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Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 296

FBIS FOREIGN BROADCAST INFORMATION SERVICE

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FUTURE OF DOMESTIC SATELLITE AT DECISION POINT FOR GOVERNMENT

Sydney THE SYDNEY MORNING HERALD in English 4 Oct 83 p 4

[Article by Richard McGregor]

[Text] CANBERRA.—Seven years of debate over the future of Australia's communications will come to a head this month as the Federal Government prepares to make the final decisions on the use and ownership of the domestic satellite.

The satellite, Aussat, will bring television to many remote areas for the first time, as well as paving the way in both the city and the country for the introduction of new services like pay television, where a viewer can subscribe to a specialised channel for about $25 a month.

As well as enhancing services in the city, the satellite has the potential to overcome the remoteness of outback communities once and for all — in the field of education, for example, it could bring School Of The Air students together on television.

But the undoubted benefits to the outback communities are a convenient political cloak which obscures the real winners from the satellite — the private operators who get to use its capacity.

Because the satellite does away with ground networks, it presents Australia's three media empires — John Fairfax, Rupert Murdoch's News Limited, and Kerry Packer's Publishing and Broadcasting — with a chance to have truly national networking for the first time.

In deciding who can use the satellite, the Government will have to tread carefully between existing city and country media interests, as well as finding a way for new companies to become involved in broadcasting in Australia.

It also will have to decide the separate issue of ownership, where the choice is between leaving Aussat in the hands of the Government, selling it off to private enterprise, or putting it under the control of Telecom.

In the Labor Party, the issue will be debated at three levels — in the Caucus, in the office of the Minister for Communications, Mr Duffy, and in Cabinet, where senior ministers, including the Treasurer, Mr Keating, are taking a keen interest in the project.

The final round of lobbying kicks off on Monday when a Caucus communications committee will hear in closed sessions, lasting the whole week, submissions from 12 groups who want to use the satellite.

What they are competing for are four high-powered transponders and 22 low-powered transponders on the satellite. A transponder picks up a signal from earth and beams it to its destination.

The ABC has already been granted use of the first four high-powered transponders, which it will use to take television to remote areas, including to about 300,000 Australians who now have none.

The groups appearing before the committee include the three major networks, the Regional Television Association, Southern Cross Communications, the ABC, a West Australian commercial group, Golden West, Elders IXL and Myer.

The networks want to use the high-powered transponders to beam all over the country exactly what people now see in Sydney and Melbourne, including the commercials, as well as using a low-powered one to transfer programs between cities.

This naturally poses a threat to the regionals, who now have a monopoly over the areas they are licensed to serve, as it represents the first step in what they fear as their eventual takeover by the city.

Publicly, the regionals and the networks are at loggerheads. Privately, they are having extensive discussions about what sort of arrangement they can come to over use of the satellite.

The compromise will involve maintaining the independence of the regionals in programming, as well as ensuring that they receive a fair share of the advertising of national products which will go to air with the networks' programs.

In conjunction with this balancing act, the Government must consider how it will introduce pay television.

The TVA group (Television Australia Satellite Systems) remains favoured to provide this service to the outback communities. Its main attraction is its sensitivity to the needs of different local areas.

Elders IXL are at the head of a group of private companies pushing to set up a national pay television system, which they say gives the Government a unique chance to broaden the ownership of media in Australia.

The opposing plan of the ABC to establish its own pay TV service on the second set of high-powered transponders appears to be losing steam, after gaining much support from sections of the Government early on.

It is opposed by the Department of Treasury and Finance, which prefers to see the service run by the private rather than the public sector. The communications industry is also white-anting it on the grounds that the ABC could not run it. The Elders submission comments that pay television "is a business which requires a great deal of entrepreneurial flair and consumer marketing acumen. The ABC is clearly ill-equipped to handle this type of role."

The Minister for Communications, Mr Duffy, is now in the throes of preparing his Cabinet submission on both the question of the use and the ownership of the satellite.. His office will only say that he is "flexible."

CSO: 5500/7506

NEW MAINFRAME-TO-MICRO LINK UNVEILED BY AUSDATA

Melbourne THE AGE in English 4 Oct 83 p 37

[Text]

The Victorian computer manufacturer Ausdata has released the Ausdata 100 computer system (right), which the company claims adds a new dimension to the mainframe-to-micro link.

The Ausdata 100 and its software Ausdata Entry were originally developed for the data entry requirements of Computer Technology, which could not find a suitable data entry system for micros.

Computer Technology also wanted binary synchronous communications that could be used by operators with no technical experience.

Ausdata won the contract and began manufacturing the Ausdata 100 last November, going into full development four months ago.

The initial order was for 50 systems, however, Mr Graeme Greenhill, marketing manager of Ausdata, expects Computer Technology to order a large number of the systems over the next five years.

Telecom approval is expected within the next few days for an integrated 1200 BPS Auto dial, auto-answer synchronous modem. Mr Greenhill says the integrated modem will be the first to receive Telcom's approval.

The Ausdata 100 system is designed to allow non-technical personnel to enter data onto disks, this data is later transferred to the host computer for processing.

Extensive screen prompts and data validation capabilities keep operator training to a minimum.

Ausdata Entry provides a high-level format programming language (FPL) for screen formatting, operator prompting and data validation. Input formats can be developed or modified by staff with no programming background.

Also included in the Ausdata Entry is an IBM 3780-compatible communications protocol. Data files can be sent, received and printed via leased or switched telephone lines to almost any mainframe computer.

CSO: 5500/7506

BRIEFS

DATA MODEMS CONTRACT--DATACRAFT, of Croydon, Victoria, has won a $3.1 million Telecom contract for the supply of data modems over the next three years. Telecom's general manager of commercial services, Mr Mel Ward, said the modems were needed to match the demand for data services which was now growing at over 200 per cent a year. The modems, which will have 55 per cent Australian content, will handle data transmission at speeds from 2400 to 9600 bits per second on the Datel service. Mr Ward said Telecom's total purchases of data equipment during 1983-84 would amount to over $50 million, to cover the range of data services that Telecom offered its customers. [Sydney THE AUSTRALIAN in English 4 Oct 83 p 21]

CSO: 5500/7506

BRIEFS

'POLLUTION' BY FOREIGN BROADCASTS--Information Minister Harmoko said the Indonesian airspace has been polluted by foreign broadcasts as a result of technological progress in mass communications. Therefore, to balance the pollution of the Indonesian airspace by foreign broadcasts, the government will this year start to build a broadcasting station for Radio Republik Indonesia with a peak capacity of 250 kw at Cimanggis, south of Jakarta. Another station with the same capacity will also be built next year in Medan, North Sumatra. When lecturing a course for national [word indistinct] in Medan, Minister Harmoko also said in the near future the direct broadcasting by satellite, DBS, will appear in Indonesia, making it possible for Indonesian television viewers to watch television programs from other countries, such as Malaysia, Singapore, Thailand, and others. [Text] [BK091316 Jakarta International Service in English 0800 GMT 9 Oct 83]

CSO: 5500/4303

COMMUNICATION ENGINEERING EDUCATION, TRAINING IN CHINA

Beijing DIANZI XUEBAO [ACTA ELECTRONICA SINICA] in Chinese No 4, 1983 pp 9-13

[Text] Abstract: This paper gives a brief review of the history of communication education engineering in China, which has developed rapidly since 1949 and introduces some suggestions for improving this education.

