and 4 FM stations (1971) and 650,000 receivers. With a population of 6.1 million, the number of sets per 1,000 is 106.6.

As in the United States in 1939, Ecuador was not immune to the panic of a broadcast of H.G. Wells' *War of the Worlds.* On February 13, 1949, Radio Quito terrified the nation with reports of Martians landing at Cotocalloa, a town near the capital city Quito. When the angry citizens discovered the hoax, a mob attacked and burned the Comercio newspaper building which housed the station. Order was not restored until army troops with tanks and tear gas forced the residents to disperse. By the following day, 20 persons were dead and 15 injuries were blamed on the riot.

Currently, most of the commercial stations operate on low power and are located either in Guayaquil or Quito. The three major networks are Yellow-Blue-Red, HCMQ, and Nacional. Radio broadcasting is still dominated by the non-commerical stations of the World Radio Missionary Fellowship. More than half the AM stations in Quito are Fellowship owned, and all the organization's members share the call letters HCJB although each has its own operating frequency.

The national government maintains two stations in Quito for cultural purposes and has been active in international broadcasting, cooperating with private non-commercial stations. A small number of municipal governments also own and operate radio stations.

May 1960, marked television's debut in Ecuador. Since that first station, seven more have appeared. In 1965, it was estimated that there were 0.1 sets per 1000 persons. By 1970, the number increased to 1.2 per 100, with an estimated 110,000 receivers.

All stations are privately owned, with three in Guayaquil, two each in Quito and Ambato, and one in Cuenca. The largest multiple owner is Telesistema del Ecuador.

The World Radio Missionary Fellowship operates one non-commercial station in Quito with a repeater in Ambato. All stations use a 525-line standard.

In 1965 Ciespal, the Latin American center for higher education in journalism at Quito and the University of Guayaquil offered limited broadcasting courses.

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DIRECTORY

RADIO

La Voz de los Andes
Casilla 691
Quito, Ecuador
Pres., Dr. Abe Van Der Puy

Emisoras Gran Colombia
Casilla 2246
Quito
Dir., E. Cevallos G.

Radio Casa de la Cultura
Avenida 6 Diciembre 332
Apdo. 67, Quito
Director, Humberto Perez Estrella

La Voz de la Democracia
Guayaquil 1524
Apdo. 288, Quito
Director, Eduardo Cevallos Castaneda

Radio Quito
Apdo. 57, Quito
Director, Jorge Mantilla Ortega

Radiodifusora del Ecuador
Avda. Boyaca 1616
Apdo. 4144, Guayaquil
Director General, Jose A. Villacis Granja

TELEVISION

Telesistema del Ecuador
Casilla A36, Guayaquil

Telecuador
Casilla 70, Quito
Director, P. Norton

La Ventana de los Andes
Casilla 691, Quito
Director, Robert B. Clark

Cadena Equatoriana de Television
Escobedo 835
Guayaquil, Ecuador

Tele-Cuenca
Cuenca, Ecuador
Director, J. Cardoso

Teletigre
Casilla 352
Quito, Ecuador
Manager, G. Brborich

Associacion Ecuatoriano de Radiodifusion
Apdo. 2246
Quito, Ecuador
President, E. Cevellas C.

EL SALVADOR

Republic of El Salvador occupies 20,935 sq. km. of the Pacific coast on the isthmus of Central America. It is bounded by Guatemala to the west and Honduras to the north and east. It is the smallest mainland American republic. In 1970, the population was about 3,533,628. The principal language is Spanish. The climate is warm all year round, and nights are cool, despite the country's location only 14 degrees north of the equator. Ninety percent of the land is of volcanic origin, but none of the mountains are extremely high (the highest--Santa Ana Volcano - is 7,825 feet above sea level). Almost all of the usable land is under cultivation.

El Salvador has a very high population density consisting of 410 persons per sq. mile. The population is growing at an annual rate of 3.4 percent, one of the highest growth rates in the area. An estimated two-thirds of the population is rural and about 49 percent are literate. Eighty-eight percent of the population are Roman Catholic. There are no significant foreign minorities in the country.

Radio is the most important mass communications medium in the country. In 1971, there were 500,000 radio licenses. The increase in number of hours of transmissions is the indication of the growing importance of radio. About 80 percent of the population are Roman Catholic. There are no signifcant foreign minorities in the country.

Radio is the most important mass communications medium in the country. In 1971, there were 500,000 radio licenses. The increase in number of hours of transmissions is the indication of the growing importance of radio. About 80 percent of the programming is devoted to music, and the remaining radio time is divided among news and commentary, serial dramas, sports, and educational, civic, and religious programs. In 1969, there were 47 radio stations in the country, and their range was extended by 14 relay transmitters. All stations are required to broadcast government news bulletins. Nearly half of the stations were in the capital, San Salvador, but about six stations in the city held the attention of most of the listeners in the interior as well as in the capital. The only commerical shortwave station is located in Santa Ana. There are six other FM transmitters in the country, all owned by other radio stations. The Catholic church also owns one FM station. The only non-commercial station, Radio Nacional, is administered by the Ministry of the Interior, which also regulates broadcasting and issues licenses for radio stations, which are subject to renewal every five years. The station transmits not only on one medium-wave and three short-wave channels, but also transmits on two FM channels. The major programs are classical music, educational programs, and official government announcements. The most important stations are the 21 that transmit with 5,000 or 10,000 watts of power. Fourteen of these are in San Salvador, four are in San Miguel and three are in Santa Ana.

The country's first television station began in November 1956, and the second in March, 1959. Although each station has its own facilities, they are under the same ownership. During their first years both Channel 2 (YSR-TV) and Channel 4 (YSU-TV) transmitted seven hours a day. By 1970 both were maintaining twelve-hour transmission schedules between noon and midnight. All the shows are broadcast in black and white. Taped shows from the United States and Mexico make up most of the programming. There is a fifteen-minute news program in the afternoon and a ten-minute newscast at night on each channel. Sports, movies, and cartoons are daily features. In 1971, there were 106,800 television licenses, with about half of them in San Salvador. Viewers in most of the country receive the San Salvador stations, but mountains interfere in some areas. Some receivers near the Guatemalan border receive transmission from Guatemala City better than those from San Salvador.

The 1970 session of the legislature started work on a major revision of legislation governing radio and television stations in order to update laws that technical advances have outmoded.

Compiled by:
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"Provisional President Menedez stops use for attacking Honduran President Carias Andino," *The New York Times*. May 27, 1944, 6:7.

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Television Factbook 1971-72. Washington, D.C.: Television Digest, Inc., 1971.

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DIRECTORY

Government Broadcasting Department
Ministerio Del Interior
Palacio Nacional, San Salvador
Director, Minister of the Interior

Associacion Salvadorean Empresarios Radiodifusion
Apdo. 210 San Salvador; commerical
President, A. Rivas Canas
There are 54 commercial stations of which
19 are in San Salvador.

Radiodifusora Nacional de El Salvador YSS "Alma Cuscatleca"
2a Avda. Sur No. 113, San Salvador; non-commercial cultural station
Director-General, Lic. Alfredo Parada H.

Teleradio Centroamerica S.A. - Canal 4
Apdo. 1375. San Salvador
General Manager, B. Eserski

Canal Dox, S.A.
Apdo. 720, San Salvador; Commercial
General Manager, B. Eserski

Radio Television YSU, S.A.
Apdo. 1050, San Salvador

Radio Cadena Central, S.A.
25 Calle Poniente No. 113, San Salvador

Radio Cadena YSKL
Apdo. 1329, San Salvador

Canal 6, Edificio Rivas Cierra
San Salvador
General Mgr., Salvador Iraheta

Canal 8, 10 Ministerio de Educacion
San Salvador
General Mgr., I. Lanzas de Chavez

FIJI ISLANDS

The Fiji Islands are a group of approximately 350 islands of ancient volcanic rock, limestone and coral formations. The islands, rising as high as 5,000 feet, are a rich variation of tropical rain forest, sparsely vegetated open spaces, and large rivers which run to the sea through fertile flat lands. An independent state, the Fiji Islands were a British Crown Colony until 1970.

The nearly 503,000 Fijians (1970) live on only one in three of the islands, the total land area of the island group being 7,055 square miles. The farmers as well as the industrial labor force contribute in the growing and processing of sugar and coconuts, Fiji's major export crops. Crops grown for domestic consumption include rice, bananas, beans, citrus fruits and root crops. Fish is a main source of protein for the people; however, both beef and dairy cattle are raised as well as pigs, goats and poultry. While most of the fishing industries are small independent firms supplying local markets, frozen tuna is exported to Japan and the United States. Other industries include forestry, construction and mining. Tourism in the Fiji Islands is increasing at a considerable rate.

Broadcasting, which is limited to radio at this time, is operated by an arm of the government, the Fiji Broadcasting Commission. The Commission which took over from the Fiji Broadcasting Company in 1954 has a membership of eight, with an unofficial chairman and a majority of unofficial members, in addition to a manager. The Commission headquarters which are in the capital city of Suva contain three air-conditioned studios, a recording studio, two control rooms, offices, record library and workshops. Approximately 75 percent of all the revenue of the Commission is earned from advertising.

Operating through eight frequencies in Suva, two at Lautoka and one each at Rakiraki, Sigatoka and Labasa, the Commission re-broadcasts world news services. The two largest and most populous islands, Viti Levu and Vanua Levu are served by VRH3 (Lautoka) which are relayed via very high frequency radio link from Suva. Programs of music, news, weather, women's features, sports, interviews, religion, and education are broadcast in English, Fijian and Hindustani.

During the school term, educational programs for primary schools are broadcast in English from 10 to 11:30 a.m. on Mondays, Thursdays and Fridays; broadcast for secondary schools are from 2:00 to 2:45 p.m. on the same days. All school broadcasts are supervised by the Education Department and transmission time is provided free of charge by the Commission.

Compiled by:
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Gary Shepard

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Tudor, Judy, ed. *Pacific Island Yearbook and Who's Who.* 10th edition. Sydney: Pacific Publications, 1968.

U.S. *Foreign Broadcast Information Service.* January, 1971.

DIRECTORY

Fiji Broadcasting Commission
P.O. Box 334
Suva, Fiji
General Manager, John Hunt

GILBERT AND ELLICE ISLANDS

The thirty-seven islands comprising the Gilbert and Ellice Islands cover an area of only 369 square miles, however, the large Gilbert Island group, the Ellice group, the smaller Phoenix group and the islands of Ocean, Christmas, Fanning and Washington are scattered over more than one million square miles of ocean, an immense section of the central Pacific. The Islands are a Colonly of the British Commonwealth; the capital city is Bairki on Tarawa. The total population was set at 54,500 in 1968; this included 1,330 non-islanders. Gilbertese are Micronesians, Ellice Islanders are Polynesians, and other islands are now without indigenous populations. The chief industries are copra and phosphare mining on Ocean Island. Australian dollars are used for currency.

RADIO

The Gilbert and Ellice Islands Broadcasting Service was established in 1954. The broadcasting office is on Tarawa. The Service is owned and run by the government. There are to transmitters and over 4,000 receivers. Programs are in Gilbertese, Ellice and English. The broadcasting officer is D.G. Bradlock.

Stations:

VTW	844kc	0.05kW	
VTW3	3220kc	0.03kW	93.17m
VTW2	4912.5kc	2kW	61.07m

TELEVISION

Television has not yet come to the Islands, nor is it expected in the immediate future.

Compiled by:
William Goin
Frank Melleno

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Worldmark Encyclopedia of the Nations Vol. 4. New York: Harper and Row, 1967.

World Radio TV Handbook, 1966 (20th ed.), World Radio-TV Handbook Co., Ltd., Hellerup, Denmark, 1966.

DIRECTORY

Gilbert and Ellice Islands Broadcasting Service
Betio, Tarawa
Broadcasting Officer, A.G.M. Slatter
Information Officer, D.G. Bradlock

GUAM

The island of Guam had its first contact with the west when Ferdinand Magellan arrived there in 1521. There followed a long succession of Spanish explorers who used the port of Guam as a rest stop, replenishing themselves with fresh water, fruits and vegetables. For 150 years after Magellan, the Chamorro culture was left untouched by the Spanish who used the island mainly as a stop-over for the galleons traveling between Acapulco and Manila. English explorers, in search of Spanish ships also used the island; it is believed that Sir Francis Drake landed on Guam for a day or so in the fall of 1579. After the defeat of the Spanish Armada, Dutch and English ships became more prevalent.

The establishment of a Spanish settlement on Guam during the latter part of the seventeenth century resulted in a series of bloody wars with the Chamorros and the rampage of smallpox. These reportedly reduced the native population from an estimated 50,000 to 10,000 in the early 1600's to about 5,000 in the late 1690's. Spain lost control of Guam to the United States Navy, the Americans governed Guam until December 10, 1941 when the Japanese occupied the island. The Guamnians suffered greatly during this period as the innocent victims in the struggle for the Pacific. In a fierce battle on July 21, 1944, the American forces reoccupied the island.

Today, Guam is a possession of the United States, under the administration of the Department of the Interior. The Territorial Government of Guam under the direction of a civilian governor controls the affairs of the island with the exception of matters concerning military installations. The Guamanians are American citizens. Little of the original Chamorro culture or the nearly 300 years of Spanish influence remained in 1970. About 40 percent of the 104,000 (1969) population are American militray personnel and their dependents.

Broadcasting began in Guam in about 1950 with Radio Guam of the U.S. Armed Forces. In 1954 broadcasting services was taken over by a commercial firm which took the call KUAM. As of 1962, there were two stations operating, KUAM and an Air Force station with 250 watts of power. Both stations maintained 18-hour schedules. By 1969 KUAM on Guam had increased its power to 10Kw and the military station had ceased operation.

Television was introduced in Guam in 1956, when KUAM-TV began operations in Agana. In 1958 an Armed Forces relay station was established, on Guam with KUAM-TV transmitting 11 hours every day. Sometime afterwards, the Armed Forces relay was shut down, leaving KUAM the sole television station until, in 1970, KGTF, a non-profit educational station began operating on channel 12.

KUAM-TV is owned and operated by a private concern. It operates on channels 7, 8, 10, and 13, and is an affiliate of all three U.S. networks. KGTF is owned and operated by a foundation. Both have power of about 25Kw visual and 3-5 Kw aural, and use a 525 line standard.

Compiled by:
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Worldmark Encyclopedia of the Nations Vol. 4. New York: Harper and Rowe, 1967.

DIRECTORY

Guam Educational Telecommunications Commission
P.O. Box 3615
Agana, Guam 96910
President, D.W. Smith

Pacific Broadcasting Corporation
100 California Street
San Francisco, California 94111
President, H. Scott Killgore

Radio Guam - KUAM
KUAM-TV
P.O. Box 368
Agana, Guam
Executive Vice President, William B. Nielsen

Northwest Regional Educational Laboratory
P.O. Box 3631
Agana, Guam 96910
Director, John A. McCallum

GUATEMALA

In nearly all Guatemalan towns and plantation communities with electricity, a radio is available in the central plaza where residents may gather to listen. In 1970, with a population of 5,188,981, there were 216,000 receivers or 41.6 per 1000 persons.

The first radio station was founded by the government in the early 1930's. Today broadcasting is largely privately owned and commercially operated. The government operates thirteen stations which beam information on health, agriculture, and governmental policies. Most of the broadcast time is devoted to foreign music from Mexico, the United States, and the Caribbean Islands. Mission-owned stations provide religious and educational programming. In 1970, there were 8 transmitters with a combined power of 78.15 kilowatts.

Radio programming utilizes many aspects of the press but reaches more people, especially the less educated and those in remote areas. A unique feature of Guatemalan radio is the "radio paper" which allows people to purchase prime time for personal uses such as offering or seeking jobs, announcements, or comments. The practice began in the 1950's when newspapermen would buy time, write the program, and sell the commercial spots involved to supplement their journalistic careers.

Telecasting began in the national capital of Guatemala City in May, 1956, by the privately owned Radio-Television Guatemala. By 1968, four more stations had been established. Two of these, Channels 5 and 9, are government owned and broadcast cultural and educational programs. The three commercial stations 3, 7, and 11, broadcast a variety of shows, ranging from cartoons to documentaries. Secondary transmitters relay programs from Guatemala City to other areas of the country and a system of receivers and transmitters located in the Department of Quezaltenango allow for transmission throughout the country of broadcasts originating in Mexico. In 1970, there were 114,000 black and white receivers and 5,000 color receivers, or 22.9 per 1000 persons. All stations utilize a 525 line standard.

Compiled by:
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"Educational TV Programs Under Alliance for Progress." (Descriptive title only). *New York Times*, May 5, 1963, p. 3.

DIRECTORY

Direccion General de Radiodifusion y Television National
Guatemala City, Edificio Tipografia Nacional
Calle 18 de Septiembre 6—72, Zona 1
f. 1931; Government supervisory body
Director General, C. A. Marroquin G.

There are 5 government and 6 educational stations, including:

La Voz de Guatemala
Calle 18 de Septiembre 6—72, Zona 1
Guatemala City
Government Station
Director, Mario Mendoza Hidalgo

DIRECTORY — (continued)

Radio Cultural
30 Calle No. 3—05, Zona 3
Apdo. 601
Guatemala City
Religious and cultural station owned by Central American Mission
POB 28005, Dallas, Texas 75228, USA
Programs in Spanish and English, Quiche and Cakchiquel
Director, Donald Rutledge

There are 77 commercial stations of which the most important are:

La Voz de las Americas
2A Avenida 13—39, Zona 1
Guatemala City
General Manager, Jose Flamenco y Cotero

Radio Cinco Sesenta
30 Avenida 3—40, Zona II
Guatemala City
General Manager, W. G. Campbell

Radio Continental
13 Calle 12—26, Zona 1
Guatemala City
Director, R. Vizcaino R.

Radio Fabulosa
Via 6, 3—74, Zona 4
Guatemal City
Propr., Francisco Maza C.

Radio Nuevo Mundo
6A Avenida 10—45, Zona 1,
Apdo. 281
Guatemal City
Manager, H. Gonzalez J.

Radio Panamericana
Km. 12, Carretera Roosevelt
Guatemala City
Director, A. V. de Paniagua

Radio Super Radio
6A Avenida 15—40, Zona 1
Guatemala City
Director, M. A. Rodriguez

Television Nacional
Edificio Tipografia Nacional
Calle 18 de Septiembre 6—72, Zona 1
Guatemala City
Government station
Director-General, C. T. Y. Murga

Radio-Television Guatemala, S. A.
30a Avenida 3—40, Zona II
Apdo. 1367
Guatemala City
f. 1956
Commercial station
General-Manager, W. G. Campbell

Televicentro
3A Calle 6—24, Zona 9
Guatemala City
f. 1964
Commercial station, Channel 7
Director, Dr. J. Villanueva P.

Tele Once
Calle 20, 5—02, Zona 10
Guatemala City
Commercial
Director, A. Mourra

HONDURAS

Honduras is the second largest Central American Republic with an area of 43,277 square miles. Its boundaries include the Caribbean Sea to the north, El Salvador to the southwest, Nicaragua to the southeast and Guatemala to the northwest. Two mountain ranges, the Central American Cordilleras and the Volcanic Highlands, run largely parallel and divide Honduras into two halves. The flatlands between the mountain ranges are the most highly populated areas of the country. There are tropical lowland areas on both coasts. The population of Honduras was estimated at 2,582,000 in 1970 with about 90 percent of Spanish/Indian decent.

The most effective public information medium in Honduras is radio because of low literacy (less than 50 percent) and poor transportation. In 1971 there were approximately 90 privately owned radio stations. All but four stations were commercially operated. Various religious denominations operate the four non-commercial stations. Most stations use a large amount of program material supplied by the United States Information Agency and similar foreign information and cultural agencies. There are estimated 290,000 radio receivers in Honduras and a large number are located in public places. Honduras television began in September, 1959, when Telvisora Hondurena, S.A., began operating HRTG-TV (channel 5) in Tegucigalpa (the capital city). Compania Telesistema Hondureno, S.A., owns HRN-TV in Tegucigalpa (channel 3) and HRN-TV in San Pedro Sula (channel 7). HRSU-TV (channel 9) in Siguatepeque was established in July, 1962 and HRYA-TV (channel 13) was started in September, 1963, in San Pedro Sula. In 1971 the number of television receivers was estimated at 45,000.

Compiled by:
Tom Archibald

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UNESCO. *World Radio and Television.* Paris: United Nations Educational, Scientific and Cultural Organization, 1965.

DIRECTORY

Radio Nacional
Tegucigalpa, Honduras
Chief, H. Andino N.

La Voz de Honduras
8A Calle 410
Tegucigalpa, Honduras

TEGUCIGALPA-HRN-TV, Channel 3
Compania Telesistema Hondureno, S.A.
Apartado Postal No. 734
Tel. 2-5515
General Manager, Manuel Villeda Toledo

TEGUCIGALPA-HRTG-TV, Channel 5
Cia. Televisora Hondurena, S.A.
Apartado Postal 734 (commercial)
Tel. 2-5514
General Manager, Jose Rafael Ferrari

SAN PEDRO SULA-HRN-TV, Channel 7
Compania Telesistema Hondureno, S.A.
Apartado Postal No. 208
Tel. 16-38
General Manager, Manuel Villeda Toledo

SIGUATEPEQUE-HRSU-TV, Channel 9
Repeats Ch. 5, Tegucigalpa
Started July, 1962

SAN PEDRO SULA-HRYA-TV, Channel 13
Repeats Ch. 5, Tegucigalpa
Started September, 1963

BROADCASTING IN HONG KONG

Hong Kong is a British crown colony on the southeast coast of China, about 40 miles east of Macau and 90 miles southeast of the city of Canton. The name Hong Kong means "fragrant harbor" in Chinese. The colony covers a land area of about 400 square miles and is generally thought of as divided into three parts: the island of Hong Kong, Kowloon Peninsula, and the New Territories. Though small in area, the crown colony supports about 4 million people, 98% of whom are Chinese, making it one of the most densely populated areas in the world.

Hong Kong is served by three broadcasting organizations producing a total of eight sound channels (two English, one background music, and five Chinese channels); programs are transmitted simultaneously in Chinese and English. Two of the three organizations are commercial, and the other is a government operated station.

It has been determined that about 90% of the people of Hong Kong listen to the radio, but in an indiscriminate way - the radio is turned on all day as an accompaniment to the day's activities, rather than as a closely attended source of information.

Radio Hong Kong, the government owned station, has been operating since 1928, and is thus, one of the oldest stations in South East Asia. It is equipped with seven transmitters, five of which have long and medium waves, and two ultra-short waves. Total power in kw. is 70 and 100 respectively. Radio Hong Kong is financed from general revenue, and carries no advertising. The aim of the government is to provide balanced programs with the emphasis on information and public affairs programs. Government broadcasting also attempts to play an important role in assisting the development of better mutual understanding between the different communities who make up the colony's society. Radio Hong Kong broadcasts separate Chinese and English programs on AM and FM; the Chinese is divided into Cantonese and a number of other dialects such as Mandarin. As a result of an audience research survey carried out for both the English and Chinese services, many of the schedules were revised and the AM/FM split confined only to the evening hours from 8:25 PM to 11:15 PM. The content of the programs is: good news coverage (some BBC relay) drama, music, and sports. There is an additional short wave service in Chinese for the fishing fleets.