This is world communication year. The social function of communication is gaining new meaning and new impetus on a world scale. Thus, an inquiry into China's communication technology education may have some significance.

China's communications technology education has a history of nearly 80 years, which can be divided generally into the period of Old China and the period of New China.

In 1898, under the influence of the historical tide of the "abolishment of Imperial exams and the promotion of a school system," the Qing government opened the Nanyang Public School and established an electrical machinery division and a ship administration division; in 1905, a wireless training class was established. In 1909, the Qing government's Ministry of Posts established a Railway Management Training Office; in 1910, a posts and telegraphs office was added and the name was chanted to the Communications Training Office. This was the early situation in China's communications education.

Old China's communications technology education was backward. After the 1911 Revolution, middle- and high-level technical personnel in communications were trained in the electrical machinery departments (some divided into electric power groups and electric communications groups) and physics departments of universities and from among a few graduate students (such as in the Wireless Institute of Qinghua University and the Telecommunications Institute of Jiaotong University). In terms of training of personnel in communications management, before liberation there was only the Telecommunications Management Department set up by Jiaotong University.

In 1947, to meet the needs of national liberation and military communications in liberated areas, the Dalian Electric Vocational School at Dalian and the Puchaji Electric Vocational School at Quyang in Hebei were established. In 1948, the latter was combined with the Pujiluyu Electric Vocational School and the name was changed to North China Electric Vocational School and wireless

engineering, wireless maintenance, telephone and meteorological communications classes were established. In the summer of 1949, the Engineering School was established at Zhangjiakou.

After the founding of New China, under the leadership of the CPC, there were very big developments in communications technology education. Looking back on the development process in communications technology education over the past 34 years, it breaks down into four states: readjustment of colleges and departments, the great leap forward, the decade of chaos and the revival and reform following the 3d Plenary Session of the 11th CPC Central Committee.

1. On the basis of the needs of national economic construction, it is necessary to have planned training of electronics science and technology and communications technology personnel. The readjustment of colleges and departments which was carried out in 1952 resulted in the establishment of radio departments at many comprehensive universities and scientific and industrial professional schools and the systematic establishment of relevant colleges and specialities according to posts and telegraphs, radio industry, railway and broadcasting. At the same time as this, middle-level technological schools (such as radio schools, posts and telegraphs schools) were set up in succession. In 1953, China began to carry out the First National Economic 5-Year Plan, communications technology education gradually developed along the same lines, and in the mid-fifties began recruiting graduate students and accepting foreign students.

2. In 1958 and the 12-year period after that, due to the influence of exaggeration, higher level education developed too rapidly and there was a decline in quality in communications technology education. In 1961, the party Central Committee issued the policy of "readjustment, restructuring, reorganization and upgrading," and the quality of education gradually improved again.

It could be said that the above two stages (1949-1966) actually laid the foundation for China's communications technology education, and that there were great achievements in training personnel in scientific research. The work of these 17 years can be summed up as follows:

a) Most of the personnel trained for scientific research, production and operation required by China's communications have become mainstays in today's communications world. Facts prove that their work is outstanding.

b) In formulating training plans, instructional outlines and teaching materials, we mainly followed the experience of the Soviet Union. Their production practice, curriculum design, and graduation projects were beneficial to training the students' ability for independent work; however, the specializations were too narrow so they were not beneficial to the development of either the students or the job; in addition, some teaching materials were too detailed and repetitive.

c) In the late fifties, the content of the teaching materials carried out the transition from electron tubes to transistors. In the mid-sixties, we began to enrich teaching materials focused on analog communications with digital communications content; at the same time as this we also added to it joint

specialization in theory and practice in such things as communications theory, antennas and electric wave propagation theory.

d) There were major contributions in terms of human talent, teaching materials, and equipment. In terms of teaching materials we have already gone from translating foreign teaching materials to writing complete sets of teaching materials ourselves.

e) The policy of combining teaching, research, and production has been implemented.

3. During the 10-year period of chaos from 1966-1976, China's communications technology education also suffered destruction and loss.

4. After the smashing of the "gang of four," especially since the 3d Plenary Session of the 11th CPC Central Committee, there has appeared a vigorous situation in China's education, and communications technology education has not only been revived, but it has also had new development: in 1977, the admission examination system was revived; in 1978, recruiting of graduate students was revived; beginning in 1981, recruiting of graduate students to study for the Ph.D. and the M.A. was revived; in the same period, the revival and development of middle-level technical schools was also given very serious consideration; a variety of forms was adopted, such astelevision universities, employee universities, and correspondence universities, in order to promote development through self-study and continuing education of the employed. On the basis of this practical experience, a completely socialist communications technology educational system of necessity will gradually begin to be established.

The basic situation in China's communications technology education now is: except for Tibet, Qinghai, and Ningxia, all provinces and autonomous regions have radioelectronics or electronics technology specializations related to communications (see attached table); undergraduate and graduate students in these fields who matriculated in 1977 and 1978 and have since graduated are now on the job. In view of the reactions from various areas, it is felt that the quality of education is good and this is probably related to the following factors:

a) the admissions examination system was strictly enforced;

b) the ideology and moral education of the students was regarded highly;

c) the lessons of past experience were summarized, and on the basis of the development of communications technology, foreign experience was considered, big replacements were made in specialization offerings and teaching plans, the applied instructional ratio of theoretical foundations and new technology in communications were stressed;

d) big replacements were made in instructional content, universally increasing the curriculum in mathematical foundations and digital communications,

communications system principles, application of computers and microprocessors in communications were added;

e) construction of teaching materials was strengthened. Relying on our own strength, in a short period of time we published a complete set of teaching materials from fundamentals to specialization and ensures the implementation of teaching plans.

At present, on the basis of the existing foundation we are carrying out selection and revision of teaching materials;

f) many schools have established or are preparing to establish research centers, computation centers and laboratories which have advanced equipment such as microprocessors, which has created the favorable conditions for strengthening scientific research and training of students;

g) such activities as scholarly exchange between institutions and scientific research units at home and abroad and the selection of the best teachers to go abroad for advanced study has been emphasized and strengthened.

Since the founding of the PRC, the contributions of schools and colleges in scientific research in communications have been significant, including some projects which have achieved advanced international elevels. The scientific research work which schools and colleges have begun in communications include: in information processing, there are language coding (waveform coding and sound coding), graph processing, and Chinese character information processing; in digital communications, there are various kinds of digital communications processing including self-adapting proportional technology; in communications systems, there are shortwave real-time frequency-selecting systems, digital microwave relays, separation multitrack and time-frequency-coded tropospheric-scatter systems, meteor-path communications, new satellite communications systems, atmospheric laser communications and fiber optics communications; in communications interference resistance, there are interference-suppression systems, frequency-skip communications, extended frequency communications. In addition, in mathematic communications theory and error-correction code some respectable results have also been achieved. We will not detail examples in other areas.

Modernization of communications now ranks as one target in China's priority developments, and this places even greater demands on communications technology education. Facing the practical topic of how to create a new situation in China's communications technology education, we here present several as yet undeveloped views.

1. Communications networks are among the most complex and broadest systems created by mankind. Communications technology is developing rapidly and thus communications management must be made scientific. Personnel for many areas, including communications technology personnel, communications management personnel, and new type personnel who both understand communications technology and have communications management ability (temporarily termed command engineering personnel) should be trained. Scientific forecasts of communications

personnel of various types should be carried out and personnel trained in a planned and proportional way.

2. In training communications personnel, the numbers of graduate students, undergraduate students, and vocational students should be in suitable proportions; there should be a corresponding ratio between technical personnel and manggerial personnel. In addition to telecommunications, appropriate necessary specialities should be established in design and management of the postal communications system and in new technological applications.

3. Specialities in schools and colleges should not be overly narrow but training in fundamental theory and technology should be strengthened so as to suit the new situations which develop in systems in the future.

4.. Make continuing education of employees in communications a part of communications technology education plans and systematize and regularize thorough measures. This is an extraordinarily urgent mission.

5. Strengthen weak links. For example, establish communications networks, system engineering, exchange systems, data communications, and secure communications as topics for advanced study by graduate students.

6. We propose that the Educational Work Committee of the China Association of Electronics and relevant specialist committees launch a movement for experience exchanges and research between communications technology and instructional materials.

7. We propose that relevant national areas organize forces and on the basis of existing teaching materials, and as soon as possible publish a complete set of instructional materials on communications technology education which are suited to China's national circumstances; publish a series of books which are suited for reading by engineers and technicians and would be good for updating information and strengthen publication of communications technology popular materials.

TABLE

Overview of Some Schools and Colleges Concerned With Communications Technology

[Source: "Brief Introduction to Institutions of Higher Education in China," Education Publishers, 1982; Taiwan information is temporarily lacking.

School	Departments and Vocations Concerned	Notes
Beijing College of Posts and Telecommunication	Department 1: Electronic Computers and Communications Engineering; Department 2: Radio Engineering;	

	Department 3: Posts and Telegraphs Mechanization; Posts and Telegraph Management Engineering	
Northern Communications University	Department of Railway Telecommunications, Department of Electronic Engineering	Has Information Science Institute and Optical Fiber Institute
Beijing College of Broadcasting	Department of Radio Engineering, Department of Television Broadcast Engineering, Department of Microwave Engineering	
Beijing Aeronautical College	Department of Aeronautical Radio Engineering	
Qinghua University	Department of Radio Electronics (Radio Technology and Information Systems) Department of Computer Science and Engineering	Has Microwave Electronics Institute and Radio Electronics Institute
Beijing University	Department of Radio Electronics, Department of Computer Science	Has Radio Electronics Institute and Chinese Information Processing.
Beijing Industrial University	Department of Radio Electronics, Department of Computer Science	Has Microwave Electronics Institute
Beijing Industrial College	Department of Electronics Engineering	
Beijing Normal University	Department of Radio Electronics	
Tianjin University	Department of Electronics Engineering, Department of Computer Science Engineering	
Fudan University	Department of Physics (Radio Electronics), Department of Computer Science (including Information Science)	

Tongji University	Department of Electrical Engineering	
Shanghai Jiaotong University	Department of Electronics Engineering, Department of Electrical Engineering and Computer Science	
Shanghai Industrial University	Department of Electronic Computer Engineering	
Shanghai University of Science and Technology	Department of Radio Electronics (including Radio and Information Engineering)	
Shanghai Railway College	Department of Telecommunications and Computer Engineering	
Nanjing University	Department of Physics (Acoustics), Department of Computer Science	
Nanjing Industrial College	Department of Radio Engineering, Department of Electronic Engineering Department of Computer Engineering	Has Radio Electronics Institute and LSI Boardmaking Center
Nanjing College of Radio Engineering	Wired, Wireless, Microwave and Computer Specialties	
Nanjing Aeronautical College	Department of Aeronautical Radio	
Nanjing College of Posts and Telegraphs	Department 2: Telecommunications; Department 3: Radio Engineering	
Northwest Industrial University	Department of Aeronautical Radio Engineering	
Northwest Telecommunications College	Department of Electromagnetic Engineering, Department of Electronics Engineering, Department of Information Engineering	

Chengdu College of Telecommunications	Department of Radio Technology, Department of Photoelectric Technology, Department of Electromagnetic Field Engineering, Department of Electromechanical Engineering, Department of Computer Engineering, Department of Computer Science
Chengdu Meteorological College	Department of Radio, Meteorological Specialty
Chengdu University of Science and Technology	Department of Electronic Technology and Electrical Engineering
Harbin Naval Architectural College	Department of Electronics Engineering
Dalian Shipping College	Ship Radio Communications, Ship Radio Technology
Dalian Industrial College	Department of Electronics Engineering, Department of Computer Science and Engineering, Department of Management Engineering
Zhejiang University	Department of Radio Electronics Engineering, Department of Computer Science and Engineering
Hangzhou Electronics Industry College	Department of Electronic Engineering and Computers
Hebei University	Department of Electronics (Radio Technology and Microelectronics)
North China Electric Power College	Department of Electronics Engineering (Electric Power Systems Communications)
Taiyuan Industrial College	Department of Electronic Engineering (Radio Technology and Electronic Computers)

Inner Mongolia University	Department of Electronics (Radio, Electronic Computers)
Shenyang Electromechanical College	Department of Electronic Engineering
Shenyang Aeronautical Industry College	Department of Electronics Engineering
Jilin University	Department of Computers
Changchun College of Posts and Telegraphs	Telecommunications, Engineering, Radio Engineering, Posts and Telegraphs Automation, Computers and Communications
Anhui University	Department of Radio
China University of Science and Technology	Department of Radio Electronics, Department of Terrestrial and Space Science
Hefei Industrial University	Department of Electronics Engineering
Xiamen University	Department of Physics (Radio Physics)
Fuzhou University	Department of Physics and Radio (including Radio Technology)
Jiangxi University	Department of Physics (including Radio Physics)
Jiangxi Industrial University	Electromechanical Department (including Electronics Technology)
Shandong University	Department of Electronics
Shandong Industrial University	Department of Electronics
Zhengzhou University	Department of Physics (including Radio and Radio Electronics)