The Hong Kong Commercial Broadcasting Company, Ltd., which went on the air in August, 1959, is equipped with two medium-wave transmitters, at 1 kw. each. The studios are located in Kowloon where they have just set a new studio center on Broadcast Drive where the other radio stations and television transmitters are also located. Commercial Radio relies heavily on commercial advertising; about 10% of its broadcast time is devoted to advertising. But, the station boasts the highest listenership, as the music, story-telling dramas, and sports seem to be highly popular. In content, Commercial Radio is similar to its competitor, with the Chinese broadcasts aimed primarily at educating the very young and the very old. Three hours per week are devoted to school broadcasts. English programming is concerned with the middle of the age groups of native and adopted westerners. This station, like Radio Hong Kong, relays much BBC programming. In addition to public affairs programs, there are many serious and light music programs included in the schedules of both organizations, with comprehensive news and weather services throughout the day. Transmission hours were increased late in 1970; both Commercial Radio and Radio Hong Kong broadcast from 6 AM until 1 AM. Both stations are on medium wave and FM, and there is no short wave except for the fisherman's service.

Rediffusion (Hong Kong), Ltd., a subsidiary of Rediffusion Ltd., of London, has been operating a cable (wired) broadcasting service since 1948 and now serves more than 40,300 subscribers. It is distributed throughout Hong Kong and Kowloon, and to many of the outlying areas in the New Territories by more than 1,500 miles of trunk line and another

4000 miles of installation cabling. At the end of 1970, there were 40,000 loudspeakers connected to these sound services offering a choice of four programs. Its programming consists mainly of records and transcriptions, and it also relays Radio Hong Kong.

Hong Kong became the first colony within the commonwealth to obtain a television service when in December, 1957, Rediffusion (Hong Kong), Ltd. pioneered a television relay service. This company started operations on one channel which produced 28 hours of television per week to 63,000 viewers. This cable system operates on a monthly charge of $10.00/month and offers several channel choices. The broadcasting offers over 75 hours per day of programming (Chinese and English) and includes a variety of news, educational, and entertainment programs. Many of the top British and American shows are broadcast, though there is also local live and film material available, in the Chinese dialects. The local Chinese programming is often so lively and popular, that it is sold to film studios and other Far East broadcasting stations. The English production of this cable system has very little local origination except for coverage of local events; it is mostly entertainment in nature. Nearly 25% of Rediffusion sound programs are commercially sponsored. In order to overcome the complicated language problem in Hong Kong, Chinese sub-titles are often used for English language programs.

In November, 1967, a second television service came to operation. This was the wireless TV service operated by Hong Kong Television Broadcasts, Ltd. (HK-TVB). Television viewership has increased from 63,000 in 1957, to well over 2 million people by the end of 1970. Viewers can now watch some 310 hours of television per week - 150 of those hours transmitted by Rediffusion and 160 hours a week coming from HK-TVB. Hong Kong Television Broadcasts Ltd., operating under an exclusive license for their first five years, broadcasts two wireless channels, the Jade (Chinese) and the Pearl (English). The licenses were awarded by the Television Authority, which is responsible for program content in keeping with public demand and proper standards. Such television service is sponsored by commercials, and is subject to renewal at the expiration of each five year period. The company employs the UHF, 625 line PAL color system with its main transmitters on Temple Hill. There are now nine auxiliary transmitters throughout the colony, and the company's plans envisage complete coverage of urban and rural Hong Kong by the end of 1970.

Hong Kong has two earth stations to transmit and receive satellite messages. The second of these stations went into operation on 1 November, 1971 and communicates via Intelsat III satellite over the Indian Ocean, handling traffic between the Far East and Europe. The first Hong Kong earth station which started service in 1969, is linked to the Pacific Ocean satellite to serve the Pacific Area, South East Asia, and the U.S.A. The addition of the second earth station in Hong Kong marks the beginning of direct color transmission from U.K. to Hong Kong and back.

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_____, Statistical Division. *Statistical Yearbook.* Paris: UNESCO, 1969.

_____, *World Communication Press, Radio, Television, Film.* Paris and New York, UNESCO, 1964.

DIRECTORY

British Forces Broadcast SCE
BFPO 1
Hong Kong
Controller, J.M. Campbell

Hong Kong Commercial Broadcasting Co., Ltd.
9th Floor, No. 7 D'Aguilar Street
Hong Kong
Managing Director, George Ho

Radio Hong Kong
Broadcasting House, Broadcast Drive
Kowloon, Hong Kong
Director of Broadcasting, D.E. Brooks

Radio Hong Kong Television
Broadcasting House
P.O. Box K-200
Hong Kong
Controller, J.B. Hawthorne

Rediffusion (Hong Kong) Ltd.
Rediffusion House, 77-79, Gloucester Road
Hong Kong
Managing Director, R.J. Warren

Television Broadcasts Ltd.
77 Broadcast Drive
Hong Kong
Managing Director, Andres K.W. Eu

INDIA

India occupies most of the Asian subcontinent. It is bordered by West Pakistan, China, Nepal, Sikkim, Bhutan, Burma, Bangla Desh, and the Indian Ocean. It is approximately 2000 miles north to south, and 1700 miles east to west. India occupies a total land area of approximately 1,259,000 miles. Broadcasting, in its reach and significance, constitutes the most powerful medium of mass communication in India. According to a recent estimate. there are nearly 400 million potential listeners to All-India-Radio, which represents about three-fourths of India's approximately 550 millions. The literacy rate is 24% according to a 1961 UNESCO estimate making radio a particularly powerful medium of information and education. The total circulation of all newspapers in India, both English and Indian languages, is around 8 million, which indicates that the reach of the printed word is not wide nor deep.

Broadcasting in India is a national service developed and operated by the Government of India, and under the control of the Ministry of Information and Broadcasting located in the capital of New Delhi. All-India-Radio (also known as Akashvani) operates this service over a network of broadcasting stations located all over the country. As a national service, AIR seeks to represent the attitudes and aspirations of all sections of the Indian people, as well as the needs of the nation as a whole. Though Hindi is the official national language, AIR serves a population that speaks 16 major languages, and 125 dialects. The largest percentage of programs is carried in Hindi, Gujerati, Marathi, Telegu, Urdu, Bengali and Malayalam. There are, however, broadcasts in 51 local languages and 82 tribal dialects. In total, AIR broadcasts over one million hours each year.

Though broadcasting was first introduced in India in the early twenties, its career as an organized system began in 1936 with the establishment of AIR. In 1947, when India gained its independence, AIR's network consisted of only six radio stations. Independence gave new strength to the task of developing broadcasting; the goal was to provide country-wide service to the whole population, and to devise programs to meet the needs of a newly independent country's drive toward national reconstruction. In the early fifties, with the launching of the first Five Year Plan, the primary services on Medium wave was available to only about 21% of the population. By the end of the fifties, 55% of the population had been brought within reach of the primary service, while a second grade service on short wave was available in most parts of the country. At present, the medium wave service covers 78% of the population, while the short wave service is available practically throughtout the country. AIR consists of 39 principal stations, three satellite low-power stations, and 24 auxiliary centers, which altogether provide service to about 61% of the land area. In addition, 30 channels carry a parallel service of popular entertainment called Vividh Bharati. The number of transmitters in use is 137, made up of 105 medium-wave and 32 short-wave transmitters. The transistor radio has helped to increase the Indian radio audience. Eighty percent of India's people live in rural areas, mostly in about 500,000 small villages. In the most remote villages, where electricity and good radios are scarce, the transistor radio is the only contact with the outside world. Thus the transistor radio has become a status symbol. In 1964 there were ten and one half million licensed radio receivers, and an estimated one million unlicensed sets in the country. The number of receivers is about 2 per 100 people.

AIR's program pattern combines three main elements: a national channel providing programs of country-wide interest; a zonal service from each of four metropolitan centers (Delhi, Bombay, Calcutta, and Medras); and regional services from individual stations each catering to the needs and interests of its respective area. It must be remembered that India has many heavily populated urban areas of over one million persons. The principal features of the program output are: Music, Spoken Word, Dramas, Features, News and Current

Affairs, Commentaries and Discussions, Vividh Bharati and its Commercial Service, Farm and Home Broadcasts, Programs for Special Audiences (women, children, industrial workers, etc.) and Programs for Overseas Listeners broadcast in the External Services.

Of the more than 700 hours of AIR broadcast time each day, Indian music takes up 48%, news 22%, drama 5%, spoken word 4%, educational programs 2%, publicity 1%, special interest programs, and other special audience material takes up the remaining 18%.

Music. With the advent of radio, a new era was begun in the history of Indian music. Before that time, it was only the wealthy elite who were able to enjoy fine classical music. Today, there is an unprecedented interest in the forms and styles of India's ancient musical tradition. Ever since 1952 there has been a weekly National Program of Music performed by leading musicians and aired all over India. AIR's National Orchestra was also established in 1952 to develop a coordinated program of Indian music.

Spoken Word. Features, talks, discussions and commentaries, and interviews are regularly arranged to provide a forum for all shades of opinion on national and international issues, and on all matters of political, social and cultural interest. Some of these programs are arranged by the regional stations in the respective regional languages. An example of these programs is the Sardar Patel Memorial Lecture series given by well-known speakers in English before an invited audience. Much of this type of feature is aired on important national holidays, international occasions and anniversaries.

News and Current Affairs. To keep its multilingual audience informed, AIR has one of the largest radio news organizations. Besides normal news-gathering channels, a network of 56 full-time correspondents (including two abroad) and 75 part-time correspondents (including five abroad) continuously feed information to AIR. At present, as many as 230 bulletins are broadcast each day, of which 175 emanate from the Home Services in 18 languages and 33 tribal dialects. In 1971 a "News on the Hour" scheme was set up whereby listeners can hear news each hour from 6 AM until midnight. Apart from news bulletins topical commentaries in English and Hindi are fixed-point broadcasts. Either a daily ten minute spot on the day's Parliamentary proceedings, or the Sunday 'Current Affairs' program illustrate this kind of broadcast.

External Services. AIR made its first broadcast to listeners outside India on October 1, 1939. Today, the External Services of AIR broadcast in 24 languages for about 51 hours daily round-the-clock, reaching listeners in widely distributed parts of the world. The main objective of AIR's external broadcasting is to present the Indian point of view on current, domestic, and international affairs, and also to maintain contact with people of Indian origin residing abroad. The content of these broadcasts is similar to that of the Home Services. In recent years, recorded programs have been supplied on request, to foreign broadcasting organizations for use in acquainting home audiences with cultural and social life in India. AIR reaches Australia, the Middle East, Asia, Africa, and Europe in English, Gujerati, Hinki, Konkani, and Tamil.

Vividh Bharati. A self-contained service of popular entertainment, called Vividh Bharati, was begun in 1957 to meet the demand for popular music and other light features. Today, it is broadcast from over 30 centers all over India, and devotes most of its 12½ hours a day to regional needs.

Commercial advertising was introduced on AIR in November, 1967, on an experimental basis. Today, AIR's Commercial Service is broadcast from 18 of the 30 Vividh Bharati centers. Since May 1970, All-India-Radio has made available for sale 75-85 minutes per day for Sponsored Programs (10% of total broadcasting time of Vividh Bharati) in which paid advertisements are broadcast. These spots must comply to a Code of Conduct to insure that they are in good taste as well as in the national interest. The added revenue from the advertisers will be used for improved programming and additional educational features.

Radio Support to Rural Development. Since the overwhelming majority of India's people live in rural areas, AIR gives particular attention to the programs which benefit these villages. Programs on various aspects or rural life with special emphasis on animal husbandry are broadcast via the Radio Rural Forums. In December, 1971 the number of radio Rural Forums, listening-discussion-action group, was 25,000. The 1964 figure for sets installed in the villages for community listening, was 90,000.

Radio Support to Family Planning Campaign. Surveys undertaken by the Audience Research Unit of AIR in 1971 revealed that radio is the principal source of information on family planning. Family Planning Units at the various regional stations plan and produce programs on family planning themes both for general and specific audiences.

Educational and Youth-Directed Programs. Educational programs devoted primarily to the interests of rural and tribal audiences, women, and children are broadcast from all stations. Programs for schools are broadcast from 21 stations and received in more than 18,000 schools. Special programs for universities and industrial workers are also included.

In 1969, AIR pioneered a unique experiment when it opened an entire channel at the Delhi station for programs designed for youth and by the youth. The previous education-oriented programs had not involved enough participation by the youth. Since 40% of the population is under 15 years of age, the potential audience is enormous. The "Voice of Youth" or (Yuva Vani) programs are basically different from the educational programs for the schools; they do not contain curricula or courses of study. It is a service based on a wide range of programs - talks, discussions, interviews, plays, music - devised and presented by the young people themselves. The appeal of these programs cuts across urban-rural, educated-uneducated, working-nonworking group divisions. The youths who produce programs are drawn from colleges, schools and many other social strata and groups.

All-India-Radio operates the only television broadcasting facility in India, located in New Delhi. It was inaugurated in September, 1959 as part of a UNESCO project to study the impact of television as an educational aid. The first broadcast consisted of two one hour programs of informative and educational nature. In 1961, school broadcasts were added to the program schedule. In August, 1965, daily evening cultural transmission is more than three and one half hours, with an additional hour on Sunday afternoons. The television service broadcast from the Delhi center is available to viewers within a range of 60 kilometers around the city. The audience in Delhi and the surrounding areas has been growing rapidly; there are 45,000 sets in Delhi, of which about 80% were acquired during the last two or three years.

In 1967, the Indian Government began installing televisions in villages for community viewing. The primary aim of this project was to spread knowledge of modern agricultural techniques. The special programs called 'Krishi Darshan' are broadcast three times a week. There are 80 farm tele-clubs, in the villages, where members gather together to view the programs and then discuss them informally.

The Delhi Center's school television service puts out regular in-school instructional programs to supplement the regular school classes in 411 schools. Apart from special educational and farm programs, the television service in Delhi provides a variety of programming: news, light entertainment, folk music and dances, interviews with experts, programs for women and children, and films and documentaries.

The television station in New Delhi was outfitted with equipment donated from the West German Government who also trained the technicians. It operates on a 625-line standard, and the studio has tape recording facilities. The station is non-commercial, however, there is a growing pressure by Indian advertisers to allow commercials.

Bombay's station was inaugurated in October, 1972 with a 300 foot tower, and a range of about 90 kms. It uses a relay station at Poona to increase this coverage.

A national television network is being planned which would make use of a telecommunications satellite built by the US. It would be launched sometime in 1973 and would remain in stationery orbit over the subcontinent Augmented convential TV receivers would be capable of receiving the monochrome transmissions from the satellite. About 2000 direct reception and 3000 conventional sets will be located in 5000 villages. The primary objectives of the program are: To contribute to family planning objectives, to improve agricultural practices, and to contribute to national integration. However, India fears foreign influence in its future network. For that reason, the Government has considered a national system based upon conventional ground transmitters linked by a coaxial cable rather than a satellite. Now that the satellite system is nearly in operation, much deliberation will have to take place to ensure that its uses remain in the control of the people it is intended to serve.

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_____, "India's Advertisers Plug for Commercials on Nation's TV Network-If and When." *Variety*, May 6, 1970, p. 58.

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All India Radio
Television Center
Broadcast House, Parliament Street
New Delhi 1, India
Director, Romesh Chander

All India Radio
Broadcasting House, Parliament Street
New Delhi 1, India
Director General, A.K. Sen

Audio Visual Instruction Department
52 Jorbagh
New Delhi 3, India
Director, Krishnan Sondhi

Mr. I.K. Gujral
Minister of Information and Broadcasting
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BROADCASTING IN INDONESIA

Ever since the days of Dutch control prior to World War II, Indonesia has been tossed and buffeted by the ideologies, politics and economics of the twentieth century. Only now is the Indonesian republic achieving any substantial degree of stability. The development of broadcasting parallels the birth and growth of Indonesia as an independent nation; radio and television broadcasting has been both an instrument of unity and a victim of the political, cultural and economic diversity of the 3000-island archipelago.

When the Japanese invaded and occupied Indonesia during World War II, they attempted to control all radio broadcasts to the extent of confiscating all radios capable of receiving foreign broadcasts. Loudspeakers on poles, or "singing trees," were established in the smaller villages. However, because Indonesian broadcasters were retained and few Japanese soldiers understood Indonesian, nationalistic messages were not prevented; on the contrary, the wartime radio broadcasts fostered the desire for independence which has been growing since the turn of the century and which was, in fact, recognized and even occasionally encouraged by members of the Japanese military. Indonesian leaders, for their part, managed to keep abreast of the tide of war using hidden radios and were thus well aware, in 1944, that the war was turning against Japan.

No sooner had the Japanese pulled out of Indonesia and surrendered to the allied forces than Indonesian leaders, intent on independence, created Radio Republik Indonesia (RRI) and began broadcasting to the world their version of the state of Indonesian affairs.

It wasn't until 1949, however, that the Dutch relinquished their hold on Indonesia, which had been regained after the war. On December 27, 1949, crowds of Indonesians gathered in Djarkarta to listen to a radio broadcast from Amsterdam of Queen Juliana of the Nethrlands and Vice President Hatta of Indonesia signing the papers of independence.

During the early fifties, the government, under President Sukarno, faced the task of creating a nation out of the largest island complex in the world containing people speaking nearly 200 different languages. (The official language is Bahasa Indonesian and other major languages are Javanese, Sudanese and Madurese; English is a compulsory second language in the schools.). Under the Ministry of Information, radio became one of a number of nation-building tools. The number of radios in the country was nearly doubled by 1956 to slightly over a half million and significantly increased again by 1970. However, in the mid-fifties there were few more than two dozen stations. When President Sukarno visited the United States in the summer of 1956, all 28 stations broadcast a daily program, produced by the Voice of America, detailing Sukarno's activities.

To a certain extent, radio capitalized on the extensive and deeply-felt cultural heritage of the Indonesian people. The Matjapat, said to be one of the finest bodies of vocal literature in the world, was often heard on the radio in performances lasting several hours. Even dances could be radio broadcast because listeners were able to identify the movements of the dancers by the sounds of the gamelin, an ensemble or orchestra identified by the types of instruments used.

During the fifties, both the East and the West actively courted Indonesia's allegience, aptly exemplified by the introduction of television to Indonesia by the major powers. In 1955, the United States promoted television with a display at a fair in Djarkarta. In late 1956, the Soviet Union brought in their television system with a display at a fair in Jogjarkarta. However, it wasn't until 1962 that Indonesia itself was ready for television broadcasting. Televisi Republik Indonesia (TV-RI) went on the air with live coverage of the Asian Games, but live television did not last long, and a year later TV-RI was broadcasting only films, chiefly old commercial movies, travelogs and some government films.

From 1962 to 1965, the situation in Indonesia was spiraling downward. Sukarno's rule was characterized by economic chaos and political and social unrest. Djarkarta, the capital, was a dying city; transportation and communications were disrupted to the point that from 1962 to 1970 the city did not even have a telephone directory. Television was primarily a political tool. The one channel, broadcast from Djarkarta and from a relay station at Bandung, carried excessive amounts of political programming in the form of speeches and rallies. "Awas Subversi" (Beware Subversives) was repeatedly flashed on the screen.

In 1965, student demonstration wracked the capital and student broadcasters went on the air with their "Radio Ampera" using equipment apparently procured from sympathetic military sources under the command of General Suharto. The next year, Suharto was, in effect, controlling the country and the following year was acknowledged acting president. In 1968, Suharto, as president, clamped down on what had become hundreds of amateur radio stations specializing in playing popular Western music for small fees.

In the years since the take-over by Suharto, a quiet but capable man who reportedly spends evenings watching television with his family, Indonesia has pulled itself together, although modernization is still being hampered by what has been termed "primordial cultural attitudes."

The radio stations of the RRI have increased to some 45 regular stations and about 70 shortwave transmitters. Since 1966, radio broadcasting has been under the control of the Chief of Army Information Center. Programs originating in regional centers are usually in the local language or dialect. One of the notable accomplishments has been an adult education series. The shortwave broadcasts of the Voice of Indonesia beam programs internationally in Arabic, Chinese, Hindi and Urdu, English, Dutch, French and Indonesian.

The government television service has expanded more slowly, encompassing a handful of stations broadcasting to slightly more than twice as many televisions as existed in 1965 (approximately 35,000 in 1965 and 72,000 in 1968). Within the last year or so though, television has begun to reach increasing proportions of Indonesian's 125 million citizens.

	STATIONS	SETS	SETS/1000 POP.
RADIO	47(1972)	3,100,000 (1969)	24.8 approx.
TELEVISION	5(1972)	80,000 (1969)	0.64 approx.

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Radio Republik Indonesia
Medan Merdeka Selatan 17
P.O. Box 157
Djarkarta, Indonesia
Director, Abdul Hamid

Television Republik Indonesia
Jajasan Telvisi R.I.
Senajan
Djarkarta, Indonesia

Director General
Radio-Television-Film
Department of Information
Merdeka Barat 9
Djarkarta, Indonesia

Radio Angkatan Udara
51 Djalan TiJpinang
Tjempedak I
Polonia Djatinegera
Djarkarta, Indonesia

Radio Republik Indonesia
Djalan Tjiandjur 6-8
Bandung, Indonesia

Radio Republik Indonesia
Djalan Amad Djasjuli 4
Jogjarkarta, Indonesia

JAPAN

The Japanese archipelago lies off the eastern edge of the Asian continent extending from the Okhotsk Sea on the north to the Pacific Ocean on the south and east, the Japan Sea on the west, and the East China Sea on the southwest. The total area of the four main islands (Hokkaido, Honsha, Shikoku, and Kyushu) measures approximately 369,661 sq. km. (142,689 sq. miles). Thousands of smaller islands lie adjacent to the four main islands. The entire chain stretches for 1,400 miles and has a total coastline of some 16,500 miles.

With a population of 150,372,961 (January, 1971), Japan ranks third in the world in terms of density (230 persons per sq. km. or 180 per sq. mi.). The major population concentrations exist in the industrial areas of central Honshu. There are eight cities with populations over 1,000,000: Tokyo, Osaka, Nagoya, Kyoto, Yokohama, Kobe, Kita Kyusu, and Sapporo. The least densely populated region is the northern island of Kokaido.

Radio in Japan began with the establishment of three independent broadcasting stations in Tokyo, Osaka, and Nagoya in 1925. In August of 1926, these three stations were amalgamated under a single management called Nippon Hoso Kyokai (NHK or Japan Broadcasting Corporation).

Today NHK, which is a chartered public service corporation, broadcasts two separate programs on two networks. NHK operates 170 AM stations on the First Network, 141 AM stations on the Second Network, 364 FM stations, and two short-wave stations. The AM stations' output ranges from 1 kw. to 500 kw.