Wuhan University	Department of Atmospheric Physics (Electrowave Transmission and Antennas, Radio Electronics, Atmospheric Physics)	Has Electrowave Transmission and Space Physics Institute
Central China Industrial College	Department of Information Science and Engineering	
Wuhan Industrial College	Department of Electromechanical Engineering	
Hunan University	Department of Electrical Engineering	
Zhongshan University	Department of Radio Electronics, Department of Computer Science	
South China Industrial College	Department of Radio Engineering	
Guangxi University	Department of Physics (including Radio Technology)	
Guilin Electronics Engineering College	Department of Radio Engineering, Department of Electromachinery, Department of Computers	
Sichuan University	Department of Radio	
Chongging University	Department of Radio	
Chongging College of Posts and Telegraphs	Department of Telecommunications Engineering, Department of Radio Engineering	
Guizhou University	Department of Physics (including Electronics Technology)	
Yunnan University	Department of Radio Electronics	
Xi'an University of Communications	Department of Electronics Engineering, Department of Information and Control Engineering	

Lanzhou University	Department of Radio Physics and Computer Science
Lanzhou Railway College	Department of Telecommunications
Xinjiang University	Department of Physics (including Radio Electronics)

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CSO: 5500/4178

AUTOMATIC TELEPHONES REVIEWED

Beijing NONGCUN DIANXIN JISHU [RURAL TELECOMMUNICATIONS TECHNOLOGY] in Chinese No 7, 1983 p 19

[Article: "Survey of Automatic Telephones Review Meeting"]

[Text] The Automatic Telephone Review Meeting which was organized by the North China Resources Management Office of the Ministry of Posts and Telegraphs opened in April 1983 in Tianjin. Some 90 representatives from 60 units attended the meeting.

In March 1982 the North China Resources Management Office of the Ministry of Posts and Telegraphs decided to have the China Telephone Consultation Equivalent Inspection Center carry out comprehensive testing of 10 examples of each of the 5 kinds of automatic telephones currently used nationwide, i.e., the model HD 680 produced by the Tianjin Telephone Plant, the Shanghai Telecommunications Equipment Plant's model HZ-1, the Ministry of Posts and Telegraph's Yangxin Telephone Plant's model HD 672, the Shanghai Jinshan County Plant's model ZZ-9 and the Hubei Macheng's model CZ-5, according to automatic telephone national standards GB-1492-79, GB-1493-79. The representatives at the meeting reviewed and discussed the test results, exchanged experience on telephone capabilities, use and maintenance, and issued a revised opinion.

The representatives all felt that the meeting went well and that it was a good start for discriminating automatic telephones relying on domestic science and data, and that it made a contribution to municipal telephone construction nationwide. The meeting recommended the model HD680 telephone equipment as the best and proposed that it be used extensively in municipal telephone communication networks nationwide.

	Rating percent		
Model Number	Electro-acoustics	Electricity	Haopan [5714 4149] life
HD680	75.8	96.9	66
HZ-1	67.9	87.8	0
HD672	60.7	95.5	33
ZZ-9	51.3	88.5	0
CZ-5	49.8	91.2	0

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CSO: 5500/4193

BRIEFS

TELEPHONE QUALITY FORUM--The Loyang Telephone Equipment Plant of the Ministry of Posts and Telegraphs held a product quality forum at the plant from 13 to 17 April, with 81 representatives from 61 units in 11 provinces and municipalities participating. At the forum, the plant introduced the performance, characteristics, and economic comparisons of the HJ921 and a long distance urban and rural automatic telephone exchanges and some measures to improve, upgrade and guarantee quality of the entire instrument's signal and power source. They also introduced the performance, characteristics and use of pay phones and amplified phones and demonstrated them, which was praised by the representatives who hope for early supply of the product. The representatives visited a production shop and presented the following opinions and demands: 1) age screening of primary parts should be strengthened and reliability should be improved; 2) level of product assembly should be improved; 3) spare parts should be supplied on time; 4) work to replace old equipment with new should be strengthened and a much higher quality product be created. During the meeting, Loyang's deputy mayor and deputy director of the municipal economic commission personally attended the meeting and met with the respresentatives [Text] [Beijing NONGCUN DIANXIN JISHU [RURAL TELECOMMUNICATIONS TECHNOLOGY] in Chinese No 7, 1983 p 19] 8226

TELEPHONE SERVICE PASSES TEST--The HJ-921 crossbar exchange service observation station which was test manufactured by the Chongqing Telecommunications Number 1 Plant by the Sichuan Posts and Telegraph Management Bureau at the request of the Telecommunications Bureau of the Ministry of Posts and Telegraphs passed appraisal in Chongqing 24-28 April 1983. Participating in the meeting were 86 representatives from telephone headquarters, provincial and municipal posts and telegraph management bureaus, scientific research, design and production units and the Chongqing Municipal Economic Commission and the Science and Technology Commission. Those at the meeting felt that the technical performance and standards of the service observation station met the demands of telephone headquarters and that the industrial equipment was complete and agreed that they should be produced in quantity. [Text] [Beijing NONGCUN DIANXIN JISHU [RURAL TELECOMMUNICATIONS TECHNOLOGY in Chinese No 7, 9183 p 19] 8226

MICROWAVE CIRCUIT ACTIVATED--After 1 year of preparations, the 24-channel 1.5GHz microwave circuit from the Zhishigang Posts and Telegraphs Bureau of the Jinhu County Posts and Telegraphs Bureau of Jiangsu Province, with the vigorous support of the Ministry of Posts and Telegraphs' Beijing and Hangzhou Communications Equipment Plants, began testing on 6 April. Output power of 1.4 watts, total noise and thermal noise levels met plant standards; there are four automatic dial circuits and sound quality and volume are satisfactory. After 72 hours of observations it was put into use on 9 April. Between the three encircling lakes (Baima Lake, Baoying Lake, and Gaoyou Lake) in Jinhu County, there is a channel into the Huai River which is called the "Flood Corridor" where the water is 7 km across at the widest point. The original underwater cable was destroyed long ago, and the bare-wire circuit takes a roundabout way and a considerable investment. After using the 1.5 GHz microwave transmitter receiver produced by the Beijing Communications Equipment Plant and the ZW-24 (24 channel) microwave carrier terminal produced by the Hangzhou Communications Equipment Plant, 16 communes and farms can be linked up. [Text] [Beijing NONGCUN DIANXIN JISHU [RURAL TELECOMMUNICATIONS TECHNOLOGY] in Chinese No 7, 1983 p 19] 8226

PRC, UK JOINT TELEPHONE COMPANY--Shenzhen, November 16 (XINHUA)--A joint Sino-British telephone company will be set up in the Shenzhen Special Economic Zone, in Guangdong Province. The company will build a telephone system capable of handling 200,000 lines, according to an agreement signed last week between the Shenzhen Telecommunications Development Co and the Cable and Wireless Public Ltd Co of Britain. Total investment in the venture is estimated at 360 million yuan (roughly $180 million), with the Shenzhen company holding a share of 51 percent. The contract will run for a period of 20 years. The joint venture will provide telephone services within Shenzhen and handle long-distance and international calls to the special zone through the Shenzhen Posts and Telecommunication Bureau. [Text] [OW161322 Beijing XINHUA in English 1156 GMT 16 Nov 83]