NHK's budget is fixed annually by the Japanese Government. Advertising is prohibited; license fees on receivers constitute the source of revenue. NHK stations are on the air for a total of 388½ hours a week. Its programming output is divided as follows: Cultural Broadcasts (38.6 percent of total transmitting time), News (19.5 percent), Education (19.1 percent), Entertainment (15.6 percent) and Sports (7.2 percent).

In 1952, NHK resumed International Broadcasting. Today, programs are beamed in 17 directions in some 18 languages throughout the world.

Privately owned commercial radio stations were first established in Japan in 1951. Today, the private broadcasting stations are owned by 44 companies and united with the National Association of Broadcasters (NAB). Nearly all of Japan's commercial stations are closely linked to newspaper groups.

The private broadcasting system in Japan use 151 medium wave radio stations, two short-wave, and 5 FM stations. These stations operate on an output range of 50 kw. to 1 kw. and from 500w to 90w or below. Their airing time totals 147 hours a week and the programming is divided as follows: Advertising (2.5 percent), Music and Entertainment (59.8 percent), Educational and Cultural (2.1 percent), News (12.2 percent) and Sport (3.7 percent).

Some 1969 figures reveal that there was a total of 622 privately owned and public controlled radio transmitters in Japan. With a combined power of 3319 kw., 462 of these transmitters were long and medium waves, 19 were short-wave, and 181 were ultra-short wave.

The United States Armed Forces also operate a network of 13 medium and short wave transmitters, in Japan, which are on the air 24 hours a day.

Ninety-nine and a half per cent of the entire country of Japan is covered by radio broadcasting. Approximately 93.4 percent of all households are equipped with a receiver. Some 1971 figures estimated a total of 23,250,000 receiver sets in Japan.

Regular post-war television broadcasting was first made in 1953 by both the publicly owned Japan Broadcasting Corporation (NHK) and the privately owned commercial

concern, Nippon Television Network (NTV). Since then, both public and private televison services have developed side by side.

NHK operates both a general service, which covers 81 percent of the population; and an educational service, which covers 42 percent of the population. With a combined coverage of 97 percent of the population, the General Network has 1,393 stations in addition to 864 UHF stations; and the Educational Network has 1,387 stations in addition to 864 UHF stations (as of January, 1972). NHK's General Network is on the air for an average of 18 hours a day with its programming divided among News (31.8 percent), Educational programs (10.1 percent), Cultural programs (32.5 percent) and Entertainment (25.6 percent).

As of March, 1968, NHK owned 372 VHF commercial stations, as well as 167 UHF commercial stations.

The commercial networks are operated by private stations which are on the air for 10 to 15 hours a day. NTV devotes 13 percent of its time to News, 32.2 percent to Educational and Cultural programs, 35.8 percent ot Entertainment, 14.8 percent to Sports, and .9 percent Advertisement. In 1970, there were 46 commercial television stations and 36 UHF stations, all with color and 525 line resolution.

Regular broadcasting of color television was begun by NHK and NTV in 1960. Today, NHK programs about 16 hours a day of color programs. Of an estimated total of 22,300,000 television receiver sets in Japan, 7,662,636 of these are color sets (1971).

Japan's fine, extensive educational broadcasting system began in 1935 when the Japanese Broadcasting Corporation (NHK) began a nationwide broadcasting system to schools over the radio. By 1959, 99 percent of all of Japan's schools were equipped with radio receivers; and school radio was regularly used in 62.4 percent of all primary schools, 47.4 percent of the secondary schools, and 53.1 percent of the high schools.

As of April, 1969, HNK has been broadcasting approximately 22 hours weekly to schools -- transmitting 96 different radio programs. These programs are aimed at both primary and secondary school levels, with subjects ranging from music to morality.

In February of 1953, NHK introduced another broadcast system via television. By the summer of the same year, NHK, with the aid of the Audio-Visual Education Society, had already begun broadcasting of its first series of experimental school television programs. With the following goals in mind, educational television was conceived and has since flourished in Japan:

1. To make teaching more effective in schools which suffer from limited budgets, and where classrooms are frequently crowded with as many as 70 or 80 children.
2. To promote the teaching of science and help overcome the lack of facilities in many schools.
3. To serve the in-service of teachers, especially in the use of audio-visual techniques.
4. To enhance the education of farmers, factory workers, and other young people for whom school television gives a whole new orientation.

In 1969, with the introduction of the Educational Service, NHK expanded its televised school broadcasts over a second station. By April of 1969, NHK was transmitting 117 programs, amounting to 36 hours and 30 minutes a week, via television to schools.

Production of educational television programs is undertaken by the Local Advisory Committees on School Broadcasting, which is comprised of officials of the Education Ministry and other experienced educators. Programs range from English to the Arts and are aimed at five different groups: nursery schools, first and second grades of primary schools, third grades of primary schools, fourth and fifth grades of primary schools, and middle school (ages 12 to 14). In addition, the directors of Japanese educational television plan to further expand their programs to all levels of education.

School programs broadcast Monday through Saturday from 9:00 A.M. to 12:30 P.M. and from 1:00 P.M. to 3:40 P.M. in a sequence of 15 or 20 or 30 minutes to 60 minutes. Programs in individual subject areas or for different age levels are generally grouped in a series and broadcasted once in the late afternoon. Programs geared for nursery schools, such as "I Want to Go," "Puppet Theater," and "Friendly Rhythmn," seek to stimulate the creativeness and awareness of the child while programs for higher grade levels maintain a more strictly didactic purpose.

Planning for these programs is based on the analysis of reports from selected schools and results of surveys conducted by NHK; in addition to suggestions offered by teachers at NHK-sponsored meetings throughout Japan. It takes approximately a year from the time of inception of an idea to begin production of the program.

The Japanese Broadcasting Corporation provides not only school broadcasting but correspondence school broadcasting and in-service education for teachers as well. In the correspondence system, NHK televises its lessons. The main disadvantage in this type of system is the lack of interaction between student and teacher; which, as a result, may instill a feeling of isolation on the part of the student. Nevertheless, the NHK correspondence system turn out a large number of qualified graduates each year. After World War II, the requalification of teachers living in remote areas facilitated by NHK televising of in-service education programs for teachers. Today, this nationwide service keeps both teachers and parents abreast of current events. Although these programs are not numerous, the quality is excellent.

Thus, by utilizing the airways to present quality educational programs for its public, NHK has become the world's leading educational broadcasting system.

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2—2 Ayodo—cho, Oyodo—Ku
Osaka, Japan
President, T. Susuki

Asahi Television News (ATENE)
55 Zaimo—ku—cho, Asako, Uhuato—ku
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President, H. Okawa

Fuji Telecasting Company, Ltd.
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Tokyo, 162, Japan
President, Nobutaka Shikanai

Kyodo Television News
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Shinjuku—ku
Tokyo, Japan
Chairman, R. Nozawa

National Association of Commercial Broadcasters in Japan
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3, Kioi—cho, Chiyoda—ku
Tokyo, Japan
Saburu Sakai

NET Television Network Company, Ltd.
4—10, 6 chome Roppangi, Minato—ku
Tokyo, Japan
Chairman, Yashio Akao

Nippon Broadcasting System, Inc.
7, 1—chome, Yuraku—cho
Chiyoda—ku
Tokyo, Japan
Aki Kamebuchi

Nippon Hoso Kyokai
2—3, Uchisaiwai—cho, 2 chome
Chiyoda—ku
Tokyo 100, Japan
President, Hoshinori Maeda
Deputy Director, Yoshisada Ichinomiya
Educational Programs, Shunji Mitsui
Director, International Cooperation, Hiroshi Sakamoto

REPUBLIC OF KOREA

The Korean peninsula in northeast Asia is a mountainous land which stretches from north to south and is surrounded by approximately 3,300 adjacent islands. It divides the Yellow Sea from the Sea of Japan, and is separated from Japan to the south by the Tsushima Straits. The northern boundary runs along the Yalu River, the Tuman River and Mount Paiktu. Because it forms a bridge of land between the islands to the south and mainland China to the north, the Korean peninsula has long been a communication route.

After World Warr II Korea was divided at the 38th parallel, and in 1948 the southern portion, roughly the size of Hungary or Guatemala, became the "Republic of Korea."

Topography: The Korean peninsula is covered with low mountains averaging 1,591 feet in height, and only twenty percent of the total area is flat land. From Mount Kaektu at the northern border, a backbone of mountains known as the "Taeback Range" run southward along the east coast. Its lateral branches and spurs extend in a southwesterly direction. The range swerves to the west and dips below the sea to emerge at its southernmost limit, forming the island of Cheju, about 49.6 miles due south of the mainland. Since most of the mountains are in the east and north, the plains as well as the large rivers are for the most part in the south and west. The Yalu and Tuman rivers, which form the boundary between Korea and Manchuria, exceed 248 miles. These, plus the Taedong, Han and Kum Rivers in the west, and the Kaktong River in the south constitute the six main rivers of the country. They are all navigable.

Administrative Division: The peninsula was originally divided into fourteen provinces. The Republic of Korea is divided into nine provinces, with two major cities, Seoul and Pusan. These two cities have the same status as a province. The provinces are divided into cities and Kuns (counties). There are at present 140 Kuns and thirty cities in the Republic of Korea.

Language: Until the Fifteenth Century, Koreans wrote exclusively in Chinese characters. In 1443, a group of scholars under King Sejong of the Yi Dynasty invented a phonetic alphabet called Hangul. It has been in use since then. Hangul alphabet consists of 17 consonants and 11 vowels which represent the phonemes of the Korean language. The order of words in a Korean clause or sentence is subject--object--verb; qualifying elements precede the objects qualified; dependent clauses precede independent clauses. Generally, the Korean language abounds in words and phrases which express the emotions and sense experience. It is short on words pertaining to abstract reasoning and Western logic.

Population: The population of Korea as a whole in 1970 has been estimated at just over 45 million, with 31.5 million living in the Republic of Korea. The population distribution in the Republic of Korea shows the greatest concentration in the south-western plains and southern coastal area. This has resulted primarily from the nation's dependence on agriculture and fisheries for its livelihood. However, as a result of the nation's industrialization in recent years, a considerable change has taken place in population distribution. According to a 1970 Population Census, less than 65 percent of the Republic of Korea's total population lives in rural areas, this compares with 75 percent in 1960. Urban population swelled to nearly 40 percent in 1970 as contrasted with an urban population of 33.6 percent in 1966. During the past four years, the population of Seoul has increased from 3.78 million to 5.5 million, a 45 percent gain over 1966. Pusan's population has grown by 450,000. It is now 1.87 million strong, 31 percent more than in 1966. These figures show a rapid expansion in the urban areas, a trend expected to continue for some time.

Radio: Radio broadcasting in Korea began in February of 1927, before its division and while it was under Japanese colonial rule. The Government owned "Korea Broadcasting

System" (KBS) was the only radio network in the country until 1954, at which time the privately owned Christian Broadcasting System, the Munhwa Broadcasting Company (MBC), was established in the Republic of Korea. Since then a total of 29 private commercial broadcasting stations have been established. As of July 1, 1972 the Republic of Korea has 54 AM radio stations, six FM stations and 26 relay or transmission stations. In addition, there are special broadcasting systems in Korea such as the Voice of UNC (United Nations Command) with three stations and AFKN (American Forces Korea Network) with 19 AM stations and two FM stations.

A 1972 estimate of the number of radio receivers in the Republic of Korea indicates three million, with 605,937 sets in Seoul. These statistics are from a Republic of Korea Government annual report, and compare with the figure of 2,024,649 receivers as indicated by an official survey of the Government's Culture and Information Ministry in 1968.

Government Owned Radio Network: At the end of World War II in 1945, the Japanese-controlled radio stations in the area now comprising the Republic of Korea were transferred to the Department of Public Information of the United States Military Government. Programming and the other practical phases of broadcasting were done by the United States Military advisors. With the establishment of the Republic of Korea in 1948, Koreans took over and founded the official Korea Broadcasting System (KBS) under the governance of the Ministry of Public Information. Since then there has been a slow and gradual increase in entertainment, educational and information programming and a systematic attempt to survey the audience of listeners. Prior to the Korean War, KBS was the only Korean radio network. It had seven local stations. There were 35,000 radio sets registered officially in 1948 and 643,000 radio set in 1961. During the Korean War (1950-1953), the major facilities of KBS (except those in the southern perimeter around Pusan) were destroyed. Most of the damage was repaired by 1955. Today, KBS has 20 local stations, over 25 relay stations, and over 14 transmission stations throughout the Republic of Korea, and it operates a second national Network for educational purposes and an International Network for International services.

The broadcasting hours of KBS (exclusive of its second educational network) totals 154 hours per week, with 16 percent of its air time devoted to news and commentary, 40 percent to educational and cultural programs, 25 percent to entertainment and 19 percent to a variety of other areas. The KBS educational network broadcasts 124 hours per week, devoting its time to educational and informational programs, Government public relations, agricultural programs, religious programs, classical music, and anti-Communist programs. The KBS international network, the Voice of Free Korea, broadcasts 19 hours per week in seven languages including English, Japanese and Chinese.

KBS covers virtually the entire nation. It has yielded favorable results especially in rural areas by presenting national or regional welfare programs and by reporting on rural situations in addition to providing good entertainment. However, in urban areas since the 1960's KBS subjects itself to certain restrictions in attaining its end which is to promote the enhancement of Korean education and interest in the national and regional development of the Country.

Private Owned Radio: The Christian Broadcasting System (CBS), the first private radio network in Korea, was established in 1954 and has been operated on a non-profit basis by the Korean National Christian Council, representing most of the Protestant Churches and Missions in Korea. It has five affiliated broadcasting stations. CBS broadcasts 124 hours per week, with 13.8 percent of its air time devoted to entertainment, 6.5 percent to religion and 59.1 percent to classical music. It has carried educational programs for schools since 1968.

Since the Munhwa Broadcasting Station in Pusan was established in 1959, the Republic of Korea has had a true "network" system in radio broadcasting. Today, the Munhwa

Broadcasting Company has a total of 19 local and affiliated stations. Other commercial stations, such as the Dong A Broadcasting System and the Tongyang Broadcasting Company have wanted to expand their facilities and network systems, but have failed to secure Government authorization. DBS covers only Seoul and its vicinity, while TBC covers Seoul and, with a relay station, Kunsan. These two commercial stations have been considered prime critics of Government policies--the stations are owned by private newspapers. Commercial radio stations are attracting increasingly larger audiences with good entertainment programs which are sponsored by local business concerns. At the same time these commercial stations are to a degree subject to the Government's Culture and Public Information Ministry; by law the Government has a certain portion of air time available to itself, and the stations must devote at least five percent of their air time to anti-Communist programming.

Generally, the radio broadcasting system in Korea follows the pattern of Japan in its structure and organization. In programming, however, drama predominates with almost thirty percent of the air time, while news covers about 15 percent. With the advent of television, radio has undergone some changes in its programming, with an increase of emphasis on informational and musical broadcasting.

Television: Television broadcasting began in 1956 with the opening of a commercial station in Seoul, which a fire permanently destroyed in 1959. The KBS-TV station was established in December of 1961 and became the first full scale television station in the country. TBC-TV, a new commercial station was founded in 1964, and the Munwha Broadcasting Company inaugurated a second commercial station, MBC-TV, in August of 1969. MBC-TV now has affiliated stations throughout the nation. As of 1972, 16 television stations are in operation in addition to KBS's 11 transmission stations. Besides the Korean television systems, a United States Army network, AFKN-TV which is authorized to collect sets officially registered with KBS-TV which is authorized to collect fees from television set owners. More than 70 percent of the television receivers are concentrated in major cities such as Seoul and Pusan.

KBS-TV: Starting with a single television station in 1961, KBS-TV now has its key station in Seoul and, spread out over the Country, it has 17 local stations, 25 relay stations and 14 transmission stations. KBS-TV, as well as the KBS radio network, is operated under the Ministry of Culture and Public Information, and is financed by a 92 cent per month compulsory fee which is charged to owners of registered sets. The air time of KBS-TV totals 126 hours per week and consists of 15.8 percent devoted to news, 24.19 percent ot education, 34.41 percent ot entertainment and 24.89 percent to various other areas.

Private Owned TV Stations: Since its opening in December of 1964, TBC-TV has played a major competitive role against KBS-TV. TBC's programs consist of 11.7 percent devoted to news, 62.6 percent ot entertainment, 19.6 percent to commercials and 6.1 percent to various other areas. MBC-TV, the other commercial television system, has since its beginning in May, 1969 followed the same program format as TBC.

Since 1969, the television industry in the Republic of Korea has been characterized by furious competition. This has in certain respects resulted in a deterioration of programming standards. Melodramatic programming dominates the air and has produced fierce competition for talent. As a result, while the market for professional talent has expanded, the availability and quality has not had a parallel increase. Korean television imports about 10 percent of its programming from abroad, and most of this is from the United States. Such imported programming is dubbed into the Korean language.

Advertising on television has grown to the point where it dwarfs all other kind of advertising, except advertising in newspapers. Commercials have become tiresome to the Korean public. On this basis, the Government is considering a bill which would apply certain standards to both programs and commercials.

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Director, H. S. Lee

Christian Broadcasting System
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Ministry of Culture and Information
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DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

The Democratic People's Republic of Korea occupies the northern half of the Korean peninsula which extends southward from the northwestern rim of the Asian mainland to approximately the 38th parallel. Its capital and largest city is P'Yongang, located in the central part of the Country. The Democratic People's Republic of Korea is located due west of Japan and shares the peninsula with the Republic of Korea to the south; it is bordered by the Sea of Japan to the east, the Yellow Sea to the west and mainland China's Manchurian provinces to the north.

The division of the northern and southern halves of the Korean peninsula dates back to the end of World War II when Russia, occupying the north, and the United States, occupying the south, controlled their respective sectors in order to disarm the Japanese. Both of these major powers developed strong ideological, political and economic ties with the peoples living in the respective sectors which they controlled; these ties have rendered major ideological, political and economic influence. Largely because of this influence, the "two Koreas" have emerged through their war in the 1950's, a recovery period and the beginnings of stabilization in the 1969's and into the 1970's as Countries which sharply differ in their ideology, political structure and economic policy.

The deep roots of Korean culture, however, testify to a basic unity among the Koreans of both the north and south. Despite bitter division, the Koreans have a pride in their antiquity and continuity which date back to pre-Christian times. Historically, Korea was influenced more by the Chinese, whom they view as benefactors, than by the intruding Japanese. Anti-Japanese sentiment in Korea is very high due to the brutal treatment of the Korean people by the Japanese during their occupation of the peninsula in the early 1900's.

The Democratic People's Republic of Korea is oriented toward industry (about 63 percent of the GNP) due to Soviet influence; agriculture, once a major way of life (59 percent in 1946), has been reduced to a minor position (about 19 percent). It exports mainly metals and other mineral resources, but it also exports fish, rice, fruit and tobacco. Imports include machinery, industrial raw materials and wheat

Population: There are approximately 15.5 million people living in the Democratic People's Republic of Korea, almost all indigenous Koreans speaking and writing their own native language. The annual growth rate of the population has been about 3 percent, and the population density is an expanding 258 per square mile. About 59 percent of the population is concentrated in the western coastal plans with 44 percent of the total population being less than 15 years of age.

Topography: North Korea is 80 percent mountainous and 20 percent plains and lowlands. Major mountain ranges are in the northcentral and northwestern sections and along the eastern coast. The highest peak, Mount Paektu, is about 9,000 feet. Important, navigable rivers are the Yalu and the Taedong. Sea Ports are ice free.

Radio: Radio is a dominant medium of communication in this Country, particularly in non-literate, remote areas. The Government has been trying to extend a wired service broadcasting system to every village and home. At one time the Central Broadcasting Committee of the Government operated a network of ten radio stations and relay stations, but this system was destroyed during the Korean conflict. In 1955, with the help of the Soviets, a major station was constructed in P'Yongyang; its transmitter strength was 300 kilowatts. It is estimated now (1972) that there are approximately 67 government controlled stations in the Democratic People's Republic of Korea, serviced by at least eight transmitters (some capable of broadcasting on multiple frequencies). There is at least one transmitter in each of the following locations: P'Yongyang (in the central part of the Country), Hyesan (northeast) and Wonsan (southeast). It is also estimated that there are

over one million "wired" receivers in the Democratic People's Republic of Korea due to a strong Government campaign to place a receiver in every house; rates for the use of these receivers are deducted from the resident's wages. 98 percent of the rural communities are reported to have receiving facilities. The dials of the receivers are permanently fixed to the P'Yongyang station with the exception of those owned by a few privileged elite.

One factory in the Country, the Namp'o Communication Machines Factory, has been known to be producing wireless radio receivers with additional sets being imported from other Communist countries and Japan. The number of wireless sets has been estimated at 600,000. The Korean Central Broadcasting Committee of the Government of the Democratic People's Republic of Korea operates domestic and foreign broadcasting services out of P'Yongyang. The domestic service includes two programs which are on the air throughout the day with twenty daily news bulletins ranging from five to thirty minutes each. Two such broadcasts per day have been intended for workers. In addition, a special news and feature program has been transmitted for listeners in South Korea. This programming includes music, drama, literary recitations and light entertainment. Programming is laden with analyses of international affairs, diatribes against the Republic of Korea, and the glorification of Premier Kim Il-Sung and the Communist Party. The foreign service broadcasts on shortwave for about three and one half hours daily in Korean, Chinese, Japanese, Spanish, Russian, French, Arabic and English. Numerous programs are exchanged with the Soviet Union, China and other East European and Asian countries.

Television: In July of 1961 P'Yongyang and Moscow signed a scientific and technical cooperation agreement to include the development of television for the Democratic People's Republic of Korea. With Soviet assistance, television supposedly began to be used in 1963, on an experimental basis. Technicians were sent to the Soviet Union and Japan for advanced training. It is reported that a television transmission tower was under construction in 1967 in the northern suburbs of P'Yongyang, for a few hours on one or two evenings each week. A plan to build a television transmitter in Kaesong in 1964 was apparently abandoned because of financial and technical difficulties. A 1972 United States Government publication indicates that two stations are now broadcasting from P'Yongyang with one relay at Haeju. Their signals have a 625 line scanning system at 25 frames per second and they are transmitted on an 8,000 kilohertz band width. A 1968 estimate indicates 2,000 to 3,000 sets in use, mainly in the possession of the Communist Party elite. Most sets are from Japan, and there are recent reports that sets are being sold in P'Yongyang. Native production of television sets is expected to reach 100,000 by 1976. Information concerning programming on the system now in use is not available.

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DIRECTORY

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P'yongyang,
Democratic People's Republic of Korea

LAOS

Radiodiffusion Nationale Lao in Vientiane is a government owned operation. It broadcasts in Lao, French and Vietnamese. In 1967, RNL operated a total of six radio transmitters, with a total of 24Kw of power. It consists of one national station in Vientiane, and two regional stations in the provinces. In 1960, there were an estimated 20,000 radio receivers in Laos, or 11 for every 1,000 people.