CSO: 5500/4150

SITUATION, GRAVE PROBLEMS OF BUDAPEST'S TELEPHONE SYSTEM REVEALED

Budapest ESTI HIRLAP in Hungarian 5, 6, 7, 8 Oct 83

[Article by Attila Bekes: "Two Hundred Thousand Applicants; Cable Jungle; Every Other One is Obsolete", including an interview with Vilmos Pozsonyi, director of the Budapest Telephone Management; place and date not specified; passages enclosed in slantlines are printed in italics]

[5 Oct 83 p 3]

[Text] The telephone situation in Budapest is serious. The telephone of the Hungarian Post Office loudly signals that /the 11th hour has arrived and it is impossible to wait any longer for the urgent decision./

Deplorable Record

A regrettable state of affairs exists in Budapest--the number of those waiting for a phone exceeds 210,000. Between 1981 and 1982, 45,000 telephone applications were submitted to the Post Office. Only 11,000 of these were fulfilled. Then the number of applications grew by another 34,000. In the past few months, /more than 10,000 new applications were submitted./ The problem is that only 4,500-5,000 new stations can be installed each year; we expect some sort of easing in the second half of 1985, but /even then, only in Buda, in the area of the Krisztina exchange./

The telephone system of Budapest resembles a haystack about to collapse. It is unstable, unfathomable and a confused tangle of cables. Representative examples are the multitude of enterprise law suits because telephone notifications are not received on time, or because deliveries are not made from one place to another. /Enterprises, institutions and residents of new city districts do not have access to telephone stations for years./ Because of this, factories and workshops use unnecessary labor; messages are conveyed by car. They ran a line from Krisztina to the new houses and doctors' offices in Bekasmegyer, /from Obuda, across the Arpad Bridge to Ujpest and from the Belvaros to Zugliget./ The paths of hundreds of cables now run between Budafok and Belvaros, Krisztina and Lagymanyos, and Budaors and Terezvaros. The residents of Bekasmegyer received Ujpest numbers. Now if someone's telephone in Bekasmegyer breaks down, he calls 03, the repair service, from his office the next day. /The 03 transfers him to Ujpest; however, it turns out that Obuda must be notified./

Order must be created within the system, and in Budapest the situation is now ripe for a new, large-capacity repair service center to be set up for the public.

"The true telephone situation in Budapest has two fundamental, determining features," /Vilmos Pozsonyi/, the director of the Budapest Telephone Management informed us. "There are over 210,000 people waiting for telephones and there are many who already have phones but are unable to use them satisfactorily."

[Question] /How are we to understand this?/

[Answer] It means that the capacity of the capital's telephone exchanges is 435,000; this is how many stations may be connected to the exchanges. Of the 435,000, 300,000 operate on the so-called Rotary system which may no longer be considered modern service. What is even graver and more worthy of attention is that 122,000 of the 435,000 stations do not satisfy technical requirements in the least, so these have already been totally discounted. This represents 20 percent of the telephone stations in Budapest. By the end of the planning period, we will have totally written off 90,000 stations, i.e., half of the telephones in Budapest. These figures speak for themselves. The poor telephone service costs one-tenth of the national income.

Electronic Exchanges

[Question] /What is the solution?/

[Answer] An accelerated pace of development would be necessary considering the present technical state of the telephone system. This question needs a decision on the national level; it is a timely task. /We truly are in the 11th hour/. The Post Office and industry are now taking joint steps so that construction of the first electronic telephone exchange could begin during the seventh 5-Year Plan. /The future of Budapest also lies here./ However, greater financial sacrifice, the appropriate industrial background, building capacity and experts are needed for this. Simultaneously, the technical prerequisites for switching to seven-digit telephone numbers must be created in Budapest by 1988. If we do not do this in time, /it will not be possible to expand the telephone network of Budapest and the capital's exchanges./

Fifty-Three Percent

Indeed, what does modernization mean? In Budapest, the renovation of public telephone stations has been completed--not without considerable financial sacrifice. But it was worth it. /The number of repair calls declined by 53 percent(!)./ The income during the first half of last year was 43 million forints, and 62 million forints to date this year.

[Interview with Dr Ivan Schmideg, department head at the National Technical Development Committee, by Attila Bekes: "Backwardness Spanning Several Decades; Expertise is Scarce; Sacrifice is Needed"; place and date not specified; passages enclosed in slantlines are printed in italics]

[6 Oct 83 p 3]

[Text] At the National Technical Development Committee, we were able to obtain information about the poor Budapest telephone system and the well known telephone problems.

"The Post Office engineers are not responsible for this", /Dr Ivan Schmedig, department head, says, as if immediately providing a technical evaluation of the level of preparedness of the telecommunications experts of the Hungarian Post Office. "Our experts have gained respect and honor for their work, for example, from the UIT in Geneva, and also from the International Telecommunications Union."

Trunk Lines and Stations

[Question] /True, but this is not sufficient for there to be more telephones in Budapest. The experts use two methods of analysis to characterize the miserable situation. One is the number of telephones per 100 residents; the other is the number of trunk lines per 100 residents. They say that the latter is more representative in the analysis of the real situation. What is the difference between the two?/

[Answer] Those who wish to cast the situation in a better light use the example of the number of stations and telephones per 100 residents--only here they include the total number of telephones, therefore also the total number of extensions belonging to the subexchange, of enterprises and institutions. /The picture is more realistic if we say how many trunk lines there are per resident of a given country./ In Hungary, the number is six. This is the more important figure and also means that we are low on the list of countries.

"The situation is even more difficult when we analyze the automation of the telecommunications system, but no so much in Budapest as in the rural areas. Presently, the situation is that when the village operator goes home in the afternoon, the contact of the residents with the outside world effectively ceases. And another frightening fact. /Presently 40 percent of the country's population has no access to a telephone./ The greatest degree of decline and backwardness in the construction of the country's telephone network occurred between 1930 and 1955. The neighboring countries pulled ahead of use during this time.

Faulty Conceptions

[Question] /What could be done to eliminate the backwardness?/

[Answer] The National Technical Development Committee has prepared studies and proposals for easing the grave situation. This is aided by /the national mid-range research development plan./ Even with its meager financial possibilities, the OMFB [National Technical Development Committee] supports the development of the telecommunications system and its displacement from a standstill position. In our opinion, the role of the infrastructure is presently becoming more important than we had imagined until now. We must consider more carefully where money is allocated and which capital investments

should receive priority. The telephone definitely belongs among them.

[Question] /How did we get into this position?/

[Answer] By not allocating as much money to the development of the telephone system as the pace of progress would have required./ Thus, the Hungarian telephone system is the victim of a faulty conception. Then in the later years, the deterioration of the world economic situation, together with our own, contributed to this state of affairs. By the mid-seventies, the situation developed so that we had to restrict capital investments--but in the meantime the telephone system continued to deteriorate and the demands constantly grew. This is why the number of applicants waiting for telephones is so high. We were unable to devote as much to the building of telephone exchanges and the expansion of lines as we should have. Now we must begin, time is pressing.

Home and Abroad

[Question] /Do we have the necessary material and personnel prerequisites for this?/

[Answer] It is generally known that it will continue to be difficult to begin new capital investments. This must at any rate be taken into consideration in the modernization and development of the telephone system. Nevertheless we must say that we must gradually see to the building of telephone exchanges and lines sparing no financial sacrifice. Outstanding experts work in the Hungarian telecommunications industry; thus, the domestic personnel requirements do exist. However, for the improvement of the Hungarian telephone situation, foreign licenses must also be purchased, morover, the most modern ones--thus, for example, the manufacturing system, technique and technology of electronic telephone exchanges. However, this is a financial issue; but it is not possible to wait for an answer much longer--a decision must be made!

[Interview with Laszlo Udvari, department head of the National Planning Office, by Attila Bekes: "Plans Until the End of the Millenium; Accelerated Development; But Even This is Too Little"; date and place not specified; passages enclosed in slantlines are printed in italics]

[7 Oct 83 p 3]

[Text] In examining the telephone situation in Budapest, at the National Planning Office, we were interested in knowing /what sort of long-range plans are there for the development of the capital's telephone network?/ What could be done to have more and better phones in Budapest?

New Financial Resources

"We have been working on an accelerated pace of development on the basis of government resolutions, /Laszlo Udvardi/, department head of the National Planning Office, informed us. "Nevertheless, we may not expect a marked improvement as a result of the present accelerated process for a good number

of years. The network and 40-50 percent of the installations have gotten into poor technical and physical condition /because many technically needed renovations were postponed in the earlier decades./ Now a significant proportion of the investments are earmarked for reconstruction; thus considering their allocations, the increase of telephone stations is more moderate.

[Question] /What decisions have been recently made?/

[Answer] Among the most important, I will mention that in 1979, within the framework of the long-range development of the Post Office and telecommunications, the government decided on the accelerated development of the telephone system. The sixth 5-Year Plan counted on the possibility of connecting 83,000 main exchange stations which would occur with the installation of 130,000 new stations in the country. We gained new financial resources from the 1981 price increase in telephone calls, and the State Planning Committee has targeted the overfulfillment of the goals of the 5-Year Plan and has created the technical and economic conditions for the installation of 108,000 main exchange stations.

[Question] /What may we expect from these measures?/

[Answer] On this basis, the 404,000 residential telephones in the country will increase by approximately 90,000, in contrast to the 50-70,000 targeted by the 5-Year Plan. With the acceleration we will still only accomplish the creation of as many telephone stations as in the previous 5-year planning period.

Changing Technology

[Question] /What degree of backwardness must be made up for?/

[Answer] Our telephone service is backward on an international level but also as compared to our economic development, with respect to both quality and quantity. The number of calling stations per 100 residents is 12.5, which is barely half of the European average. In the capital, there are 33.5 telephones per 100 residents; however, in the rural areas, there are only 7.5. Only 72 percent of the rural main exchange telephone stations are automatic. This means that 103,000 stations are switched manually. I say all this to convey to some degree the sort of enormous, national-scale task we are facing now and in the coming decades.

[Question] /What goal determines the development of the telephone system?/

[Answer] The final goal of the time period we are facing--which is not until the end of the millenium--is to create an integrated telecommunications system which will carry a wide-ranging development of information. This sort of task could only be performed by a system based on digital technology. The adoption of this system could begin at the end of the 1980's, by the earliest. The Hungarian Post Office and the affected branches of industry, above all the telecommunications industry, must work together in close cooperation on the adoption of a technical system. But even in our present economic state, we

may not forgo a modest degree of acceleration in our telephone development.

[Question] /What will Budapest gain from this?/

[Answer] In the past 20 years, 60 percent of the telephone station expansions were in the capital. /This proportion will remain the same for a good number of years./ Although this proportion will decrease according to our plan, the number of connected stations will grow more rapidly than previously. The Hungarian Post Office is presently also taking great pains to improve the telephone situation in Budapest. In the past two years it renovated 3,867 public telephones and increased their number by 404. Another 1,070 new public telephones will be placed in operation by 1985 and another 300 will be renovated.

In addition to the public telephone development program, the Terez exchange is being expanded this year, which will not only increase its capacity by 5,000 but will also make the connection of 9 container exchanges possible at a later date. The Obuda exchange is being expanded by 3,000 and in Pestlorinc a container exchange is being placed in operation. In the next 2 years Csepel, Budafok, Kaposztasmegyer, Obuda, Zugliget and Szabadsag-hegy will aggregately receive 9 container exchanges. According to our plans, the Krisztina II exchange with a capacity of 30,000 stations will be built in 1985, which will also make the addition of 10 container exchanges possible later.

Strain-Bearing Capacity

[Question] /Is it possible to keep pace with the ever growing demands?/

[Answer] I do not maintain that these developments are of a satisfactory degree compared to the demands. This would be far from true. Many of the presently approximately 200,000 telephone applicants in Budapest will be without phones even in the 1990's. But we must realize that /the present telephone system development program is at the limit of the strain-bearing capacity of our economy./ One of our important tasks in the national economic planning work is to create the technical and economic conditions for an accelerated pace of system development in the future.

[Article by Dr Ferenc Valter, director of telecommunications services: "Accelerated Development with Domestic Installations; Waiting for Seven-Digit Numbers; Krisztina is Being Built"; passages enclosed in slantlines are printed in italics]

[8 Oct 83 p 3]

[Text] There are hardly any manually operated telephone exchanges in Czechoslovakia and in the GDR, and in Rumania /continuous service/ for every telephone subscriber /is solved/. In Bulgaria, during the past 5-year planning period, the creation of approximately 120-150,000 telephone stations a year was aided by an emphasized economic program during the past 5-year planning period. For this reason alone, we find the results of the sixth 5-Year Plan unacceptable: /it was within our means to connect only 108,000 central exchange stations/--because of the investment resources at our disposal.

There are more than 210,000 telephone applicants. We will be able to install 45,000 new central exchange stations during the sixth 5-Year Plan. At this rate of development, /they will wait more than 15 years for telephones./

Long-Range Plans

The telephone situation is critical in Budapest, especially in the 15th-22nd districts, primarily because to date we have not had an opportunity to establish new telephone exchanges in any one of the eight districts. /The Post Office has worked out the development plan of the telephone system of Budapest/, and in the interests of making expansion possible, has precisely determined where central exchanges must be built--first of all in the outlying districts. Taking into consideration the inclusion of electronic exchanges, /modern service could be solved with 27-28 central exchanges./

On the basis of long-range plans up to the year 2000, 14-15 new central exchanges must be built in Budapest during the coming 1 1/2 decades. In the remaining exchanges, the old rotary exchanges must be systematically replaced, primarily with large-capacity electronic exchanges which require significantly less space and energy./ Beside attending to the task of reconstructing the main and subexchanges, we must also arrange for the adoption of seven-digit numbers, the technical plan of which we worked out in cooperation with the BHG.