La Voix De Pathet Lao is also based in Vientiane, with two regional stations in the north. It broadcasts in Lao, French and Vietnamese.

There is no television service in Laos.

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Administrative Chairman, S. Phimmavong
Technical Director, S. Southihong
Program Director, O. Souvannavong

La Voix De Pathet Lao
% l'Office Representatif du Front Patriotique Lao
Vientiane, Laos

MACAO

Also spelled Macau, this Portuguese overseas province on the south shore of the Si Kiang delta is at the Southwest entrance of the Pearl (or Canton) River, 40 miles west of Hong Kong and 65 miles south of Canton. The colony, six square miles in area, consists of the peninsula of Macao and two smaller islands, Taipa and Colone.

The small colony has a climate that is tropical and moist, with an average rainfall of sixty inches annually. The inhabitants are mostly Chinese (or other Orientals) with small groups of Portuguese and other Europeans, half-castes, Negroes, and Indians. The Sino-Portuguese dialect prevails. Macao is divided into two wards, one Chinese and the other non-Chinese, each with separate administrations.

The commercially strategic value of the city's location is enhanced by its status as a free port, which has made it one of the chief strategic points for southern China. Recent developments have secured Macao's role as a mediator between mainland resources and the relatively cheap labor supplied by its native inhabitants.

The population of this tiny area boasts but one station, the Emissora de Radio Fusao (1200 KC), and is a government controlled station, relying heavily on its home affiliation in Lisbon, Portugal. Much of its programming orginates in its mother country, and is less creative and outgoing than its counterpart, the Emissora Villa Verde which is privately owned in conjunction with commercial interests.

Emissora Villa Verde broadcasts from two medium transmitters of $1k^{W}$, and $3k^{W}$, respectively. Programs are in Portuguese and Chinese and include news bulletins in both languages. Revenue is entirely derived from commercial advertising.

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DIRECTORY

Emissora de Radiodifucao de Macau
Macao
Director, Luis Gonzaga Gomes

Emissora Villa Verde
Rua Francisco Xavier Pereira 123
Macao
Director, Ho Yiu

MALAYSIA FEDERATION

Radio Malaya was established in April, 1946, as a Pan Malayan body administered from Singapore. Now known as Radio Malaysia, it is still government owned and has a staff of over 1,000 with headquarters in Kuala Lumpur, capital Malaysia. There are also nine regional stations throughout the country. Fourteen shortwave and twenty-one medium-wave transmitters operate in various centers of the country, and are linked by microwave circuits. Two medium-wave 10 kw transmitters relay programs from the Malay English services originating in Kuala Lumpur. The transmitters range from 5 to 100 kw, and Radio Malaysia is planning to install a shortwave 250 kw transmitter for overseas broadcasting.

Radio Malaysia is on the air for a total of 301 hours a week. Over its Home Service, broadcasts are conducted in four langauges. Malay is spoken for 97 hours, English for 78½ hours, four Chinese dialects are spoken for 79 hours, and Tamil for 46½ hours. The Overseas Service, "Suara Malaysia," broadcasts in Indonesian, English and Mandarin. Suara Malaysia will eventually use other Afro-Asian languages to project Malaysia's image abroad.

Radio broadcasting in Malaysia has always been used to strengthen the unity of the multiracial population of the country. Programming is divided among entertainment (68.5%), educational broadcasts (7.3%), and news and information (24.2%). The newsroom produces fifty-four news bulletins and news summaries a day, representing 3½ hours of news programming daily, along with talks and commentary. In addition, programs for schools are regularly transmitted.

Like Radio Malaysia, the Malaysian Television Service is government owned, and operates under the Ministry of Information and Broadcasting. Although headed by the same Director-General, radio and television are separate departments under the Ministry. They have their own personnel and program output.

Television was inaugurated on December 8, 1963, by a team of Colombo Plan advisers from Canada. They assisted in the implementation of the service and the training of the staff. Other experts, including one from the United Nations also gave their services for limited periods. Television in Malaysia began with only one channel covering a radius of 50 miles around Kuala Lumpur. Since then relay stations have been established covering almost two-thirds of West Malaysia. Early in 1971, a pilot service was introduced in Sabah, and steps are being taken to extend service to other parts of Malaysia, including Sarawak.

Like radio, television broadcasts are in four languages: Malay, English, Mandarin, and Tamil. Malay, however, is now the sole official language in the nation, and in an attempt to popularize it, all opening and closing announcements are spoken in Malay. Television Malaysia is on the air for six hours a day from 5:45 p.m. to midnight, with additional periods of about three hours in the afternoon on Thursdays, Fridays, Saturdays and Sundays. The television media, like radio, fulfills three important roles in Malaysia: to inform, educate and entertain. Six newscasts are presented daily, and special programs on film are prepared and produced by the news division. Experimental projects on Educational TV were successfully concluded, the first for a week in 1965, and the second from September to October in 1967. There are television receivers in many schools as a result of these "Schools Broadcasting" programs by the Ministry of Education.

Malaysia is rapidly expanding in the area of television. Present facilities have not proven adequate for the expanding needs for mass media, since Malaysia's population growth is one of the highest in the world. A second channel with separate programs was introduced in 1971, and new studios are being equipped with more television cameras, telecine chains, video tape recorders, mobile video tape recorders, telerecorders, light dimming apparatus and film processing machines.

Radio and television have developed so greatly in recent years that the average urban family now owns one or both kinds of receivers, while in rural areas, radio receivers are more common because they cost less.

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Radio Malaysia
Department of Broadcasting
P. O. Box 1074
Kuala Lumpur

Malaysian Television Service
Department of Television
Ankasapuri
Kuala Lumpur

BBC Far Eastern Station
P. O. Box 416
Johore Bahru, Malaysia

Department of Broadcasting
P. O. Box 1016
Kotakinabalu, West Malaysia

Rediffusion (Malaya) Ltd.
P. O. Box 570
Kuala Lumpur, Malaysia
Managing Director, J. S. Snowden

Talivishen Maylasia
Lembah Pantai
Kuala Lumpur, W. Malaysia

MEXICO

Most of Mexican radio is privately owned and commercially operated. There are two concentrations of radio transmission, one around the capital, Mexico City, where about one-third of all receiving sets are located, and another near the United States border. Stations outside these two regions are generally low power local operations.

All communications, including radio and television licensing, are supervised by the Ministry of Communications but actual government ownership of the broadcasting facilities is minimal.

Since its introduction in the 1920's, radio popularity has continued to grow. In 1950, there were 250 transmitters; 377 in 1960; 395 in 1964; and today there are 528. Among a population of 48,313,438 there are 10,932,000 receivers, or 230 per 1000 persons.

Although television broadcasting officially began in 1950, with the opening station XH-TV in Mexico City, preliminary experimentation commenced as early as 1933. Like radio, television stations are privately owned and operated commercially, except one educational station, Channel 11, transmitted from Mexico City. The two major networks, Telesistema Mexicana (TSM) and Television Independiente de Mexico (TIM) combined in December of 1972 to form Telemexicana, S.A. Together they virtually control all of the country's 70 outlets.

Programming covers a variety of interests, including music, news, sports, feature films, imported programs, and the extremely popular telenovelas. The telenovela, which is viewed throughout Central and South America, is a low budget soap opera, generally about impoverished country girls who find wealth and happiness in a large city.

There are 23 other commercial TV operations, including a CATV (cable) station in Mexico City. There are 2,500,000 black and white and 175,000 color receivers for a total of 185 sets per 1000 persons. Color transmission began in 1971 with satellite coverage of an art auction.

Educational Broadcasting: Mexico's primary vehicle of educational broadcasting is the *Alphabetizacion* project established in 1965 by the federal government. National in its range, it employs both radio and television to raise the country's literacy rate. The General Administration of Audiovisual Education, a department of the Secretary of Public Education, supervises the productions and the accompanying printed workbooks, entitled *I Can Do It*. The free 172-page books are step-by-step guides to learning reading and writing with the aid of radio and television. They consist of 80 lessons of two pages each, which teach one letter of the alphabet per lesson until the entire alphabet is learned. From that point, letter combinations and complete sentences are taught.

In the radio course there are 125 lessons during a six month period. The format is designed to maintain interest and attention by beginning each broadcast with a musical fanfare and dramatic introduction. Music is included during the period students are expected to be practicing in their workbooks. Sound effects and teachers of both sexes add to the variety.

The television course lasts only four months due to the advantage of visual communication. In some communities groups of students gather around a television receiver and a teacher is there to assist them personally.

Although most radio and television stations are commercially operated, the government does not pay for *Alphabetizacion*. Article 59 of the *Federal Law of Radio and Television* requires stations to provide free of charge 30 minutes of broadcast time to the government. The time may be used for cultural, educational, or social programming. Some of the free time is also used for advertising the series.

Federal Law of Radio and Television: The Federal Law of Radio and Television was established on January 16, 1960. It states that "all electromagnetic waves are part of the public domain, inalienable, and may be used only under concessions or permits granted by the federal government."

Broadcast programs must fulfill the following requirements according to the ruling: 1) provide programs that enhance respect for moral principles, human dignity, and family ties; 2) avoid programs that interfere with the healthy growth of children; 3) seek to raise the cultural level of the people, preserve their customs, traditions, and characteristics, and enrich the values of Mexican nationality; 4) strengthen democratic beliefs, national unity, and international cooperation and friendship.

Compiled by:
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Vladimir, Andrew. "Mexican Media Mix." *Media in Decisions*, July, 1967, p. 14.

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DIRECTORY

Radio Cadena Nacional
Vallarta I, 6° piso
Mexico City
Director General. R. Cutberto Navarro

Radio Programs de Mexico
Reforma 322, 4° piso
Mexico City
President, C. Serna Martinez

Fomento de Radio S.A. (Radio Mil)
Insurgentes Sur 1870
Mexico City
Director General, E. G. Salas

Radio 6.20
Balderas 32, 4° piso
Mexico I, D. F.
Director General, V. Blanco R.

Telesistema Mexicana, S.A.
Edificio Televicentro
Avenida Chapultepec 18
Mexico City
(From *Variety*, April 12, 1972, p. 81).
Director General, Emilio Azcarranga
Vice-President, Romulo O'Farrell, Jr.
News Director, Miguel Aleman Velasco

Television Independiente de Mexico, S.A.
Apdo 1833,
Monterrey, Mexico
(*Variety*, April 12, 1972, p. 81).
Manager, Alfredo M. Urdal
Sales Manager, Hugo Patrico Bremer
News Director, Miguel Garza Salinas
Marketing Head, Ruben Medina

Corporacion Mexicana de Radio y Television
Torre Latino Americana Madero 1
Mexico 1, D. F., Mexico
General Director, Antonio Menedez

Cadena Televisora del Norte
Espinosa Pte 780
Monterrey, N. L. Mexico
Director General, J. R. Garza y G.

BROADCASTING IN NAURU

The Republic of Nauru, an 8½-square mile island 1700 miles northeast of Australia, supports one radio station providing news (mostly from Australia), entertainment and education to the island's 6,000 inhabitants. It is estimated that there is at least one radio per household.

Radio Nauru, operated by the Nauru Broadcasting Service, was established in August, 1968, just six months after Nauru became an independent republic. Prior to the station's establishment, the only radio broadcasts reaching the island, whose nearest island neighbor is nearly 200 miles away, were interference-prone shortwave programs; according to one description, Naurans relied on phonographs and tape recorders for recorded entertainment material and one eight-to-ten-day old newspapers for general news. (Nauru has, of course, been linked by shortwave radio to other islands for point-to-point communications for many years). Preliminary planning for the broadcasting station was undertaken in 1965 by an engineer from the Australian Broadcasting Commission, since the island was, at that time, still jointly administered by Australia, Britain and New Zealand.

Nauru is a member of the International Telecommunications Union, but not a member of the United Nations.

The island of Nauru is virtually one solid mass of valuable phosphate, used in the manufacture of fertilizers; the revenue from the mining and exportation of the deposits has made Nauru the wealthiest republic, in terms of per capita income, in the world. Exploitation of the phosphate began at the turn of the century, with the island under German control; later administrators were Britain, Japan (during World War II), and Australia-Britain-New Zealand, until now-President Hammer DeRoburt successfully argued his country's freedom.

The population of Nauru is approximately one-half Naururan, one-sixth Chinese, and the rest from Australia, New Zealand and other Pacific Islands.

	STATIONS	SETS	SETS/1000 Pop
RADIO	1 (1972)	2000 (1972 est.)	350

Compiled by:
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Viviani, Nancy. Nauru. Honolulu: University of Hawaii Press, 1970.

DIRECTORY

Broadcasting Services
Republic of Nauru
Nauru Island
Central Pacific (via Majuro 96960)
Manager, Mr. Des Telfer

BROADCASTING IN NEPAL

Nepal, an independent country of about 9.5 million people, covers about 54,000 square miles (about the size of our state of Illinois, for comparison). It is bordered by Tibet on the north, by Sikkim on the east, and by India to the east, south and west, and its territory lies entirely in the Himalayas. This mountainous terrain has been divided into three levels:

1. Terai — the level country at the foot of the mountains.
2. Central Mountainous Belt — varying in altitude from 1,000 to 8,000 feet.
3. Alpine Zone — consisting of the higher slopes and valleys of the main Himalayan range, which contain some of the highest mountains in the world — Everest (29,028 ft.), Kangchenjunga (28,168 ft.), Makulu (27,790 ft.).

The mountainous nature of its terrain makes agriculture difficult. A substantial rice industry exists, but the growth of new industries is hindered by the lack of communications within the country.

Radio broadcasting is totally controlled by the government; Radio Nepal, the country's single broadcasting station is under complete supervision of the Department of Broadcasting in the Ministry of Panchayat Affairs. Panchayat is the term used for the council in Nepal's Panchayat or council form of government. Four tiers of panchayat exist: the village assembly panchayat (lowest tier) up to the national panchayat or legislature which is in charge of broadcasting. Radio Nepal has two transmitters, one of 5,000 watts and another of 250 watts. With the installation of the 5,000 watt transmitter, a gift from the Australian government in 1959, Radio Nepal's broadcasts can now be heard over all of Nepal and parts of India.

The people are composed of Brahmans, Chhertis, and Magars, with Hindu background, and the Gurungs and Tamanys with a Buddhist background. Nepali, a Sanskrit derivative, is the national language, but many of the subgroups of the population have their own distinct languages. Radio Nepal, located in the capital of Kathmandu, broadcasts in Nepali, Hindi, Newari, and English on both short and medium-wave frequencies.

The country's acute shortage of electricity imposes an operational handicap on the broadcasting system, though Nepal has vast potential for the production of hydroelectric power. A few small plants are located near Kathmandu, which provide electricity for the capital, and new power plant projects have recently been started in conjunction with India for the production of about 20,000 kws. each. This amount is, however, only a small fraction of the power that is available in Nepal, since ample water is found in every district. All areas of the country are subjected to monsoons, but the rainfall varies with the different altitudes. The Terai section has a sub-tropical climate with heavy rainfall, a hot summer, and pleasant winters. The central hills and alpine zones have a pleasant summer and a cold winter with snowfall. The present power shortage, it seems, was not a reason for the abandonment of the 1963 plans for another broadcasting station which would have provided television also. The Swiss firm which was to run the station as a commercial station, was planning to provide its own electrical power generator. Apparently, the two governments were unable to reach a mutually satisfactory agreement.

The Department of Broadcasting presently employs about 20 persons, mainly career civil servants, of which there are some highly trained specialists. Most of the principal officers of the department, however, have made trips abroad to observe broadcasting facilities in the USA, in the USSR, and other countries.

It is difficult to estimate the number of radio receivers in Nepal; compulsory registration of radio receivers, requiring the payment of an annual tax, hampers measurement. Many receivers are brought into the country by visitors, and remain uncounted.

It is difficult also, to estimate the number of people who are being reached by the broadcasts, as there are at least 25 major public listening centers in the larger towns. The number of registered radio receivers in proportion to the population is small but is growing rapidly. The National Association of Broadcasters (USA) reported 50,000 radio sets in Nepal in 1970.

Compiled by:
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Robert Reclite

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"Tibet-Nepal New Radio Link in Operation," *New York Times.* September 30, 1963, 43:3.

"TV Station Planned, Kathmandu Valley," *New York Times.* May 24, 1963, 6:5.

DIRECTORY

Department of Broadcasting
His Majesty's Government of Nepal
Kathmandu, Nepal
Director, B. P. Shah

Radio Nepal
Singha Dudar Compound
Kathmandu, Nepal
Director, Bhogya Prasad Shaha

NEW CALEDONIA

An overseas territory of France, New Caledonia is between 20° 8' and 22° 25' South Latitude and 164° and 167° 15' East Longitude. Its area, which includes the Mainland New Caledonia, the Loyalty Islands, the Isle of Pines, and small outliers, is 7,082 square miles with a population of 95,000 in 1967. Capital and largest city is Noumea on the Mainland.

The territory was discovered by England's Captain James Cook in 1774. He chose the name New Caledonia because its pine-clad ridges reminded him of Scotland. Missionaries arrived in 1840 and were occasional victims of cannabalism. France did not take formal possession until 1853. From 1864 to 1897, New Caledonia was a French penal colony chiefly for long-term political prisoners, particularly Socialists arrested after the Franco-German War. Headquarters was Ile Nou. The islands were used as a United States war base from 1942-45.

New Caledonia is administered by a governor appointed by France. He is also High Commissioner for France in the Pacific and as such, is responsible for French interests in the New Hebrides and for the territories of Wallis and Futana. There exists an elected Territorial Assembly of thirty-six members elected by a political party system of universal adult suffrage. A senator and a deputy are sent by New Caledonia to the French metropolitan parliament.

Chief industries are nickel mining and smelting, iron ore mining, and tourism. Air service from Europe, Australia, New Zealand, the United States, and other Pacific islands is available at Tantoula, 30 miles from Noumea. There is also internal air service as well as cargo vessels from Australia, Europe, the Far East, the United States, and other Pacific nations to Noumea.

Climate varies, having wet and dry areas. The Northeast coast is wetter and resembles other Pacific islands weather. There is irregular rainfall, especially in the southwest corner which is very dry. Near Noumea the average is 42 inches per year and up to 90 inches in the northern part of the main island.

Radio: Radio Noumea is a government station which programs daily in French. It had 15,000 listeners in 1967. Radio Noumea transmits on two, four-kilowatt transmitters and an eight kilowatt transmitter on frequencies of 1420 KHZ., 3355 KHZ., and 7170 KHZ. The station is operated by the National Office of Radiodiffusion.

Television: Radiodiffusion Television Francaise, Noumea, began in October of 1965. It broadcasts about 30 hours weekly on three channels to some 8,200 set owners (1970). Reception in Noumea is generally excellent, but extension of viewing to the rest of the islands was still in the planning stage in 1967.

Compiled by:
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UNESCO. *World Radio and Television*. Paris: UNESCO, 1965.

DIRECTORY

Radio Noumea
Office de Radiodiffusion-Television Francaise
B. P. 327
Noumea
Director, R. Lee Leizour

Tele Noumea
O.R.T.F.
B. P. 327
Noumea

NEW HEBRIDES

New Hebrides is a volcanic island group fifty miles west of Fiji in the western Pacific. There are eight islands with 5,790 square miles and about 78,000 people. The capital is Vila, on Efate island, and the main port is Port Sandwich on Malekula. New Hebrides was discovered by Pedro Fernandez de Quiros in 1606 and named by Captain James Cook in 1774. The islands were declared neutral by Great Britain and France in 1878 and a joint condominium government was ratified in 1906. New Hebrides is administered by British and French High Commissioners with equal authority stationed in Noumea, Honiara.

The New Hebrides British National Service Information Section was established in 1965 and became a Department in 1969 with the reorganization of the British administration along departmental lines. A Schedule (Administration) Officer handled information services until 1963 and a volunteer allowed the separation from schedule work in that year. The first full-time professional Information Officer was recruited in 1965 in order to establish the Information Section. The decision to establish a broadcasting service was made in 1965 and service, using recorded tapes, began in 1966. The British Information Department has a direct responsibility for the operation of the broadcast service and helps support and promote the work of the Joint Administration in all areas.

In 1971 progress was made in broadcasting in New Hebrides with the recruitment of a full-time (Volunteer) Broadcasting Officer (British staff). This increased in-service training for the New Hebridean broadcasting staff and helped to bring a more professional approach to production and program planning. Australia gave the Condominium a new 2kW transmitter which was operable at the end of 1971 and recommendations from a report on information and broadcasting in New Hebrides were implemented.

Radio service is transmitted by Radio Vila. It is a joint operation with responsibility shared by the British and French information services. It has progressed from recorded tapes played directly into a transmitter to live broadcasts from a small studio (1968) to having its own transmitter (1971). In 1971 Radio Vila broadcast weekdays from 11:30 to 12:30 and 5:15 to 6:30. The short hours were due to a borrowed transmitter and a shortage of staff members. Radio Vila broadcasts in French, English and Pidgin in approximately equal amounts. Programming emphasis is placed on local news with three new bulletins of ten minutes each in all regular broadcasts. There are also music programs (including Record Request), religious, farming and special programs. The staff of Radio Vila is composed of the Information staffs of the British and French National Services. Radio Vila hopes to begin pilot educational broadcasts in 1973.

An audience survey was made between May and July, 1971. Although returns were small (average of 25 percent per district), of those returned 96 percent said their receivers were working and the average number of listeners per set was about ten. The survey reported that 83 percent listened at noon while 94 percent listened in the evening. It was also reported that people listen to other stations and as many as 23 percent were tuned in after 10 P.M. Using the old ½kW transmitter 49 percent reported good reception at midday (42% fair) and 70 percent reported good reception in the evening (20% fair). News is passed on to other people by 93 percent of the listeners. It is estimated that there are 10,000 radio receivers in the Condominium. There is no television in New Hebrides.

Compiled by:
Meryl Maynard
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DIRECTORY

Radio Vila
New Hebrides Broadcasting Service
Vila, New Hebrides, Western Pacific
Broadcasting Officer, John McNeil

NEW ZEALAND

The development of broadcasting on a a Dominion-wide basis in New Zealand began on August 1, 1925, when the Radio Broadcasting Company of New Zealand agreed to establish and maintain an efficient broadcasting service. The company purchased existing stations in the four main centers: the newly acquired stations at Auckland, Christchurch, Dunedin, and Wellington began operations within the following year. By the end of 1931, the number of receiving licenses in the country had risen to 70,000.

Control of the broadcasting service has shifted several times since its beginning. With the expiration of the Radio Broadcasting Company's contract in January, 1932, the Broadcasting Act of 1931 gave administration of New Zealand's Broadcasting Board and vested control of the newly constituted National Broadcasting Service in a Minister of the Crown. Under this act, the Minister of Broadcasting was also granted power to establish and operate commercial radio stations broadcasting advertising matter. The Broadcasting Amendment Act of 1937 provided for the establishment of a National Commercial Broadcasting Service. However, Section 4 of the Statutes Amendment Act of 1943 abolished this separate agency, and both services were then combined under the Director of Broadcasting.