The adoption of this system would provide the possibility for /making the development of 1 million more telephone stations in Budapest possible./ The rate of development is very low--even considering the great extent of backwardness. In order to prevent the intensification of our backwardness as compared to our national economic development and also to the neighboring countries, at the very least /we must carry out the work of reconstruction and the building of new telephone capacities in double time, starting in the upcoming years./ The development of the national telephone system, including that of Budapest, could only be considered of a satisfactory rate and proportion if we are able to make up a larger proportion of our backwardness by 1995 at the latest, by which time we should have at least doubled the present capacity of the main exchanges. The condition for this is that priority must be accorded the acceleration of telephone development on the basis of the government decisions of the past years, and the economic background for the development must be created within the national economic planning.

After Paris

It is necessary that in the following 5-Year Plans we consider the reconstruction and modernization of the telephone system as an emphasized program. The Post Office together with the telecommunications industry is capable of domestically manufacturing new telephone exchanges and equipment.

The decrease of the per unit costs of the investments and operations and a shortening of the production period of the investment could be expected due to the new telephone equipment and instruments. However, in our opinion, /the reconstruction and expansion of the telephone system/ undertaken with the telephone exchanges and equipment presently manufactured by the Hungarian

telecommunications industry/ could be carried out faster with the availability of greater development resources./ For years, the technical personnel of the Hungarian Post Office have already begun preparations for the reception of a more modern telephone system. Simultaneously we are also preparing to be able to execute an accelerated reconstruction and development program.

In addition to the trunk line cables between telephone exchanges, microwave connections appeared in Budapest in 1980, /second only to Paris/ among the European cities. The container exchanges help the most essential demands, but we also know that the anxieties of 10,000 applicants/ in each unserviced area /may not be solved by a container exchange with a 1000-station capacity./ Without the utilization of these new technical solutions, the Budapest system would have been in an even graver state than it is now.

Old Cables

In the upcoming years--until the occurrence of large-scale development--our main task will be to maintain the exchanges and network at still acceptable levels. This is an ever more difficult and costly task because of the aged exchanges and cables. Additionally, the greatest tension today is caused by the fact that /we have been unable to distribute telephones to those who have been waiting for 10-15 years, or even longer, /in most of Budapest because of the lack of development, /and the developments of the coming years will not fundamentally change this./ Our goal is the preparation and execution of concentrated reconstruction coupled with development (presently, there is one such capital construction in Budapest, that of the Krisztina exchange valued at 1.6 billion forints), since piecemeal development would /lead/ to costly solutions and to an /even more tangled situation/. The total systematization of the network and better service are jointly the great task of the following decade.

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BRIEFS

NEW CABLE TELEVISION SYSTEM--St Johns, Antigua, Nov 1, CANA--Antigua's new cable television system [CTVS] today officially started a 24-hour service on nine channels using mostly North American satellite programming. The company's public relations officer, Stanley Bowen, said subscribers in the capital, St Johns, and surrounding suburban areas are now receiving the service. He said testing by CTVS technicians is continuing and an additional channel will be made available within the next few days. CTVS's new service involves programming in news, sports, entertainment specials, music, first-run movies, and local, educational and children's shows. [Text] [FL020220 Bridgetown CANA in English 2323 GMT 1 Nov 83]

CSO: 5500/2018

PROCEEDINGS OF THIRD INFORMATICS FAIR REPORTED

Sao Paulo VEJA in Portuguese 26 Oct 83 pp 86-89

[Text] With 300 exhibitors, the Third Informatics Fair shows the vitality with which that sector is developing in Brazil.

An immense and brilliant electronic Noah's Ark, that is how one could regard the Third International Informatics Fair held last week in Anhembi Park, in Sao Paulo. If for some reason all the other computers suddenly disappeared from the face of the earth, an excellent museum was there assembled on the state of computing in the early eighties. At the fair, national manufacturers presented 11 new microcomputers at once to a field that they began to master only half a dozen years ago. Among their products were two microcomputers, one from Scopus, the other from Softec, capable of doing the same work as the famous PC, the IBM personal computer which for the past 2 years has crushed its competitors in the United States. Xerox, in turn, presented a computerized laser machine that prints copies at a speed of 18,000 lines per minute--an overwhelming advance over its fastest predecessor, which did not exceed 1,500 lines per minute. And IBM, the largest company in the field in the world, restricted in Brazil to the production of large mainframe computers, offered visitors to its stand a panorama of the most advanced items available in world computing.

The attractions offered by IBM were many. In one of the rooms of the "Tunnel of Technology," as it christened its 1,000-square meter stand, the company put into action a sensitive and precise robot that assembles tiny electronic components in its plants in the United States. In another, it presented a recently developed screen for computers that is only a few centimeters thick, compared to the 33-centimeter deepth of the videos currently in use, and which shows spectacularly clearer and sharper images than its predecessors. Finally, IBM showed the latest creation of its researchers in the field of electronic components: a chip smaller than a shirt button that can store 524,288 information units on its surface, eight times more than the memory chips currently in use.

Leaps in the Crisis

For 7 days, more than 300,000 persons toured the 270 stands at the fair to see, compare and possibly order computers and accessories. And the number of visitors alone would be enough to attest to the impact that computers are

are having on the life of the country. "Hundreds of thousands of persons left the fair thinking about the world in a different way, many of them interested in buying a computer," declared industrialist Salvador Perrotti with satisfaction at the end of last week. He is the owner of OPT, a Brazilian company that creates computer programs and chairman of the fair as well as of an informatics congress that was held simultaneously with the exposition. In the sixties, the informatics fairs, with little space and few visitors, only contained the products of multinational companies. Five years ago when the Brazilian industry was still in its infancy the first exposition that included national machines offered a number of Brazilian products that could be counted on one's fingers. In contrast, in this year's fair, 80 percent of the exhibiting companies were Brazilian. And today they control 45 percent of all revenues from sales in the informatics sector in the country.

The leap is truly a respectable one. Since the government 6 years ago reserved the production and sale of small computers to national companies--precisely the area that is growing the most in that sector--Brazilian industry has developed by leaps of 30 percent per year, little bothered even now by the economic crisis that weakens other sectors of industry. In 1980, the total number of computers in the country did not amount to 9,000 machines. In 1982, they totaled 23,000 units. And by the end of this year, there will be more than 50,000 computers spread out among homes, universities, factories and commercial establishments. At the present time, there are 20,000 persons working on the manufacture of computers or related equipment and it is estimated that that number will jump to 35,000 next year, on a par with the gigantic Volkswagen plant with its 35,500 employees.

Sensitive Area

"A few years ago, we imported everything and today we are already manufacturing microcomputers, minicomputers, disks, printers and terminals," said Perrotti. According to him, and practically all the industrialists in the sector, the Brazilian leap is due mainly to the protected market. He explains: without the protected market, the foreign industries would be in a position to manufacture and sell in Brazil computers identical to the ones manufactured by Brazilian industry at a price that Perrotti estimates would be four times less. "That would decimate our industry, which is beginning to establish itself," he said. It can be argued that if industry gains as a result, it is the consumers who loses. But the fact is that as computers become smaller, better and cheaper each year, the informatics area similarly becomes a [more] sensitive sector in Brazil each year, especially politically.