The Corporation which presently operates New Zealand's radio broadcasting service was established by the Broadcasting Corporation Act of 1961, which repealed all previous legislation. The Corporation membership of three was increased to seven by the Broadcasting Corporation Amendment Act of 1965. This act also extended the powers of the Corporation to permit assistance to performing art and cultural organizations.

In 1970, the number of radio licenses was estimated at 690,000. Forty-seven medium-wave broadcasting stations and two short-wave transmitters of Radio New Zealand (with 19 assigned frequencies) broadcast over New Zealand's total area of 103,736 square miles.

Several of the stations (Stations 2YA, 1Ya, 3YA, 4Ya, and 4YW) maintain a daily 24-hour service — with the exception of a weekly shutdown between the hours of 11:20 p.m. Sunday and 6:00 a.m. Monday (5:00 a.m., in the case of Station 2YA). Other stations broadcast anywhere from a minimum of 15 hours a week up to 129 hours a week.

Of the two short-wave transmitters employed by Radio New Zealand, each has a power of 7.50 kilowatts, and frequencies used are in the 6, 9, 11, and 15 megacycle bands. Frequencies are adjusted throughout the day as well as seasonally to give best reception in the target areas (15.28 and 11.78 megacycles being commonly used for daily transmission of the home service program, and the additional one of 6.08 megacycles being employed for transmissions to Australia and Antarctica). Broadcasting hours amount to approximately 15.30 hours daily to the Pacific Islands and 12.30 hours daily to Australia.

Programs from national non-commercial stations include: all types of music, plays, short stories, serials, sports commentaries and results, talks, documentaries, women's programs, children's programs of entertainment and education, news, and devotional programs. Even proceedings of the House of Representatives are broadcast (Station 2YA carrying the broadcast).

Commercial stations broadcast music, serials, variety and quiz programs, sports commentaries and results, children's and women's programs, news and other informational-type programs.

Service is financed from both radio license fees and the sale of advertising. Station 4XD, a medium-wave station, is privately owned and operates with the assistance of a subsidy from the Broadcasting Account. Twenty-eight of the remaining medium-wave stations broadcast advertising material. Advertising, however, is omitted on Sundays, Christmas Day and Good Friday.

The relatively high cost of establishing television in New Zealand was the main reason for the delay in providing the service. However, in August, 1958, the Postmaster-General and the Minister of Broadcasting jointly announced that, on a recommendation of the Inter-departmental Committee on Television (estalished in 1949) and with the advice of the New Zealand Radio and Television Manufacturers Federation, it had been decided to establish the 625 line system as the standard for any television service in New Zealand.

Channel 2 Auckland, which was originally opened in 1959 as an experimental television station, began its regular program service on June 1, 1960, with a weekly two-hour transmission. By November, 1960, the hours of telecasting had increased to two and a half each evening (Monday through Friday). On January 1, 1961, telecasting on seven nights a week began. Television stations commenced transmissions in Christchurch on June 1, 1961, Wellington on July 1, 1961, and in Dunedin on July 31, 1962.

Details of television broadcasting stations in operation at the four main centers are as follows:

TELEVISION STATIONS

Call Sign and Location	Frequency Vision — Sound	Hours of Transmission
AK TV-2, Auckland	55.25 60.75	65.0
WN TV-1, Wellington	45.25 50.75	65.0
CH TV-3, Christchurch	65.25 67.75	65.0
DN TV-2, Dunedin	55.25 60.75	65.0

The hours of telecasting are from 2 p.m. to 11 p.m. Monday through Thursday and on Sunday, and from 2 p.m. to midnight on Friday and Saturday. Advertising material is included on Tuesday, Wednesday, and Thursday from 2 p.m. till 11 p.m., and on Saturday from 2 p.m. till midnight.

A substantial portion of New Zealand's television programming consists of films purchased overseas. Nevertheless, all stations do attempt to utilize local news and talent as much as possible. An analysis of television programs for a week in September, 1967, showed that of the total hours then telecasted, 24 percent were devoted to news, talks, and informational-type programs, 9 percent to variety, 21 percent to drama, 13 percent to adventure and westerns, 5 percent to mystery and crime, 11 percent to children's programs, and 4 percent to sports.

The license fee for television is $13 a year, as compared to a $3 fee for a radio receiving station. In 1968 there were 74,062 sets covered by Hirers' Licenses. Total number of television sets registered is 634,200 (1971 International Television Almanac).

Though the establishment of a second channel or color television in New Zealand may not be possible for a few years yet, much of New Zealand's population of 2,820,814 already have access to television. By August, 1967, 74 percent of New Zealand's homes were equipped with television sets. It is likely that over 80 percent of homes are equipped with television sets today. Latest comparable figures for other countries are: the United States, 93 percent; Canada, 92 percent; Britain, 83 percent; and Australia, 64 percent.

The New Zealand Broadcasting Corporation is currently surveying for transmitter sites to extend coverage to all areas of New Zealand, which includes North Island, South Island,

Stewart Island, Catham Island, as well as the several minor outlying island groups in the Southwest Pacific. At present, eleven of these transmitters are in service, relaying the programs of the four metropolitan stations.

Compiled by:
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Stringer, G., et al. "The New Zealand Broadcasting Corporation," *EBU Review*, January, 1964, p. 18.

"New Zealand's TV Policies Draw Blast by Opposition Chief." *Advertising Age*, September 8, 1969, p. 78.

DIRECTORY

New Zealand Broadcasting Corporation
P. O. Box 98
Wellington, New Zealand
Director General, L. R. Sceats

Radio Hauraki, Ltd.
P. O. Box 1480
Auckland, New Zealand
General Manager, David Gapes

Radio i Ltd.
P. O. Box 8504
Auckland 3, New Zealand
Managing Director, B. M. L. Thomas

REPUBLIC OF NICARAGUA

Broadcasting stations in the Republic of Nicaragua are concentrated in or near the capital city of Managua, although radio broadcasts reach nearly all of the country's approximately two million citizens over its area of approximately 57,000 square miles. The mother tongue is Spanish although many members of upper and middle classes are familiar with English as well.

The majority of the radio and television stations are commercially operated under the regulation of the Jefatura del Radio Nacional. In the case of political broadcasts, this regulation has sometimes reached the point of armed intervention, although the guiding principle of the radio and televison codes is simply a limitation on excess in any direction.

Nicaragua's first radio station went on the air, with ceremony and celebration, on June 15, 1933 in Managua, the capital and largest city in the country. As has been the case in other countries, a rapid proliferation of broadcasting stations soon produced chaos on the airwaves. Within a year, complaints about stations failing to stay on their designated frequencies brought a pronouncement from the Ministry of Public Works that effective regulation of broadcasts would henceforth be in order. This was the first in a long series of laws and decrees aimed at defining the limits of broadcasting. That same year (1934), electoral laws were passed which would be later interpreted as prohibiting political speeches and propaganda on radio.

In 1936, Nicaragua's president, Carlos Brenes Jarquin, became the first chief executive to use radio as a means of speaking directly to the people. During November of that year, he discussed, on radio, the economic and health conditions of the country, and the agenda of the Pan-American peace congress.

A year later, Anastasio Somoza secured the presidency of Nicaragua and governed the country with a tight reign until his assassination in 1956, when the presidency passed to his son Luis. Somoza allowed little or no criticism of his activities in the print and broadcast press. His control was fairly complete, but not necessarily detrimental. A border dispute with Honduras had erupted in 1937 and, in an effort to find a peaceful solution, President Somoza instructed all radio stations, located in Managua, to cease mentioning the dispute, since broadcasts had tended to be inflamatory.

In order to bring Nicaragua into international broadcasting, Somoza, through the system of public works, initiated the establishment of a radio station powerful enough to reach both North and South America in 1937.

New regulations for radio were put into effect in 1940 which affected both broadcasters and the listeing public. Not only were stations required to have special permission to operate, but they were required to shut down at 10:00 p.m. and listeners were required to keep the volume on their sets low after 1:00 a.m. to prevent inconvenience for those who desired quiet at night.

Station owners, of course, practiced their own form of censorship and control; Luis Felipe Hidalgo, owner of a Managua radio station caused a slight stir in 1947 when he announced that he would no longer permit Communists to use his station.

Television began in Nicaragua in July, 1956, just a few months before the assassination of President Somoza. The station had its studio on the fourth floor of the Novedades newspaper building in Managua. Few people actually owned television sets, so the stations's management installed several sets in prominent places about the city in order to spark excitement and interest.

Luis Somoza Debayle, elected president soon after the death of his father, faced widespread civil unrest and street riots in the late fifties; consequently he imposed complete censorship of the press in 1958 and 1959. Control over radio and television broadcasts was

relaxed in January, 1960, but tightened again in July with the threat of new disorders. At that time, the Guardia Nacional, a combination police force-army responsible for the administration of the radio and television codes, occupied all broadcasting stations for nearly a month. In August, the president banned all political discussion on the air.

At the end of the year, President Somoza Debayle defended his actions to a delegation of foreign broadcasters, but he acknowledged that certain articles of the broadcasting code should be reconsidered. During 1961, the controls did slacken but the next year a radio/television censorship bill, considered more restrictive of news broadcasting than earlier measures, was the cause of a small riot in the Chamber of Deputies during a debate. The bill eventually passed, and in 1963, three Managua radio stations were penalized for anti-government broadcasts during the elections.

For the most part, radio stations tended either to favor the government, or, more likely, to refrain from any political commentary. For example, in 1960, of the dozen Managua stations, one kept primarily to religious programs, another dealt only in classical music, a third specialized i sports and popular music. The Somoza family controlled, directly or indirectly, several of the remaining radio stations and the television station.

The government did use its power for other than censorship measures, however. For example, a literacy campaign was launched on a national scale in 1964, using daily radio broadcasts in conjunction with texts printed by one of Managua's newspapers. Although improving slowly, the illiteracy rate is still lower than 50 percent.

A second television station was established in Managua in 1969 (the first station — YNSA-TV, Channel 6 — had set up a low power repeater transmitter in 1961 for Channel 8). Between the two stations, television programs are broadcast almost continually from noon until midnight; YNSA-TV is on from noon to 2:00 p.m. and from 5:00 to 11:30 p.m. daily, while YNTCN (Channel 4) operates from 3:30 p.m. to 9:30 p.m. daily.

Government control, synonymous with Somoza control, over Nicaragua's approximately 70 broadcasting stations (and over the country as a whole) has lessened over the years. President Anastasio Somoza Debayle, who eventually succeeded his brother Luis in directing the activity of the country, stepped down in May, 1972, in favor of a three-man governing board, to be replaced when the 1974 elections are held. The ex-president will, however, remain as head of the Guardia Nacional and thus maintain his voice in regulatory matters.

	STATIONS	SETS
RADIO	70 (1971 est.) (50 commercial)	150,000 (1970 est.)
TELEVISION	2 1 secondary	55,000 (1971 est.)
		Sets per 1,000 pop.
		100.8 (1970 est.)
		27.7 (1971 est.)

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"Silencing of Radio Stations Protested." *Hispanic American Report*, XIII, No. 8 (October, 1960), 515.

DIRECTORY

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Apartado 1505
Managua DN, Nicaragua
General Manager (1970), Rafael O. Cano

Telecandena Nicaraguense S.A.
YNSA-TV & YNTCN
Managua, Nicaragua

Direccion De La Radio Nacional Y Television
Apodo. 209
Managua, Nicaragua
Director General, A. Luna S.

Radiodifusora Nacional
Apodo. 1731
Managua, Nicaragua
Director General S. Ciseuvos Leiva

Televicentro de Nicaragua
YNTC-TV
Managua, Nicaragua
Director, O. Sacasa S.

OKINAWA

The Ryukyu Archipelago extends in a 650-mile arc along the coast of the Asian mainland between Japan on its north and Taiwan on its south. This chain of 140-odd islands divides the East China Sea from the Philippine Sea. Seventy-three of these islands, which extend for a distance of 374 miles, are under U.S. administration. Only 47 of the entire chain of islands are populated.

The largest island in the Ryukyu Archipelago is Okinawa, which is often considered the keystone of the Pacific. This U.S. administrated island holds a strategic position, for within a 600 mile radius of Okinawa lies the northernmost Philippine Island, all of Taiwan, the densely populated east coast of Red China, and Japan.

Okinawa has a population of 860,000 (1969). Its language and culture closely resemble that of the Japanese. Its communication systems are well-developed. Post office, radio and telegraph services are in use. There are approximately 14,000 civilian telephones, 189,000 television sets, and 314,600 radio sets.

There are eight radio stations in Okinawa; including the Voice of America, which relays broadcasts in English, Chinese, Russian, and Korean, and the Armed Forces Radio Service, which programs only in English for the U.S. servicemen on the island. The three commercial broadcasting companies, which operate a total of six stations, program in Japanese, English, and Chinese. A complete range of radio fare is available to Okinawans — from news and feature shows to entertainment and music.

Television is also commercial on Okinawa, and all programming is in Japanese except for the American Forces Television Service, which broadcasts in English. The Okinawa Public Broadcasting System operates three of the five commercial stations, as well as three relay stations which bring television to the smaller islands of the Ryukyu Chain.

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"Far Eastern Broadcasting. Protestant Missionary Company Builds 100 Kw Radio Trasmitter, Okinawa, Able to Reach All of China and Part of USSR." *New York Times*, August 24, 1959, p. 18.

DIRECTORY

Far East Broadcasting Company
P. O. Box 55
Naha, Okinawa
Director, A. Dale

Okinawa Hoso Kyokai
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Program Director, Yukinori Yoshida

Okinawa Television Broadcasting Co., Ltd.
Naha, Okinawa
Managing Director, N. Kameshima

Radio Okinawa Co., Ltd.
P. O. Box 405
Naha, Okinawa
President, Jugo Toma

Ryukyo Broadcasting Corporation
C. P. O. Box 4
Naha, Okinawa
President, Seitoku Zayasu

BROADCASTING IN PAKISTAN

The Islamic Republic of Pakistan, a member of the Commonwealth of Nations, is located in South Asia, and makes up the northwest segment of what is called the Indian subcontinent. Created in 1947, the short history of this independent muslim nation has been tumultuous Pakistan was formed as a separate state partitioned from India mainly as a result of years of religious differences; the partition itself created additional tensions which continue until the present time. The creation of a country whose two parts were separated by 1000 air miles, and 3000 miles by sea route, to say nothing of the differences in culture, economy, size, and climate, was the basis of continuing hostilities which reached a climax during the revolution of East Pakistan in 1971. East Pakistan became an independent country with the name of Bangla Desh. (See section on Bangla Desh).

West Pakistan with 310,000 square miles, is bounded by Iran, Afghanistan and India, and its territory includes mostly plains and mountain ranges. The population of the country is about 60 million (1969) the majority of whom are located around Karachi (more than 3 million), in the Indus valley, and along an arc formed by Lahore, Rawalpindi, and Peshawar. Approximately 90% of Pakistanis are of the Muslim religion.

Broadcasting — In 1947, at the time of the partition, three feeble medium wave stations of Radio Pakistan at Lahore (5 kw.) Peshawar (10 kw.) and Dacca (5 kw.) in what is now Bangla Desh, announced the birth of the new country. In 1948, the Karachi station began to broadcast and in 1949 a 10kw. medium wave transmitter was installed there as well as a 50 kw. short wave station. Since those modest beginnings, Radio Pakistan has come a long way toward its goal to furnish the whole country with medium range coverage. Its regional broadcasting stations now include Karachi, Hyderabad, Lahore, Rawalpindi, Quetta, and Peshawar, and the listening audience includes not only Pakistan but many listeners in foreign countries, as well. The third Five Year Plan to be completed in 1970, was to increase the number of broadcasting stations from (11 to 14 since 1965 and transmitters from 26 in 1965 to 36). Other Five Year Plan goals included: 10 kw. relaying station at Khairpur, a 1000 kw. medium wave station at Islamabad, and completion of new broadcasting houses at Islamabad and Peshawar.

Radio Pakistan broadcasts *news* in several languages including Urdu the official language, and English which is widely spoken and accepted even in the government, as well as Punjabi, Pushtu, Sindhi, and Baluchi. Radio Pakistan's new gathering is done through its own correspondents and through international agencies. An average of 20% of program time on all stations is devoted to news and information.

Radio Pakistan broadcasts about 10 hours every day including such programs as news, music, skits, features and plays, informative and educational items, and outside broadcast relays. Religious programs include recitation from the Quran, special features on religious occasions and other important days. Programs are also broadcast for special categories of listeners such as children, students, women, farmers, and the Armed Forces. Because of the diversity of languages, many of these specialized broadcasts such as the school programs, are made by individual regional stations rather than the central station programmer.

The broadcasting of *music* is given approximately half the total transmission time on Radio Pakistan. Commercial and film music is most popular, although there is a balance between classical, folk, and light music.

External Services of the Radio Pakistan broadcast to the UK, East and South-East Africa, and much of the Middle East and Southeast Asia. These external broadcasts are made from the Karachi station in 13 languages including Swahili, and via short wave transmission. Part of the services of Radio Pakistan provides for material on various aspects of Pakistan to be sent out to more than 80 different countries.

Since Radio Pakistan is wholly government owned, it receives its funds annually from the government which collects revenue from the license fees paid by radio owners. No commercial advertising was originally accepted but in 1961 Radio Pakistan started a commercial service to earn revenue by advertising commercial products.

Future plans for radio broadcasting have cited 1970 as the time when Radio Pakistan hoped to have 70% of its area and 90% of the population within reach.

The beginning of *television in Pakistan* was quite recent, as the government made the decision to try it only in 1963. At first two experimental stations were opened at Lahore in November, 1964, and Dacca (in what is now Bangla Desh) East Pakistan in December, 1964. These were operated under contract with the government by the Nippon Electric Company of Japan. On completion of this experimental phase, a private company was set up in 1965, with the controlling interest of the government to operate two pilot stations. In 1967, this company was converted into a public limited station and was named the Pakistan Television Corporation. In 1967, the Karachi station, equipped with a 6 kw. transmitter, went on the air as the first full-fledged station with modern production facilities, including video tape recorders and mobile TV unit. This station provided excellent service within a 50 mile radius. Within two years, television stations with 6 kw. transmitters have been established at Lahore, Rawalpindi, and at the present time (1970) there are five stations in Pakistan and 80,000 receivers.

In spite of the limited studio facilities, the percentage of live programming has increased up to 70. As of 1967, many programs were being exchanged among the stations in Pakistan (then West Pakistan).

Preliminary investigations to introduce educational television are now in progress.

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Managing Director, Roedad Khan

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Director General, Syed Munir Hussain

Radio Pakistan
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Director General, Mafizur Rahman

Radio Pakistan
Broadcasting House
Hyderabad, Pakistan

PANAMA

The Republic of Panama, with an area of 29,208 square miles, forms the narrowest and lowest portion of the isthmus that links North and South America. Panama had a 1970 census population of 1,425,000 with an annual growth rate between 1960 and 1970 of 3.04 percent. The country is heavily forested and the dominant feature of the land is the central spine of mountains and hills that form the continental divide. Spanish is the official language and English is the popular second tongue. The climate contains high temperature and humidity all year and seasons are determined by rainfall instead of temperature change. There is a dry season from December to May in parts of the Pacific slope and for shorter periods on the Atlantic slope of the divide.

In 1971 the press continued to hold a position of primary importance in influencing public opinion in the cities, although radio was rapidly increasing its impact on society as a whole.

The technical facilities of radio stations are well developed. The increasing use of portable transistor sets creates continuous growth in the number of listeners. The country's privately owned radio transmitters are licensed by the Directorate General of Posts and Telegraphs and radio broadcasters belong to the Panamanian Broadcasting Association. A significant development in 1971 was the opening of Radio Liberty, a powerful (ten kilowatts) government station. Radio Liberty can reach the most remote parts of Panama with news, educational and cultural programs through its repeater stations. The Office of Public Relations of the President maintains a liaison with the press, radio and television, and prepares news bulletins concerning presidential top-echelon governmental activities. There were more than eighty privately owned broadcast stations in Panama in 1971 with about thirty-five in Panama City. There are an estimated 430,000 receivers including sets in over 80 percent of the homes. The main radio programming includes soap operas, popular music and news commentaries with some cultural, religious and local interest programs. Commercials are the principal source of revenue and some stations have contracts with foreign broadcasting companies, including the United States. There is a satellite ground station that relays programs from North America and Europe.

Panama has two television stations with repeater stations in major population centers. The number of receivers is estimated at 171,500. Most programs are commercial, including an increasing number of packaged programs from United States producers. Some programs are transmitted via United States satellite and there are plans to begin daily Eurovision newscasts.

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DIRECTORY

Asociacion Panamena de Radiodifusion
Apdo. 7387
Panama City, Panama
President, J. E. Sitton

Direccion General de Correos y Telecomunicaciones
Apdo. 3421
Panama City, Panama
Director General, Arturo Paniza

Televisora Nacional
Apdo. 8371
Panama City, Panama
General Manager, R. G. de Paredos C.

PAPUA—NEW GUINEA

New Guinea is a Trust Territory of the United Nations administered in union with the Australian Territory of Papua by Australia. It is located from the Equator to 8° South Latitude and from 141° to 160° East Longitude. Papua is in the southeast portion of New Guinea with a land area of 90,540 square miles and a population of 586,208. New Guinea's area is 93,000 square miles with a population of 1,562,153.

The capital of both is Port Moresby in Papua. Main towns in New Guinea are Lae, Rabual, Madang, Wewak, Goroka, and Mt. Hagen.

An administrator is appointed by and is responsible to the Department of Territories in Canberra. There is a House of Assembly which has 10 official members, 69 members elected from electorates, and 15 members from special electorates. Legislation passed by the House must be approved by the Administrator or, in special circumstances, the Governor-General of Australia.

Main industries are copra, coconut oil, cocoa, coffee, timber, plywood and veneer sheet manufacture, and gold mining in New Guinea. Rubber and copra are the chief products of Papua.

History. The area was first discovered by the Portuguese navigator Abreu in 1512. Various sailors from England, Spain, France, Portugal, and East Indies visited for the next 300 years until Holland annexed West Irian in 1828. In 1884 a German protectorate was proclamed over New Guinea. While a British protectorate was claimed over Papua. It was annexed and was called British New Guinea. In 1906, it was given to Australia and was renamed Papua. The island was occupied by the Japanese in 1942. From 1943-44 New Guinea was reoccupied by the Australians and the Americans. New Guinea became a United Nations Trust Territory in 1946 and was amalgamated with Papua in 1949.

Broadcasting. Radio is in the hands of the Australian Broadcasting Commission and the Department of Information and Extension Services. Port Moresby's ABC station 9PA was taken over from the Army in 1946. Programs are broadcast on both short-wave frequencies and regular frequencies. A new 2,000 watt transmitter began operation from Ward's Strip, Port Moresby, in December 1962, and two new short-wave transmitters, each 10,000 watts were started in 1963. New Guinea's first station was at Rabaul in 1962.

Both stations include news, features, entertainment, talks, women's shows, and special sessions for native people. Transmissions are from 6:00 a.m. to midnight.

The Department of Information and Services launched its first radio station at the end of 1961. Called Radio Rabaul, it broadcasts in Pidgin and in local dialects, and is aimed entirely at the Tolai people of the Gazelle Peninsula although it is audible much farther. It broadcasts from 5:00 p.m. each evening and weekends it uses Posts and Telegraphs department's short-wave transmitters which are used for communications with outstations only during the day. The station, which is run by local natives, was an instant success resulting in the establishment of others in Wewak, Kerema, Daru and Milne Bay (Papua), and at Gofoka and Mt. Hagen (New Guinea). The National Association of Broadcasters (U.S.A.) reported 65,000 radio sets in New Guinea and Papua in 1970.

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DIRECTORY

Department of Information and Extension Services
Konedobu, Papua/New Guinea
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Radio Rabaul
Administration Broadcasting Station
P. O. Box 710
Rabaul, Papua/New Guinea
Station Manager, P. Cox

Radio Wewak
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Wewak, Papua/New Guinea
Station Manager, J. Miles

Radio Kerema
P. O. Box 36
Kerema, Gulf District, Papua/New Guinea
Station Manager, P. C. Pennington

Radio Western District
P. O. Box 23
Daru, Western District, Papua/New Guinea
Station Manager, J. Smeeton

Radio Milne Bay
P. O. Box 55
Alotau, Milne Bay District, Papua/New Guinea
Station Manager, R. J. Hosking

BROADCASTING IN PERU

Until recent times, broadcasting has had relatively little impact on the social structure of Peru outside of Lima, the capital city. A variety of related reasons account for this, but two stand out: the extremely varied and often rugged terrain has served to isolate large segments of the population; and nearly all broadcasts have been in Spanish while almost half of the country's 13.6 million people are Indians, speaking mostly Quechua and Aymara, and very little Spanish. In 1971, partially out of a determination to reach the non-Spanish speaking citizens, the government assumed virtual control of all broadcasting stations, radically altering nearly every facet of the broadcasting industry.

Radio broadcasting began in Peru in 1925; six Lima entrepreneurs put together the Peruvian Broadcasting Company whose station, OAX, went on the air on June 20, 1925. That first broadcast included themes by a studio orchestra, a tribute to author Ricardo Palma, and remarks by the president of Peru. The station lasted two years, going silent about the time a government station, Radio Nacional (OAX4), was just getting started.

Similar to the pattern in other South American countries, standard AM broadcasts and short wave broadcasting developed equally, many stations operating on both bands. A Peruvian short wave station established in 1934 was reputed to be the most powerful station on the continent.

The influence of the national government over commercial radio and television has been a constant factor in varying degrees, throughout Peruvian broadcasting history. During World War II, the government resolved to control a particularly troublesome station by purchasing it, a procedure used on all stations in 1971. In 1944 the station taken over was Radio Internacional, allegedly pro-Axis at a time when the fear of "fifth-column" actively was high. About the same time, Radio America was ordered, by a discreet telephone call, to cease airing a Seventh Day Adventist program already approved by the Peruvian radio censor and the superintendent of radio communications. No government official would take responsibility for the action, but the station was faced with stiffly mounting fines until that particular program was discontinued. In 1949, the government ordered all stations to restrict broadcasts to six hours a day, ostensibly to save electricity; Lima's commercial stations protested by shutting down completely for a number of days.

In the early fifties, the military junta governing Peru began to take steps to keep a tight check on all broadcasting personnel. In 1950 the manager of Radio Victoria was ordered out of the country because he was a citizen of Argentina who had favored the losing presidential candidate; the next year, all announcers were required to have a certificate of good conduct from the police, a license from the Ministry of Communications, and be native Peruvians.

Broadcasting regulations were codified in 1957 in the Reglamento General de Telecomunicaciones, which has now been superseded by the General Telecommunications Law of 1971.

Television broadcasting began in 1958, although a television transmitter operated briefly in 1955. At that time, the fourth Inter-American Radio Congress was being held in Lima and the television station was opened as a prelude to the conference. However, for all practical purposes, the first station was an educational one, sponsored by UNESCO, which began operating from the Ministry of Education building in January, 1958. The first commercial television station, owned by Radio America, got going in December, 1958. The number of television sets, largely imported from the United States, jumped from a few thousand to ten thousand during that year.

An overview of Peruvian broadcasting in the late fifties revealed that roughly half of the country's radio stations were located in Lima, and, although some programs were carried in English, French and Japanese (besides Spanish), none were in Quechua or Aymara.

Broadcast news had little impact, even in Lima, and the station judged to be the most popular, Radio La Cronica (owned by La Cronica daily newspaper), owed a substantial amount of its success to soap operas. The most powerful station, however, was the government's Radio Nacional, which had seven transmitters in Lima and four in the provinces all broadcasting the same programs.

In the early sixties, things began to change. Radio broadcasts gained popularity throughout the country, due in part to the use of loud-speakers centrally located in small towns. In Puno, the Maryknoll Fathers, a U.S.-based religious organization, started a radio school in 1962 to teach Spanish to Quechua and Aymara-speaking Indians. The school's two transmitters also broadcast farming methods, health advice, Peruvian and Spanish literature, and music, news and sports. The backbone of the school was a host of local teachers and transistor radios. It has been said that by the mid-sixties, Indians with their lightweight bicycles and transistor radios were changing the face of the Sierra. Also in the early sixties, television stations branched out from Lima; Panamerican Television served six cities and Radio America Television served four, both companies showing the same filmed programs in the provinces as they did in Lima.

The balance of broadcasting stations shifted considerably during the sixties from Lima to the provincial cities. In 1968, when there were seven television stations in Lima, there were 16 elsewhere (plus 45 relay stations). That same year the Lima radio stations numbered a mere 29, compared to 124 outside the city.

However, the industry was to feel the heavy hand of the government also in 1968. The military regime of Juan Velasco Alvarado imposed a strict censorship on all media, and several radio and television stations were suspended.

On November 10, 1971, all broadcasting passed into the hands of the state. The General Telecommunications Law decreed that the state was to purchase at least a 51 percent interest in all television stations and at least a 25 percent interest in all radio stations. Broadcast stations were to be organized into "worker communities," similar to arrangements in mining, fishing and other industries. In such communities employees receive one-quarter of the profits in cash and stock annually. The Telecommunications Law also required all owners and employees to be Peruvian natives, and owners were required to live in Peru at least six months out of every year. At the time the law was decreed, the government operated only one of the 19 television stations and 5 of the 222 radio stations.

The purpose of the law, according to the minister of communications and transport, was to assist mass education and the social, economic and cultural development of the people. The government charged that broadcasting stations were mostly owned by five or six families, and confined to large urban areas. The government implied, without really saying so, that the existing broadcasting industry had ignored the 40 percent of the population who do not speak Spanish. By means of the new law, the government hopes to assimilate the large numbers of economically and culturally isolated citizens into the active social structure. This does not necessarily mean the Indians in the mountains either, although it includes them, for it is estimated that half of Lima's three million inhabitants know little, if any Spanish, having settled in the city in the last 10-15 years.

Industry sources reportedly admit that many of the military government's claims are justified; broadcasters stress, though, that the advertising-supported structure of commercial broadcasting forced them to cater to Spanish-speaking urban audiences.

Under the new regulations, the Ministry of Education, which had a one hour daily program previously, will now use prime time for daily educational/cultural programs.

Until recently, one of the biggest names in Peruvian broadcasting was Genero Delgado Parker, head of Panamerican Radiofusion. Through Panamericana, Delgado managed a network of radio and television stations in Argentina and Puerto Rico, and produced

television programs which sold in fourteen countries. Two of the most successful "telenovelas" on Peruvian television were products of Panamericana. Delgado resigned from the company, however, when the telecommunications law of 1971 took effect.

Peru is a member of the Ibero-American Television Organization which conducts daily television news exchanges, via satellite, between South America and Spain; from Spain, South American telecasts are fed to the rest of Europe. Peru has been a member of Intelsat since 1967 and is represented in the consortium by Empresa Nacional de Telecomunicaciones Peru (ENTEL-Peru). An Intelsat earth station is located in Lurin, Peru.

	STATIONS	SETS
RADIO	222 (1971)	2 million (1970 est.)
TELEVISION	19 (1971)	395,000 (1970 est.)

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"Spanish by Radio in South America." *Times Educational Supplement*, April 30, 1965, p. 1296.

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Senor Director de
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Senor Director de
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Televisora Panamericana
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Televisora Universidad de Lima
Avenida Arequipa 1110
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General Manager, A. P. Sanchez

THE PHILIPPINES

The Republic of the Philippines, embracing approximately 7,100 islands, lies in the Pacific Ocean east of Southeast Asia. The principal islands of the Philippines archipelago are Luzon in the north and Mindanao in the south. The island chain stretches 1,150 miles from north to south and is 690 miles wide. Only 462 of the islands have an area of one square mile or more. Eleven have areas of more than 1,000 square miles. The population, an estimated 37,959,000 in July, 1970, is composed of a considerable number of cultural and linguistic groups. Although the population of urban centers has increased rapidly in recent years, the largest percentage of the Philippines population continues to live in rural villages of less than 1,000 inhabitants. Thus the Philippines can be characterized as a predominantly rural country. This is the only country in Eastern Asia that is wholly Christian.

The Philippines has many broadcasting stations owned by government, universities, educational organizations, religious groups, and private companies. The radio and television sets are not subject to a license fee.

There were 324 AM and FM radio transmitters in 1971. All the transmitters have a combined power of 458 kw. Seventeen stations with a total power of 30.5 kw. are government sponsored. The programs are broadcast in English, Tagalog, Chinese, Visayan, Bicol, Spanish and a number of local dialects. Programs from Japanese stations are often relayed. The government operates the Philippines Broadcasting Service which broadcasts for 126 hours a week: 66 hours in English, 50 hours in Tagalog and 10 hours in Chinese. Also under government auspices are the stations of the National Civil Defense Administration, which derive revenue from commercial advertising in addition to a state subsidy, and the broadcasting services of the National Teachers College. One of the religious stations has an extensive overseas service, in addition to its home service. This station broadcasts in 15 languages and a number of dialects for listeners in the Far East and in Oceania. In 1968, there were 1,230,000 radio sets. Most schools and town halls have receivers.

The country has 25 television transmitters as of 1971. The first privately owned television station began broadcasting in October, 1953. The government owns one station, operated by the Philippine Broadcasting Service, which is financed by government subsidy plus a limited amount of commercial advertising, while the private stations derive their entire revenue from advertising. The government station is located in Quezon. The United States Air Force operates two stations at Luzon. There were 415,000 black and white and 6,000 color television sets as of 1971.

The Philippines uses 525-line standards, system M. and NTSC color system.

Compiled by:
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DIRECTORY

ABS—CBN Network Broadcast Center
Bohoi Avenue
Quezon City, Philippines

Inter-Island Broadcasting Corporation
Philippine Herald Bldg.
61 Muralla
Manila

Metropolitan Broadcasting Company
964 Taft Avenue
Manila

Associated Broadcasting Corporation
Pasong Tamo, Makati
Rizal, Philippines

Republic Broadcasting System
RBS Building
Diliman, Quezon

Kanlaon Broadcasting System
KBS Building, Roxas Blvd.
Pasay City

Philippines Broadcasting Service
GSIS Building
Manila

SINGAPORE

Singapore is an independent island republic 27 miles wide and 14 miles long at the southern tip of the Malay Peninsula in Southeast Asia. Singapore's total land area of 225 square miles includes one large island and about 40 nearby islets.

The surface of Singapore is undulating and diversified by hills ranging from 70 to 400 feet high. A quarter of the island is lower than 25 ft. below sea level, and mangrove swamps fringe the coast and extend inland. The Singapore River, a tidal estuary which afforded protection for early shipping, is the city center. The climate is equatorial, with temperatures throughout the year varying a few degrees either side of 82°F. There is no well-defined wet or dry season.

Two great bodies of water border Singapore. They are the Malacca Strait to the west and the South China Sea to the east. The narrow Strait of Singapore separates it from its islet to the south. It is connected to the Malay Peninsula by a rail and road causeway, three-fourths of a mile long across the Johore Strait.

Singapore, the capital, is the world's 4th largest port and the largest in Southeast Asia. Singapore owes much of its wealth and continued prosperity to its focal position in Southeast Asia on international sea and air routes. The strategic position and deep water harbor have produced a natural outlet for the products of the Malay Peninsula, and one of the world's greatest commercial centers.

Since Singapore has no natural resources, her economy (until recently) has depended almost entirely on trade. While trade is still Singapore's primary role, Singaporeans realize that other neighboring countries are inclined to see them as a middleman taking unfair advantage of them. Singapore has already begun to resolve this problem by diversifying its economy and promoting more sophisticated, wider reaching distributional activity built on containerization and computerization. Tourism is an important source of income; over 200,000 visitors spend an estimated $45,000 yearly.

History. The modern history of the Republic of Singapore starts early in the XVI Century when the Portuguese took Malacca to control thy key trade of that region. From that date the beginning of a long era of European dominance started. Control of Malacca afforded the Portuguese a virtual monopoly of the area's trade, particularly of spice which was the major commodity of that time. The Dutch and British followed the Portuguese, who were ambitious to share the spice trade. The Dutch had succeeded in ousting the Portuguese and installing themselves as the dominant European power in the S.E. Area, by 1641. The success and growth of Britain's trade with India and China initiated the need of a convenient servicing port for the British merchant ships on the eastern route during the monsoon season (October-May). Around this time, Sir Thomas Stamford Raffles' persistent efforts convinced the British Government of the necessity to offset the Dutch and implant the strong British stand in the area. Raffles won permission to investigate possible locations for a British trade center and in 1819 he acquired the island of Singapore. Singapore grew rapidly and by 1825 had become a major port for international trade. As the port prospered, it attracted more and more settlers to its shores. Peoples from all over Asia flocked to Singapore to reap the profits of an expanding trade. From these days, then, Singapore characterized an admixture of varied ethnic groups. During World War II, the island was surrendered to Japanese who were attacked from Malayan mainland. It was under Japanese occupation till September 1945 when Japan evacuated her occupied territories. In 1959 the island became a self-governing state within the British Commonwealth of Nations. Finally on August 9, 1965, Singapore became an independent country. Now Singapore is an independent republic and a member of the United Nations and of The Commonwealth of Nations.

The People. The population of Singapore is 2,033,500 (Govt. est. 1969) with 75 percent Chinese, 12 percent Malay and 13 percent Indians, Pakistanis, Ceylonese, Eurasians, etc. The official language in Singapore is Malayan, but over 75 percent of the population speaks Chinese, which includes 7 different dialects. The vast array of languages and dialects is a definite barrier in communications in Singapore.

Singapore enjoys free and compulsory education on primary level. All children between the ages of 6 and 16 are guaranteed a place in school. There is generous government bursaries to help needy students complete their education. The literacy rate is estimated at 76 percent.

The national language is Malay. English, widely used throughout the island, is the language of administration. The other official languages are Chinese and Tamil. Parents are free to choose any one of the four languages as the medium of instruction for their children. The study of a second language is compulsory, so every student has either a bilingual or trilingual education. Forty-three percent of the children study in English; 32 percent in Chinese; 5 percent in Malay; 1 percent in Tamil.

The school system extends over 12 years, comprising 6 years of primary, 4 years secondary, and 2 years pre-university. There is a choice of an academic, technical or commercial secondary education for those who have successfully completed their primary education.

Radio. The first broadcasting station in Singapore was set up at Caldecott Hill in 1935 by the British Malaya Broadcasting Corporation, a private commercial organization. The building still stands as part of the complex of the present Radio and Television Singapura.

Regular radio transmissions began on June 1, 1936. In 1940 the Singapore Government purchased the entire holdings and operated the service as "Broadcasting Station, Posts and Telegraph Department, Singapore and the Federated Malay States."

Since 1936 there has been no break in operations despite several developments affecting the history of radio broadcasts in Singapore. From February, 1942 to August, 1945, the station was operated by the Japanese Military Administration under the name of "Syoan Hoso Kyoku." In 1959, the service was split into two organizations; the Singapore Broadcasting Service became known as "Radio Singapore," while the broadcasting stations on the mainland operated as "Radio Malaya." Since 1965, when Singapore became an independent country, the station has operated as the department of broadcasting within the Ministry of Culture and Social Affairs.

Rediffusion (Singapore) Ltd., a subsidiary of Rediffusion London, operates two simultaneous wired networks for its 51,335 subscribers. It originates its own programs in English, Chinese and local languages and also relays Radio Singapore and the BBS. The BBC Far Eastern Station in Singapore relays the Corporation's Asian Service, which is broadcast in 13 languages and covers the vast area from Iran to Japan. The British Forces also operate a short-wave transmitter which broadcasts in English and Indian languages 3¼ hours daily. The national Association of Broadcasters (U.S.A.) reported 190,657 radio sets in Singapore in 1970.

The following information on radio was taken from the Ministry of Culture's Annual Report for 1970.

> Radio has operated in Singapore for over 35 years. For a long time, the Republic has by far the largest proportion of listeners against national population in Southeast Asia. Over 70 percent of the population tune in daily to Radio Singapore broadcasts. Daily services are transmitted in Malay (the National Language), Chinese (7 dialects), Tamil and English. The National Language service averages 133

transmission hours per week: Chinese — 154: Tamil — 112 and English — 126: a total of 515 hours per week. All these services carry commercials except in *news, public service* and *cultural programs.* In addition, Radio Singapore operates a separate FM Stereo Service, which was introduced on 18th July 1969. Its main aim is to inculcate a better appreciation of good music. The service comprises 56 transmission hours per week.

Radio Singapore produces a wide range of progammes which inform, educate and entertain the people. The overall planning takes into consideration the bi-lingual or tri-lingual listeners. As far as possible, they are given the choice of say drama on one language channel, music on another and a feature programme on the third. Each language service presents programmes designed to promote a better appreciation of the cultural aspects of other language streams. Such programmes help to build up inter-cultural goodwill and understanding.

Television. The Ministry of Culture touched off its television operations on a small scale in February of 1963. Transmissions were on a 625-line definition. Its first programs were "Huckleberry Hound," with an introduction in Malay, the national language, and "The New Adventures of Charlie Chan." The National Association of Broadcasters (U.S.A.) reported 149,000 television sets in Singapore in 1970. Cost of sets vary from $100 (American) 19 inch set to $300 for 23 inch set. Television dealers have a thriving business, since television is on such a rapid up growth. Although there is a shortage of electricity in certain areas of Singapore, television sets are placed in key spots for community use.

Personnel presents no major problem, as both Singapore and Kuala Lumpur are not only able to bring men into television from radio but train their own people. Generally, a producer in Singapore will earn around $200 a month, and he is able to supplement his salary through mileage, benefits, etc.

While television in Singapore is reaping the glories of success, it has brought a few problems. Theatre operators are noticing a dip in attendance. The "home cinema." as in America, is growing ever popular. Also, television is beginning to encounter censorship problems with the government.

Compiled by:
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DIRECTORY

Radio Singapore
Ministry of Culture
P. O. Box 1902
Director, F. Lim Phai Som

Rediffusion (Singapore) Private Ltd.
P. O. B. 608
Subsidiary of Rediffusion Ltd., London
Director, J. Snowden

British Forces Broadcasting Service
H. O., FARELF
c/o G.P.O.
Station Controller, P. Buckle

Television Singapore
Ministry of Culture
P. O. B. 1902
Singapore
Director, Hsu Tse—Kwang

SOLOMON ISLANDS

The Solomon Islands are a chain of islands in the Melanesian area of the Southwestern Pacific. They are a British Protectorate, administered by the Commonwealth Office, London, through the High Commissioner for the Western Pacific at Honiara, on Guadalcanal Island. They are 1,500 miles north-east of Queensland, and 1,560 miles from Sydney.

The northernmost Islands (Buke and Bougainville), are administered by Australia. The remaining Islands, including Guadalcanal, San Cristobal, Malaita, Santa Isabel, Choiseal, New Georgia, Santa Cruz, Lord Howe, Reef and Duff groups are Mitre Island, form a British Protectorate.

The group contains a number of low coral atolls, but the larger islands are all volcanic and rugged. Heights of more than 8,000 ft. are reached on Bougainville and Guadalcanal. Geologically the islands form a continuation of the British Protectorate about 11,500 miles.

The population is around 154,000 people, with the Melanesians being the prominent race. Less than 1,300 are European or Chinese. There are many languages spoken, 10 on Bougainville alone.

In 1945, the native people started an anti-white, anti-foreign rebellion, which was known as the "marching rile." They refused to pay taxes or to take orders from the British. Great Britain sent some ships out to subdue the people, but it lasted until 1959. Since then, steps have been made to form a self-governing body.

Primary education is mostly provided at subsidized mission schools, and there are a secondary boarding school and a training college for teachers and carpenters. There is a central hospital at Honiara, besides a leprosarium at Tetare, and district, rural and mission hospitals.

RADIO. In 1947 the Government began a weekly broadcast of local news and information, on the inter-island and local shipping radio network frequency, to keep outstations informed.

Thereafter, for a few years it was run on a part-time voluntary basis by enthusiastic Government officers. In 1959, the Government set up the present organization, the Solomon Islands Broadcasting Service.

The transmitters in use in 1967 were VQO—1030 Khz 291 metre band medium wave 600 watts; VQO4—3995 Khz 75 metre band shortwave 600 watts; VQO7—7115 Khz 41 metre band shortwave 300 watts (morning only).

Broadcasts to schools commenced in 1966 following additions to the studio. Apart from schools broadcasts, the service is on the air daily from 6:30 p.m. to 10:30 p.m. There are also occasional afternoon broadcasts of sporting events. Programmes include BBC and ABC news bulletins, interviews, music, plays, children's and sporting programmes. Local news in both English and Pidgin is prepared daily by the BSIP (British Solomon Island Protectorate) government Information Service.

Cost of running the station is offset by radio-receiver license fees and by paid advertisements accepted by the Broadcasting Service. From the latter revenue was $6,665 in 1966.

There is a Government Information Officer whose duties include those of preparing the fortnightly Protectorate News Sheet and preparing the local radio news bulletins..

NOTE: Letter sent to the Gov. Information Officer to get copies of Radio news bulletins. Letters sent to BSIP Information Service.

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DIRECTORY

Solomon Islands Broadcasting Service
P. O. Box 1
Honiara, Solomon Islands
Broadcast Officer, W. Bennet

THAILAND

The Kingdom of Thailand (formerly Siam) is bordered on the south by the Federation of Malasia and the Gulf of Siam, on the northeast by Laos, on the southeast by Cambodia, on the northwest by the Union of Burma and the west and east by the Indian Ocean and the South China Sea respectively. It has an area of 200,234 square miles.

The country may be divided into four regions. Central Thailand is the geographical and economic heart, where over 1/3 of the population live. It is an alluvial plain of 100,000 square kilometers drained by the Chao Phya River, and contains Bangkok, the capital city. In the forested mountains of northern Thailand, agriculture is limited to the valleys of the Chao Phya tributaries. The northeast region is a plateau of poor soil and little rain. The southern peninusla is a narrow sliver of ragged mountains.

The 1970 census estimates a population of 35,738,000. 75% are of Thai stock; 14% are Chinese. Large minorites of Malayan, Cambodian, Laotian and Vietnamese also exist. 2.5 million people live in Bangkok, the largest city in southeast Asia.

RADIO. The first voice broadcast in Thailand was made by King Prajadhipok (Rama VII) from Bangkok in 1939. Regular public broadcasts started a year later. Broadcasting began as a state monopoly, and is still regarded as subservient to the government. Originally there were four broadcasting stations, including the National Broadcasting Station (NBS), all of which programmed in Thai.

Now, besides the NBS, the following government agencies have radio stations: the Post and Telegraph Department, the Army, the Navy, the Air Force, the Police Department, Kasetsart University, Chulalongkorn University, the Royal Household Bureau, and the Ministry of Education. All but the last two have affiliates and subsidiary stations, and are partially supported by advertising through sponsored shows.

The NBS, financed by government grant, is designed to be a medium of information and education as well as entertainment. It runs home services, and overseas service, rural broadcasting, and manages experimental stations. It has it's own administrative officers, announcers, talent and technicians. Many staff members of the experimental stations are recruited from government offices and are regarded as government officials.

The Educational Broadcast Service, run by the Ministry of Education began in 1954. Programs were originally evening broadcasts directed toward school children, students and teachers. They carried information on general education and education news. In 1958, an experimental school broadcasting project was begun by the Ministry, covering 286 schools.

In 1953, legislation was passed authorizing the Thai Television Company, Ltd., (TTV) to operate both radio and television commercially. In 1955, TTV began broadcasting the first Thai FM service. It now operates two FM stations. One broadcasts only classics and light classical music. The other broadcasts English soundtracks of foreign TV film series, for the benefit of English speaking televiewers. Chulalongkorn University also operates an FM station broadcasting both Eastern and Western classical music.

In 1965 there were 36 radio transmitters, with a total of 360 kilowatts of power. The estimated number of radio receivers in 1970 was 2,775,000 or 80 per 1,000 people.

Since 1938, the formulation of broadcast policies in Thailand has been controlled by the Public Relations Department. Radio is governed by the Radio Communications Act. The Public Relations Department enforces the act, and the Post and Telegraph Department allocates frequencies. The act does not give the Public Relations Department authority to put a program on or off the air, nor does it grant censorship authority, but the department has responsibility to see that programs are in good taste and do not threaten public safety and security. So besides news and entertainment, radio is geared toward informing and educating in regard to the government, public health, and means of earning a livelihood.

TELEVISION. Thailand is the first country on the Asian mainland to have regular television service. It began in 1955 with the Thai Television Company, Ltd. (TTV). Two and a half years later, Army Television (ATV) was set up in Bangkok by the Royal Thai Army.

TTV is a government enterprise. The Public Relations Department owns 55% of its shares. The rest are divided among the Army, Navy, Air Force, Police, Thailand Tobacco Monopoly, Thai Sugar Organization, Liquor Factory, and State Lottery Bureau. Administration and management are entrusted to the Public Relations Department, and the Director General of the department is concurrently President of the Board of Directors of TTV.

Most TTV programs are sponsored, but although commercial, the company is responsible for providing public service, information, cultural, and educational programs. It broadcasts 45 minutes of news daily.

TTV's educational programming is seen by an audience of 35,000 pupils in over 100 municipal and private schools in the Bangkok-Thon Buri area. Every municipal school has at least one TV receiver. The first educational program began in 1964, broadcasting three times a week. In 1965 it began broadcasting educational shows five days weekly. Programs are preapred under the supervision of 125 top Thai educators.

TTV has its own talent staff, but uses outside talent for special shows. It had one mobile unit in 1967. A national network via microwave with 16 transmitting stations is in the planning stage.

Army Television follows the same programming policy as TTV. It was founded in 1958, and operated with no financial assistance after construction costs until it was subsidized in 1962. In 1967, it began color broadcasting. Bids were accepted from private companies to provide a color transmitter in return for the privilege of buying air time. ATV uses Phase Alternation Line (PAL) transmission.

Half the population of Thailand is within range of the TTV and ATV Bangkok stations. In 1968, there were nine television transmitters operating in Thailand, four of which were secondary transmitters. The estimated number of receivers in 1969 was 241,000 or 7 for each 1,000 people. Both TTV and ATV changed from 525 to 625—line transmitter systems in 1969.

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DIRECTORY

Ministry of Education Broadcasting Service
Bangkok, Thailand
Division Director, Momluangchintana Navawongs

Thai National Broadcasting
Public Relations Department
Rajdamnern
Bangkok, Thailand
Director General, Kricha Punnakanta

Army Television HSA—TV
Paholyotin Road
Bangkok, Thailand
Director General, P. Cheunbonn

TIMOR

Timor is the last island in the Sunda Islands chain. The eastern half is Portuguese and the western half is part of Indonesia. Portuguese Timor also consists of the small district of Okusi on the northwest coast of Indonesian Timor and two smaller islands, Atauro and Jako. The province has a total area of 7,340 square miles. Timor is generally mountainous with Asiatic monsoons from December to May and Australian monsoons over the south coast and central region between June and August. The 1965 estimated population was 560,000 of whom most were Malay with about 2,500 Europeans and Eurasians and 3,000 Asians including Chinese. The main exports of Portuguese Timor are coffee, copra, rubber and wax.

Communications consists of telephone service with 500-600 subscribers and there are four wireless stations in the capital city of Dili. The official language is an Indonesian language with a Melanesian structure called Tetum.

Compiled by:
Tom Archibald
Richard Thomas Roth

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DIRECTORY

Emissora De Radiodifusao de Timor Port
Dili, Timor
Station Manager, J. J. das Neves

TONGA

Tonga is an island kingdom under British protection. It consists of approximately 150 coral and volcanic islands located in the South Pacific. The nation has a population of 61,889 (1967).

Broadcasting officially began in Tonga in July, 1961 when ZCO, "The Voice of the Friendly Islands," opened after five months of operational testing. The station is government controlled, and operated by the Tonga Broadcasting Commission. The Commission is composed of a five-man board with HRH King Taufa'ahau Tupou IV as chairman.

Many programs are commercially sponsored, and advertising pays the major portion of the station's expenses. Additional costs are paid from consolidated revenues. The ZCO staff includes a European manager and program director, and Tongan announcers and program officers.

The station is on the air nine hours daily, and 3½ hours on Sundays. Programming includes local and world news, weather, cultural, educational and religious shows, and music emphasizing traditional Togan forms. Broadcasting is primarily in Togan, with some English, and a small amount of Samoan and Fijian. Tongan broadcasting reaches Gilbert and Ellis Islands, Fiji, Samoa and Niue.

ZCO transmits on 1020Kcs, using a 10Kw transmitter. In June, 1967, a second 10Kw transmitter was installed as standby, but is capable of being coupled to the original transmitter to give an output of 20Kw.

The Tongan government sells imported transistor radios to the islanders, and there are 6,250 receivers in Tonga, or approximately 100 for every 1,000 people (1967).

There is no television service in Tonga.

Compiled by:
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UNESCO. *Statistical Yearbook 1968*. Paris: UNESCO, 1969.

U.S. Government. *Tonga, Department of Defense*. Washington, D.C., 1967.

DIRECTORY

Tonga Broadcasting Commission
P. O. B. 36
Nuku'alofa, Tonga
Commission Chairman, HRH King Taufa'ahau Tupou IV
Station Manager, Alfred E. F. Sanfit

TRUST TERRITORIES OF THE PACIFIC ISLANDS

No where is the potential of the broadcast media more exciting than in the Trust Territory of the Pacific Islands. Among the emerging nations, Micronesia, as the Trust Territory is commonly called, is most unique. Not a nation at all, in geographical terms, Micronesia is a group of 2100 islands scattered over an area of the Pacific Ocean the size of the continental United States. The population of 107,000 live on only 90 of the islands, a mere 700 square miles. The lush, tropical islands and sand atolls are divided into six administrative districts: Palau, Yap, Marianas, Truk, Marshalls, and Ponape. Each district has its own culture and numerable dialects, adding up to nine major languages.

Broadcasting in this politically complex area could play an important role in fulfilling the promise of a unified nation. The Micronesians themselves are more apt to hold a stronger identity with their native district rather than with the Micronesian nation. Thus far, broadcasting, and most especially television, have had considerable impact as symbols of modernization. However, television (on the island of Saipan) through its American programming, has done little more than to perpetrate a fictionalized version of American values. Life as seen through the eyes of a Marcus Welby or the Mod Squad, which have questionable value in the U. S. are certainly at right angles with the reality of a Pacific Island. As the Micronesians strain to become a part of the modern world, they must also grapple with the internal political situation.

An emerging political force in Micronesia is one which would push for the United States to fulfill its obligation of Trusteeship by preparing the people for self government. Under the name of the Trust Territory of the Pacific Islands, Micronesia was made the responsibility of the United States by the United Nations in 1947. Basic to the mandate was the directive from the U. N. that the U. S. promote the citizens of the Territory toward self-government or independence. After 1947 the islands lay virtually neglected until they were "rediscovered" by the Kennedy Administration at which time the seven million dollar budget began a swift climb to the present annual budget to sixty-two million. If figured on a per capita basis, this seems like a generous contribution; however, these funds have never been channeled into building an independent Micronesian economy. While the people of Micronesia have waited since the 16th century to rule themselves, they are still not ready economically to stand alone.

One of the most potent forces of change introduced by the United States has been the Peace Corps. The Corps is designed to provide skills and good will to the underdeveloped areas of the world, and it is a bit of irony that it has been sent to Micronesia, an area governed by the United States. The thousands of lawyers, doctors, architects, business specialists, and teachers have contributed greatly to Micronesia's venture into the western world. One change attributed to the Peace Corps is the use of English as a common language. In spite of the political implications of this, a single common language was definitely needed.

Further, the United Nations conferred on the Trust Territory the historic status of Strategic Trust Territory. This, in effect, means that the U. S. has the right to use the islands for military purposes. To this date, American military presence has been limited to the Marshalls—at Kwajalein, Bikini, and Eniwetok; however, the U. S. retains its options. This status grew out of events which preceded the close of World War II. Germany controlled the islands prior to 1914 having purchased them from Spain after the Spanish-American War. At the outbreak of World War I, Japan took advantage of Germany's involvement in Europe to occupy the islands. When Germany was defeated, the newly formed League of Nations awarded the islands to Japan under a Class C Mandate. Ignoring the restrictions of the Mandate, Japan proceeded to colonize the islands complete with military installations.

Micronesia was then to become one of the major battlefields of World Warr II. It certainly would not be in the U. S. interest to see a reoccurrence of a hostile military power in Micronesia. More than ever, Micronesia is an important buffer between North America and Asia.

Under a Secretarial Order of the U. S. Department of the Interior which has administrative responsibility for the Trust Territory, the Micronesian Congress was established in 1964. Modelled after the U.S. Congress, the Congress of Micronesia has the power to enact legislation pertinent to the Territory if it does not conflict with the laws, treaties, or international agreements of the United States. Executive orders of the President of the United States take precedent over the Congress as well as directives of the Secretary of the Interior. The High Commissioner who is a U. S. citizen appointed by the President has veto power; however, his veto may be overridden by the Congress.

The Micronesians take their Congress seriously and among Americans in the islands, the legislative body has gained a reputation for being articulate and devoted to its duties. This is most remarkable considering that until recently there was not a single lawyer in the Congress. Although its powers are limited (it can not allocate the 62 million coming annually from the U. S.) it has come to grips with the problems concerning most Micronesians. In 1967 the Congress appointed a Joint Future Status Committee to negotiate a future status with the United States. After a number of lengthy meetings with Washington, in 1970 the Nixon Administration urged the Micronesians to accept a status of commonwealth. This was firmly rejected by the Congress of Micronesia because it would deny control of the land, the laws, and any hope of future independence. The extremely slow process of negotiation with the United States Government has continued.

Further planning for a future independence is evidenced by a bill introduced at the fourth session of the Congress (January, 1972) to establish a top level Commission to pave the way for an Independent Micronesian Broadcasting System. The bill calls for a system which is completely independent of U. S. Government control, is centralized in order to compliment local programming, contains program content standards reflecting the local culture and interest, and has definite rules of ethical conduct concerning news and program content. This indicates the law maker's awareness of the importance of the media to a new nation and the safeguards required for an unrestricted flow of information.

Presently, each district has a low powered radio station operating in the standard broadcast band. They are located at Majuro (Marshall Islands), Saipan, (Maranas), Koror (Palay District), Yap (Yap District), Moen (Truk District), and Ponape (Ponape District). All stations are owned and operated by the territorial government under the supervision of the U.S. Department of the Interior. Broadcasting in the language of the respective district as well as in English, the stations offer approximately 18 hours a day of music, some local events, and news from the Armed Forces network, the Voice of America, and the Micronesian News Service (Trust Territory Government). There are two additional radio stations located at Kwajalein and Eniwetok. These are operated by the United States Armed Forces and offer news and entertainment for military personnel stationed in those areas. There are no shortwave broadcast stations.

Saipan has the Territory's only television stations. WSZE, Channel 8 and WSZF, Channel 10 are commercially operated by the Pacific Broadcasting Company. Both stations are low powered providing local coverage only with programming similar to that offered in the United States. The Trust Territory Government has issued corporate charters for television broadcasting in the districts of Truk and Palau, but these are not yet in service.

Broadcasting in Micronesia has the opportunity to go hand-in-hand with the formation of a new nation. Besides providing a sense of unity among the people, it could offer a kind of political education that would prepare the citizens to participate in their own government. If a people are determined to be independent, to rule themselves, then they must have a broadcasting system that reflects their values, their culture heritage, in short, a system which is their own.

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UNION OF SOVIET SOCIALIST REPUBLICS

The culture of a nation of people is most often manifested in their art. The U.S.S.R. serves as a reflection of this generally accepted principle. One need only to review a programming guide to Soviet Broadcasting, in order to grasp an insight of the Soviet people's rich cultural heritage. An array of fine arts including ballet and music, and a liberal portion of sporting events is prominent in the daily radio and television fare.

The Soviets effectively use the broadcasting medium as a tool of education, a vehicle of communication, and an instrument for unifying the people of this widely geographically diversified nation. This in itself is a monumental task when considering the U.S.S.R. spans two continents, has ten time zones, and covers one sixth of the earth's inhabited land surface.

POPULATION, LANGUAGE AND GOVERNMENT

The USSR is a multinational federation consisting of fifteen Union Republics. Within certain Republics are further subdivisions such as Autonomous Soviet Socialist Republics, Autonomous regions and National Districts.

The Union Republics are:

REPUBLIC	AREA SQ. MILES	POPULATION (est. 1968)
Russian SFSR	6,593,391	127,911,000
Ukrainian SSR	232,046	46,381,000
Kazakh SSR	1,064,092	12,678,000
Uzbek SSR	158,069	11,266,000
Byelorussian SSR	80,054	8,820,000
Azerbaijan SSR	38,436	4,917,000
Georgian SSR	26,911	4,659,000
Moldavian SSR	13,012	3,484,000
Kirghiz SSR	76,642	2,836,000
Tadzhik SSR	54,019	2,736,000
Armenian SSR	11,306	2,306,000
Latvian SSR	24,695	2,298,000
Turkmin SSR	188,417	2,029,000
Estonian SSR	17,417	1,304,000

The population of the Soviet Union was estimated in 1970 at 241,748,000. With increased industrialization has come increased urbanization. Fifty-five percent of the population live in urban areas, forty-five percent live in the country. The USSR has eight cities with populations of over one million. The two largest cities are Moscow (7,061,000) and Leningrad (3,950,000).

Russian is the official language of sixty percent of the population and the second language of over a hundred different nationalities in the Soviet Union.

The Soviet Union is a socialist state whose government is based, at least theoretically, on Marxist-Leninist principles. The party in power and the only legal party is the Communist Party. Communist party membership in 1966 was reported to be over 12,000,000.

Growth. Prior to 1960 radio broadcasting was marked by the extensive use of redistribution systems utilizing loudspeakers and public receivers. The first wired broadcasting network was introduced in 1924, and by the beginning of 1959 more than 40,000 radio relay centers were in operation in towns, district centers, and industrial and

agricultural enterprises. Between 1954 and 1958, the network of radio receiving stations in the villages increased by more than five times.

With the affluence of the '60's, however, has come an increased availability of radio receivers. In 1960 there were 35,000,000 radio receivers in the USSR. In 1965 the number of receivers had increased to 61,500,000. In 1967 there were 80,700,000 receivers. The last estimate (1970) puts the set count at 90,000,000 (one set per 2.59 persons).

In addition to the thousands of relay stations in the USSR there are over 900 originating radio stations.

Over half of all privately owned radios in the USSR are equipped with short wave receiving apparatus.

Operation. All broadcasting in the USSR is state owned and operated under the authority of the State Committee on Radio Broadcasting and Television with headquarters in Moscow.

Moscow is the New York *and* Hollywood of Soviet Broadcasting. Radio Moscow beams programmes on long, medium and shortwave bands and FM. Radio Moscow serves not only the Moscow metropolitan area but also the far off, remote corners of the Soviet Union via satellite and fifty ground relay stations.

Radio Moscow's domestic service broadcasts five different programmes (frequencies and/or wavelengths). A short rundown follows:

— Program 1, because it is heard in ten time zones, is split into 1a and 1b. Broadcasting twenty hours a day, it offers mainly music and news.

— Program 2 is in operation twenty-four hours a day. It offers mainly news and recreational features.

— Program 3, operating sixteen hours a day, carries operas, symphonies, dramas and intellectual discussions.

— Program 4 is beamed twenty-four hours a day. It is mainly for seamen, Soviet Citizens abroad and foreigners studying Russian.

— Program 5 broadcasts FM music and arts programs.

Radio Moscow's domestic service is on the air 545 hours a week in sixty-four languages. Music occupies 55.3% of the total broadcast time, 16% is devoted to news, 10.6% to socio-political items, 9% to literature and drama, 6.6% to programs for children and young people, and 2.5% to other programs.

Radio Moscow's external service can be heard in fifty-five foreign languages and ten languages of the USSR. Transmitting on short and medium waves, Radio Moscow can be received on all continents. The external service is on the air approximately 1,000 hours per week.

Outside of Moscow there are 900 broadcasting stations in all of the fifteen republics of the federation. These regional stations offer up to three programmes of their own, plus those of Radio Moscow. On the local level originating programs are prepared in the native language of the population.

The most recent technical innovation in Soviet Radio is stereophonic broadcasting, FM multiplex stereo is now being heard in Moscow, Leningrad and Riga (Latvia).

Television. The first telecast in the Soviet Union was made in 1931, and seven years later stations began operating regularly in Moscow and Leningrad. A third station, in Kiev, was commissioned in 1951. While the growth of Soviet Radio over the last few years has been incredibly rapid, the growth of Soviet television has been truly phenomenal. In 1959 the number had jumped from three stations to forty, and by 1970 there were 130 stations. The 750 stations today are served by four channels — one National and three local. Available statistics on the number of stations *including* non-originating relay stations, more clearly show the rate of growth. In 1965 there were 650 stations, and in 1972, as mentioned

there were 750. It was estimated in 1972 that Soviet Television had a capacity of reaching 140 million of the total population of 247 million.

Set count figures are also striking. In 1959 the Soviet Union had three million receivers. By 1961 there were ten million, in 1965 fifteen million, twenty-five million in 1967, and in 1970 the Soviets had thirty-five million television sets. In number of persons per set that's a fantastic jump from 69.3 persons per set in 1959 to 6.9 per set eleven years later.

In April of 1965 the USSR launched its first communication satellite, Molnia I, connecting the Central Television Studios in Moscow with Vladivostok. Today television is beamed by satellite to towns and small communities in the far North, Siberia, Central Asia, Kazakhastan and the Soviet Far East.

Color television came to the Soviet Union in 1966 with the adoption of the French Secam 625 line system. Moscow now telecasts color to twenty-six cities.

Operation. The largest television tower in the world (1,700 ft.) landmarks the heart of Soviet television, the Ostankino Television Center in Moscow. From the modern, expansive Ostankino plant originates four transmission signals. Two of the channels are mainly for local consumption, the other two are relayed throughout the USSR.

— Channel 1 operates from 10 AM to 1 PM and 4 PM to a few minutes before midnight. Channel 1 is the main programme of the Soviet Union. It is broadcast in color and programming includes films, sports, news, and children's fare.

— Channel 2 operates daily from 6 PM to midnight, Saturday 4 PM to 12, and Sunday 2 PM to 12. Channel 2 is for Moscow only, presenting programs of local interest, TV magazines, and a nightly bedtime program for pre-schoolers.

— Channel 3 is also local. Channel 3 carries morning and evening programs for pre-schoolers, school children, correspondence students and doctors.

— Channel 4 is the Soviet Union's "high programme."Broadcasting 7 PM to 11 PM, it is devoted to culture and the arts.

The Soviet Union's 130 local originating stations follow a format similar to Ostankino's. The local stations carry Central Television's two national channels and produce one or two channels of their own.

Much of Soviet television stresses the educational uses of the medium. Academic courses are offered for high school and college students, training courses for factory workers, talks on agriculture for farmers, political education for the general audience. However, use of television as an in-school instructional device is limited. Educational television is widely used in Moscow and Leningrad for both students and teacher training.

Recently the Soviet Union has put into operation an agency to distribute Soviet television production abroad. A number of sales have been made to European and American television networks. In July of 1971 the USSR announced that it will telecast the BBC's prize winning dramatic series, "The Forsythe Saga." This will be the first Western made package to be distributed in the Soviet Union.

The USSR is a member of Intervision, a Soviet bloc mutual program exchange and relay network similar to Eurovision. On occasion Intervision has combined its facilities with Eurovision to relay selected programs from the West to Intervision viewers. Likewise, Intervision specials are often relayed to individual European participants. In addition, the Soviet Union has exchange agreements with twenty-two television services throughout the world.

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UNITED STATES OF AMERICA

The United States of America, a federal republic, is the world's fourth largest country in both area and population. It is composed of fifty states and the District of Columbia. There are two outlying states, Alaska and Hawaii, and forty-eight states occupying roughly the central third of North America. These states are bordered on the north by Canada, on the south by Mexico and the Gulf of Mexico, on the east by the Atlantic Ocean and on the west by the Pacific Ocean. United States topography features large western and small eastern highlands with vast plains in between stretching 1,500 miles. There is an elongated plain bordering the Atlantic coast and a few small plains along the western coast. The population of the United States has grown from almost four million in 1790 to over 200 million today. Growth has resulted from both natural increases and a large amount of immigration.

Radio was officially born in the United States on November 2, 1920, when KDKA, Pittsburgh, broadcast Harding-Cox election returns. Although other stations were on the air at the time, KDKA is the first commercially licensed standard broadcast station listed in the Department of Commerce Records. Growth was slow at first, with only thirty licenses being issued by the end of 1920, but interest soon began to develop and by early 1923, 576 licenses had been issued. Also in 1923 President Coolidge's message to Congress was broadcast by six stations. An important development prior to KDKA's broadcast was the purchase of American Marconi's assets by RCA. The sale of British Marconi's American holdings was politically induced to prevent a world monopoly of international wireless by the British company. RCA was formed by General Electric vice-president Owen D. Young who had handled the negotiations with British Marconi. RCA stock investors included GE, Westinghouse, AT&T and former American Marconi stockholders. One of the main purposes of RCA was to pool patent rights in order to break a stalemate that had developed in the production and sale of radio equipment. RCA made many cross-licensing agreements with GE, Westinghouse and AT&T.

The growth of the economic importance of broadcasting created many questions concerning the rights of companies with respect to the use of telephone lines and transmitters. These questions brought about two different viewpoints concerning the role of broadcasting. The "Telephone Group" of AT&T and its subsidiary, Western Electric, viewed broadcasting as a one-way extension of telephone service. AT&T built WEAF, New York, which became a leader in sponsored programs (called "toll" broadcasts). The techniques of network syndication and commercial sponsorship were first developed at WEAF. Their first network test took place in 1923 and later that year the station made the first permanent network circuit with WMAF, South Dartmouth, Mass.

The "Radio Group" of General Electric, Westinghouse and their subsidiary, RCA, held the emphasis on providing a program service to the public. The public must buy the receiving equipment in order to get the service. The Radio Group's rival to WEAF was WJZ, New York, which had organized a 14 station network by 1925. This network was accomplished without using AT&T telephone lines or selling time because of cross-licensing agreements. In 1926 AT&T concluded that its views on broadcasting were in error and in a set of agreements with RCA removed itself from broadcasting. AT&T's mistake was to emphasize the sender of the messages rather than the receiver. AT&T did maintain control of network relay systems and RCA was required to lease from AT&T. RCA purchased WEAF for one million dollars. After the settlement with AT&T the Radio Group formed the National Broadcasting Company (NBC) which became the first company organized specifically to run a broadcasting network. NBC was owned by RCA, GE, and Westinghouse. It was organized with two networks. The Blue network included WJZ and former affiliates

and the Red network was composed of WEAF and affiliates. Regular coast-to-coast network operations were begun in 1927. In 1928 CBS was formed and soon was in competition with NBC.

The Government made itself heard by passing the Radio Act of 1927. The legislation laid down some basic ideas about broadcasting.

1. The radio waves or channels belong to the people.
2. Broadcasting is a unique service.
3. Service must be equally distributed.
4. Not everyone is eligible even to use a channel.
5. Radio broadcasting is a form of expression protected by the First Amendment.
6. The government has discretionary regulatory powers. ("public interest, convenience and necessity")
7. The government powers are not absolute.[1]

These principles are the foundation of radio regulation. Later legislation, the Communications Act of 1934, re-enacted the Radio Act of 1927 and added jurisdiction over interstate and foreign wire communication. It also enlarged the Federal Radio Commission and changed its name to the Federal Communications Commission. The Heyday of radio really began in 1927 and extended until 1948. 1927-1937 was a developmental period when patterns were established between advertising, network operations and government regulation. 1938-1945 was a prosperous period with an increase in station and network competition and government surveillance. There were many changes between 1946-1948 with a sharp increase in the number of stations, the introduction of FM and the emergence of television.

Today there are 4,374 AM radio stations on the air and 2,775 FM stations on the air. Estimated radio sets in use in 1972 were 761,800,000 with an additional 91,700,000 automobile radios, or a total of 353,500,000.

Radio stations are generally owned by private corporations or individuals. There is a small percentage of stations owned by municipal or state agencies, local school systems and tax supported universities, but there are no stations engaged in domestic broadcasting owned or operated by the federal government. Most stations are run on a commercial basis although there are non-commercial stations and most programming in radio is produced locally.

Television began on an experimental basis in the 1920's in the United States and the birth of regular television broadcasting was in 1939 with experimental NBC station W2XBS. Until that time, important contributions in electronic television technology were made by Vladimir Sworykin, H. E. Ives, Philo Farnsworth and Allen B. Dumont. Zworykin developed the iconoscope and in 1939 Dumont marketed the first home television receivers.

There were no standards for television technology so in 1940 the FCC, confused by many different systems, provided for limited commercial operations in order to see which of 3 (RCA, Philco, and Dumont) different systems would work best. The idea backfired because there was a push to sell receivers (which could only receive one system). The FCC withdrew commercial operation privileges and set up an industry wide committee of engineers, the National Television System Committee (NTSC), to recommend standards. In

1941 the NTSC made several proposals including a change in line standards from 441 to 525, and FM instead of AM audio. In May of that year the FCC authorized full commercial operations. In 1942 radio and television production was stopped becasue of World War II and was not resumed until 1947. There was a spurt of growth in 1948 with an increase in the number of stations on the air, set production and audience. In the fall of 1948 the FCC realized that the existing station allocation plan and standards were inadequate and suspended all applications for new stations. The "freeze" lasted until 1952 when the FCC presented its *Sixth Report and Order* which provided for many additional channels. While this was occuring there was a fight underway to determine standards for color systems. The FCC adopted the CBS system in 1950, but it contained two major defects. One, it contained a mechanical device to make the color picture and two, it was not compatible with other black and white systems.

The manufacture of color equipment was suspended during the Korean War and by 1953 the NTSC had proposed a new compatible, all-electronic system which was adopted by the FCC in December of that year.

In 1955 the number of stations had increased to 439 (including 13 educational stations) and there were 33 million receivers. There has been tremendous growth in television in the United States and there are now 693 commercial and 213 educational television stations on the air. In 1971 there were 96,900,000 sets in use, of which 61,100,000 were black and white and 35,800,000 were color sets. 1972 figures show that out of 65,100,000 households 95.8 percent have television sets and over 50% of those have color sets. United States television is dominated by three networks. Columbia Broadcasting System, National Broadcasting Company, and American Broadcasting Company deal mainly in entertainment which represents about 70 percent of total programming. The rest of the program material is varied and may include news and public affairs, music an; cultural programs, sports and programs for children. There are many other types of television systems including non-commercial television, closed circuit TV, educational TV, and experimental TV. Another system is subscription television which is paid for by the viewer, but this form is still relatively nonexistent.

The FCC regulates all broadcasting activities in the United States and controls the granting and renewal of licenses to television stations. Although there has been a minimum of censorship and government control over television there are current questions being raised concerning the freedom of television and the lengths to which networks can relate their opinions to viewers.

The most recent development on the American television scene is the advent of cable television. Begun on a substantial scale in 1972, these systems were at first a distribution method of transmitting the tv signal via cable or wire to individual homes or outlets. The laws regulating such systems now provide for local production by the cable companies to make available public access to telecasting. A variety of local uses are to include schools, civic and governmental bodies, and other activities not served by larger local or network outlets.

The latest figures (1971-1972) indicate that 4,875 American communities were served by cable television companies. There were six million subscribers in 1971, a figure that has doubled since that time. Widespread use of cable television participation in community use spheres is in its beginning stages.

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[1]Sydney W. Head, *Broadcasting In America*. (Boston: The Riverside Press, 1956), p. 131.

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THE DEMOCRATIC REPUBLIC OF VIETNAM

The Democratic Republic of Vietnam, located in Southeast Asia, was formerly part of the French colonial empire in Indo-China. Vietnamese troops revolted against the French and defeated them in 1954. As a result of an international conference in Geneva, Vietnam was divided in 1954 into the "Democratic Republic of Vietnam" to the north and the "Republic of Vietnam" to the south. The Ben Hai River at the 17th parallel was designated as the border between the two new countries. The Democratic Republic of Vietnam borders the Yunnan province of China, Laos, the Republic of Vietnam and the Pacific Ocean. Its capital is Hanoi, and it is governed by the Communist Viet-Nam Dang Lao Dong Party. This body administers all governmental and educational facilities in the country.

Approximately twenty million people live on 61,300 square miles of land in the Dem_ atic Republic of Vietnam. The population is dense in certain specific areas, with 80 percent of the people living on 20 percent of the land. Among these areas is the Red River Delta, one of the most densely inhabited places in the world. About 90 percent of the population is Vietnamese; the remainder is predominantly of Chinese descent. The principle religions are Buddhism and Roman Catholicism.

Broadcasting: The Voice of Vietnam is the sole broadcasting system in the Democratic Republic of Vietnam. It is a publicly owned radio broadcasting system controlled by the Government's Council of Ministers and it is based in Hanoi. It uses both medium and short wave frequencies and operates a domestic service and a foreign service. The domestic service broadcasts in Vietnamese, and the foreign service broadcasts in Cambodian, Cantonese, French, Indonesian, Japanese, Korean, Laotian, Mandarin, Thai, and English. During the Vietnamese War the foreign service put heavy emphasis on English programs which it broadcasted daily and aimed at American servicemen in Vietnam. Both the domestic service and the foreign service are on the air for approximately nine hours per day.

Domestic broadcasting is heavily geared to the interests and needs of farmers, peasants and youth. "Special programs" are frequently produced, designed to reach specific classes of people such as workers, farmers, youth, women, intellectuals and minority nationals. The content of the programming ranges from education to hygiene, music, literature, modern agricultural techniques and the principles of patriotism in a collective society.

A July, 1972 United States Government publication indicates three main areas in the Democratic Republic of Vietnam where one or more radio transmitters are located: Hanoi (in the north-central region), Tay Bac (northeast) and Viet Bac (northwest). This 1972 source lists Hanoi as having thirty-four stations, Tay Bac as having four stations and Viet Bac as having four stations. "Stations" is here used to designate the different frequencies that the Voice of Vietnam uses; it employes transmitters that are capable of broadcasting in multiple frequencies. A 1965 UNESCO publication on world radio and television placed the number of transmitters in the Democratic Republic of Vietnam at none.

The cities and provinces outside of the broadcasting range of the transmitters have been provided with a wired distribution network which enables these areas to have clear reception of Hanoi broadcasts. This wire system is also provided for factories and State farms. In outlying districts where radio sets are scarce, numerous listening groups have been organized and provided with receivers placed in locations conducive to easy public access. The total number of radio sets in the Democratic Republic of Vietnam is unofficially 405,000; in addition it is known that the Government has distributed radio "speakers" in public areas for group listening in many parts of the Country.

Very little is known about the development of television in the Democratic Republic of Vietnam. A United States Government publication indicates that there is one television station in Hanoi, owned and operated by the Government. Its signal has a 625 line scanning system and is transmitted on an 8,000 kilohertz band width. Information concerning programming, distribution and the number of television sets in use is not available.

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REPUBLIC OF VIETNAM

The Republic of Vietnam, located in Southeast Asia, was formerly part of the French colonial empire in Indo-China. Vietnamese troops revolted against the French and defeated them in 1954. As a result of international conference in Geneva, Vietnam was divided in 1954 into the "Democratic Republic of Vietnam: to the north and the "Republic of Vietnam" to the south. The Ban Hai River at the 17th parallel was constituted as the border between the two new countries.

The Republic of Vietnam borders the Democratic Republic of Vietnam, Laos, Cambodia and the Pacific Ocean, and it occupies a total area of 66,897 square miles. The capital is Saigon. The area which now constitutes the Republic of Vietnam was a constitutional monarchy until it became a republic in 1956.

Vietnamese is the official language, and its script is a Westernized phonetic creation of the Jesuit Alexander de Rhodes.

The population of the Republic of Vietnam totals 17.5 million, a good portion of which is concentrated in the Mekong Delta area.

Government Owned Radio: The Vietnamese Broadcasting Service is controlled by the Government's Ministry of Information. It operates stations in Saigon, Nha Trang, Da Nang, Quinhon, Banmethout, Hue, Can Tho, Quang Ngai, and Dalat, and it runs these stations on some 25 medium wave and short wave transmitters.

Radio Saigon transmits in four program formats. The first is in Vietnamese only. The second in Vietnamese, English and Thai. The third in Vietnamese, Cambodian and Chinese and the fourth in Chinese only. The first three are on the air for 12½ to 14¼ hours per day, while the fourth program is broadcast for four hours per day.

Three regional radio stations broadcast for 7½ to 8½ hours in Vietnamese only, and all three are equipped with medium wave and short wave transmitters.

Radio receivers are subject to a license fee. The number of sets multiplied almost six times between 1951 and 1960; in 1969, one survey counted 1,300,000 licensed radio receivers in the country, or 73 for each 1,000 people. More conservative counts place the number of receivers at about one million in 1972.

Voice of America. The Voice of America is a part of the United States Information Agency. Its 50 kw transmitter in Hue broadcasts programs of United States origin; the indigenous audience is thus rather small. The transmitter is directional, and is beamed to the north.

Voice of Vietnam. The Democratic Republic of Vietnam Government regularly broadcasts programs to people in South Vietnam over the Voice of Vietnam, but since it is illegal to listen to these broadcasts in the Republic of Vietnam, the size of their audience is unknown; it is believed, however, that many from the Republic of Vietnam with missing realtives are listening in, hoping for news—occasionally Hanoi broadcasts voices of Repblic of Vietnamese Prisoners of War.

Voice of Freedom. This station is operated by the Republic of Vietnam Government. Its 50,000 watt directional transmitter located in Saigon is aimed at the Democratic Republic of Vietnam. The purpose of this station is to broadcast propaganda to the people in the north.

Armed Forces Vietnam Network (AFVN). This network is part of the world-wide Armed Forces Radio and Television Service designed to serve United States servicemen. It broadcasts only in English, and it consists of five AM stations. In addition to a 50,000 watt transmitter located at Cam Rahn and Pleiku. Besides these three outlets, the network has two 10 kw. stations, one at Qui Nhon and the other at Da Nang. AFVN officials estimate that 95 percent of United States servicemen in Vietnam are within primary coverage area of

one of these transmitters. The Saigon outlet is able to relay broadcasts from the United States immediately to each of the outlying AFVN radio stations by using microwave and telephone lines. It also has full scale production facilities and network transmission to all of the other stations, it has a complete tape operation as well as mobile tape equipment in a remote unit. It maintains a full-time staff which provides complete news coverage for the network. The other stations have a very limited production capability and depend largely on programming relayed from Saigon.

AFVN radio began in 1962 with an 18 hour broadcasting day, and by February 1965 it had a 24 hour broadcasting day. In 1966, AFVN acquired a direct link with AFRTS in Los Angeles, allowing AFVN to broadcast on the spot coverage of current affairs and sporting events from around the globe.

Government Owned Television. Television broadcasting in South Vietnam began in 1966. The first broadcasts were transmitted from two United States Navy Super Constellation airplanes circling above Saigon at an altitude of 15,000 feet. The flying studios were occasionally under fire from Viet Cong snipers during take-offs and landings. Plans were developed for studios and transmitters located on the ground.

The United States and Japan signed an agreement to establish a nationwide educational television network in the Republic of Vietnam, and NBC International, a division of the National Broadcasting Company, helped set up the station network.

The new television system began on Novemer 11, 1968. With its first official broadcast, the Republic of Vietnam became the ninth nation in the Far East to acquire television.

There are now four broadcasting stations in the Republic of Vietnam, three of them are 25 kw. and one is 10 kw. Relay stations broadcast signals over the hills into areas without stations. The five stations plus the relay stations over 80 percent of the population of the Republic of Vietnam. Unofficial figures put the number of television receivers at 500,000. The Government itself has placed about 3,500 sets in community centers in the hamlets, villages, and the highly populated areas of the bigger cities. The program content for all stations originate from two large studios in Saigon. The stations are on the air from five p.m. to eleven p.m. seven days per week.

About half of the air time is devoted to educational programming, documentary films and news. The other half is devoted to entertainment. The five stations (located i Saigon, Hue, Qui Nhon and Can Tho) are served by the studio equipment at the studios in Saigon. This equipment consists of a complete film chain, five monitors, two vidicon cameras, one video tape recorder and, working towards better productions, an air conditioner. Vietnamese television utlizies a 525 line standard; commitment to this standard is no doubt due to AFVN and NBC International's guidance in the construction of the studios and transmitters.

Armed Forces Vietnam Network (AFVN). Much like radio within the country, television stretches from the uppermost part of the Republic of Vietnam, just below the Demilitarized Zone, to well below Saigon in the south. The Saigon outlet can transmit film and slides. In addition it can handle motion pictures, still photography and processing. It has full local television production capabilities, both live and videotape. Saigon television has complete Government news services and commercial news service as well. The other AFVN television outlets have limited local production capabilities.

The television stations broadcast approximately 44¼ hours per week. They program Monday through Friday from 6:30 p.m. until 11:00 p.m., and on Saturday and Sunday from noon until 11:00 p.m. Though the broadcasting time is quite limited when compared to commercial American broadcasting stations, the programming facilities compare favorably with local level facilities in the United States.

AFVN television stations are not linked together, so stations must ship tapes and films to each other in rotation. AFRTS in Los Angeles sends a week's package of programs to the Saigon station, which airs the programs and forwards the package to the other stations. The last station routes the package back to Los Angeles. AFRTS ships timely shows, such as current affairs and sporting events, directly to each station.

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WESTERN SAMOA

Western Samoa is located in the South Pacific, midway Honolulu and Sydney, Australia. There are two main islands, Savai'i and Upolu and several smaller islands. The islands cover 1,097 square miles.

Topography. The islands are composed of volcanic rock with coral reef coasts. The two main islands have rugged mountain ranges. Dormant volcanoes and lava fields are all over the islands.

Population. The 1970 population census showed 152,000 people. Apia, the capital, is also the largest city with a population of 29,488. Samoan and English are the official languages. 19% of the people live in urban areas, 81% in rural areas.

Radio is government controlled. The Western Samoan Broadcasting Service was set up at Apia in 1948. There is 1 station. In 1968, there were 1,500 receivers. Programs are broadcast in English and Samoan. Radio telepnone services link Western Samoa to American Samoa, Fiji, New Zealand, Australia, Canada, U.S.A., and the United Kingdom. In 1970, there were 1,800 subscribers to this.

All television is received from American Samoa. In 1968, there were 50 receivers in Western Samoa. Plans are for getting many more receivers for educational purposes.

APPENDIX

PROGRAM

Sunday, April 8, 1973

8:00 pm Awards Ceremony
Broadcast Preceptor Awards
Broadcast Media Awards
CATV Community Service Awards

Monday, April 9, 1973

9:30 am General Assembly, Dr. J. Fenton McKenna, Dean School of Creative Arts, presiding.

President S. I. Hayakawa, "Widening Horizons for San Francisco State University."

Richard H. Veith, Lecturer, San Francisco State University, "Communications Satellites Summary."

Barry Murphy, Director Marketing and Planning, Telesat Canada, "Telesat Canada: Past, Present and Future."

Challenge Statements: James C. Hsu, Taiwan; David J. Cook, Ontario Educational Authority.

1:30 pm General Assembly, Dr. George Steiner, Educational Television Coordinator CSU/SF, presiding.

Kyoon Hur, University of Oregon, "Satellite Use in Korea."

Stephen Rosen, U.S. Office of Telecommunications, "Economics of Satellite Use in Alaska, Hawaii and the Trust Territories--An Informal Statement."

D. L. Foster, Federal Director, Federation of Australian Commercial Broadcasters.

Michaela Allen, Temple Buell College, "The Rocky Mountain—India Satellite Project."

Tuesday, April 10, 1973

9:30 am General Assembly, Dr. Richard Marsh, Professor Broadcast Communication Arts, presiding.

Dr. Herbert Zettl, San Francisco State University, "The Essence of Television."

William Wuerch, Vice President AVCO, "American Television Programming Philosophy."

Wen-wei Tseng, China Television Service, "Chinese Television Philosophy."

Michael Isaacs, Radio Station KSFO, "Changed Patterns in American Radio."

1:30 pm Workshops.

Television: Professor Quinn Millar, Directors Bill Weeks, Wayne Weeks, Steve Epstein.

Radio: Professor Paul Courtland Smith, Production Engineers Timothy Doyle, Michael Amatori.

Commentator: Professor Lowell A. Connor, Stephens College.

Broadcast Journalism: Professor John A. Galbraith, Peter Chang Chin, China Television Company, Elias Thomas, Micronesian Broadcasting Service, and Mitsufumi Okobe.

6:30 pm Twenty-third Annual Broadcast Industry Conference Banquet. Terrace Room, Fairmont Hotel.

Sir Charles Moses, Permanent Secretary Asian Broadcasting Union, speaker.

Wednesday, April 11, 1973

9:30 am General Assembly.

Dr. Stuart W. Hyde, San Francisco State University, "Broadcasting in the Pacific Basin."

Ms. Gwyneth Donchin, Consultant, Thomas Mullahey, KRON-TV, Elias Thomas, Micronesian Broadcasting Service, "Panel: Progress Report on Micronesia."

Dr. Edward L. Herp, Florida State University.

T. Ronald Ide, Cntario Educational Authority.

Challenge Statements: F. C. Garrett, Canadian Cable Television Association; Sam Posner, Pan American Broadcasting; John Y. Huang, China Radio Company; William S. Stein, Pacific Program Service.

Dr. Benjamin Draper, Conference Chairman, "The Program Exchange."

12:30 pm Luncheon, guests and faculty. Olympic Club.

Adjournment: Noon, April 11, 1973.

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EVENTS AND SESSIONS: Mr. Vincent Waskell and Mr. Darryl Compton; Mrs. Betty Jorgensen, Miss Judy Flannery, Miss Andra Jorgensen, Miss Trina Smith; Dr. George Steiner; Dr. Richard Marsh; Professor Quinn Millar, Professor Paul Courtland Smith, Mr. Timothy Doyle, Mr. Michael Amatori; Professor John A. Galbraith, Mr. Michael Isaacs.

AWARDS JUDGING: Dr. William C. Wente, Professors Quinn Millar and Paul Courtland Smith; Mr. Darryl Compton, Dr. Stuart W. Hyde, and Dr. Benjamin Draper. AWARDS: Mr. Sam Hom.

STUDENT MARSHALS: Mr. Tom Bailey, Mr. Lee Frenck, Mr. Christian Haseleu, Mr. Timothy Houlihan, Miss Marthan Minor, Mr. Mark Morgan, Mr. Tom Muller, Mr. Robert Reclite, Miss Barbara Seymour, Mr. Robert Wolterstorff, Mr. James Trickland, Mr. Richard Isaacs.

PUBLICITY: Mr. Fred Stern, Mr. Gary Shepard, and Mr. Richard Bynum.

CATERERS: Mr. Fred Roth, the Fairmont Hotel; the Olympic Club Golf Club, courtesy Mr. Doug Pledger, Mr. Tom Muller.

TRANSPORTATION AND HOUSING: Mr. James Easton, Mr. Marker Karahadian, Mr. Frank Mari.

Dr. BENJAMIN DRAPER, Conference Chairman