That is precisely what Gen Danilo Venturini, the secretary of the National Security Council, said as he inaugurated the informatics congress and fair in Anhembi. "The protected market is not simply an economic measure, but rather it is a political one", he said. According to Venturini, the protected market is established as a temporary instrument to reduce Brazilian dependence in the sector.

Later, that policy may change, but not now. Concurring in that policy is such a key national industrialist in that sector as Sao Paulo native Edson Fregni, 37 years of age, who founded Scopus 4 years ago and today views it as one of the strongest companies in the sector. "At the rate we are going, we will reach a level where we probably can dispense with protectionism," said Fregni. For some time, however, he believes that the protectionist wing of the state will still be needed.

The question is naturally complex and finds the adversaries of the protected market, situated among the representatives of the multinationals, armed with equally powerful arguments. "IBM believes in free enterprise and the free market, and the protected market prevents us from producing a number of items of equipment here that would contribute to increasing the competitiveness of Brazilian industry," declared engineer Robeli Jose Libero, president of the company, although he noted that he recognizes "the right and the obligation of the government to establish the policies it considers necessary for the informatics sector."

"We are working within the rules of the game," declared Luiz Carlos Barata, director general of the Brazilian affiliate of Hewlett-Packard of the United States. "Brazil has its reasons to follow that route but it is necessary to assume the costs which that represents," he adds. In his opinion, national industry does not have the necessary funds to invest heavily in technology and to make its product competitive on the world market.

In fact, equating it with the technology of the developed centers is, for the time being, a chimera--and Scopus itself offers a good example of that. In a leap ahead of its competitors, the company launched the Nexus microcomputer at the informatics fair, with a list price of around 8 million cruzeiros. Equipped with the most power microprocessors imported from the United States, Nexus presents a great advantage: it can be used with the same practical programs created in the United States for the IBM PC microcomputer. It so happens, however, that the Nexus is on a par only with the PC of 2 years ago. Last week. exactly while it was being launched in Brazil, IBM was presenting two more powerful versions of its microcomputer in the United States.

In any case, the Nexus is a magnificent machine. Together with the Ego, presented at the same time by Softec at a higher price--11 million cruzeiros--it comprises the two most versatile microcomputers on the market, capable of performing twice the number of operations of its competitors. Both the Nexus and the Ego can perform up to three operations simultaneously, for example, invoice a product, issue the bill and record the reduction of the inventory, all at the same time.

The Right to Copy

The protected market has another byproduct, not very admirable from an ethical point of view; the copying, purely and simply, of foreign models by the national companies. There are already cases of companies that even admit

openly that they copy, as the case of Unitron of Sao Paulo. Since 1982, that industry has been offering in Brazil a version of the American Apple II--the closest competitor to the IBM microcomputer in the United States--and even copies the name: Ap II. Furthermore, Unitron even derives marketing dividends from that similarity, announcing as its slogan: "Better a Real Unitron than a Fake Apple."

"Our copy is the most exact one possible," proudly declares Geraldo Augusto de Azevedo Antunes, commercial director of the company, which has already sold 1,500 units of its microcomputer, more than any other of the eight Apple II look-alikes circulating in the Brazilian market. According to Antunes, his nationalized version is 100 percent reliable. "We utilize an electronic wave soldering machine and cover the boards with epoxy to guarantee the durability of the machine," he declared. "Among those who have translated the Apple to Brazil, very few have concerned themsleves with those details," he commented.

Since Brazilian law does not prohibit copying, the companies are constantly invited to go ahead. Thus, those interested in imitation need only to disassemble the foreign machine, study its components, purchase other similiar ones and assemble them the same way as in the original. "Why pay royalities to other countries if we can do the same as the Japanese, who copied everything from the Americans?" asked Antonio Didier Vianna, a retired navy commander and one of the owners of the Rio Microlab company.

Buttons in Informatics

With copies and adaptations but also with the development of original designs, Brazil is gaining a strong industrial park in the area of informatics. "Little by little, our equipment is reaching a high degree of nationalization," declared Perrotti. "In the case of the computers, that level has already reached 90 percent and within another 3 or 4 years, we will reach 100 percent." So attractive has the informatics lode become in Brazil under the umbrella of the protected market that companies from other areas are beginning to join rapidly. Such is the case of Ritas do Brasil, with headquarters in Sao Paulo and the national leader in the manufacture of plastic pressure buttons, which flow out of its factory at the rate of 60 million units per month. Ritas also produces button sewing machines and it was through that route it came to informatics, in a story that exemplifies how actions in that sector can arise in the most unexpected ways.

Asked by a client to create a faster button-sewer, Ritas arrived at the conclusion that the equipment could be created only if it had a small computer operating in it. "So we established an informatics division in the factory to produce the computerized comtrol of the button machine," related Victor Garcea, director of the company. "And we ended up using the know-how acquired to build a computer." The machine that thus emerged, the Ringo, a microcomputer with a list price of 300,000 cruzeiros, was presented at a stand of the informatics fair and the company that produced it believes it will be able to sell 5,000 units per month in the next few years without diverging far from its traditional line of operation. "After all," joked Garcea, "computers also have buttons."

A sure sign that computers have a guaranteed life in this country is the interest with which children and youth people turn to them. Alongside Anhembi, the industrialists in charge of the informatics fair set up a circus tent, placed 15 computers in its and in response managed to gather 240 children from 7 to 11 years of age for a daily contact with the machines during the entire week. In the meantime, inside the pavilion, in the space reserved for the fair, Mappin, the largest department store in Sao Paulo, exhibited another attraction. To operate the computers that it markets, it called on a little 5-year old girl, Roberta Seixas Guimaraes Faria Lima, who learned how to make geometric designs, add, divide and multiply on the machines, even before learning how to read. Her father, Jose Roberto Faria Lima, former federal deputy for Sao Paulo and director of Sisco, of of the largest Brazilian industries in the field of informatics started her early. And she appeared extremely effective as featured publicity girl at the Mappin stand. "It's easy," she explained to the many audiences that attended her demonstrations.

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CSO: 5500/2014

NEW DECREE TO REGULATE RADIO BROADCASTING

PA141331 Bogota EL TIEMPO in Spanish 8 Oct 93 pp 1-a, 12-b

[Text] Yesterday the government announced that starting today the establishment of new radio stations will be effected through a bidding process. At the same time, the closure of some 100 radio stations that failed to keep their licenses up to date was announced. In addition, Radio Nacional and offical and private institutions with strictly cultural programming will be given precedence in the assignment of available Amplitude Modulation (AM) and Frequency Modulation (FM) frequencies.

According to the Communications Ministry, the decision to close 100 radio stations was made because they have not bothered to renew their permits in the past 5 years. An official of that ministry said: "There are instances when the ministry has unjustly delayed the processing of documents; we are already working on this. However, absolute negligence on the part of the radio stations is common, and we are determined to reestablish order.

The government bases its decision to establish radio stations through a bidding process on Decree No 2820 of 30 September 1983, called the "National Radio Broadcasting Plan." The decree was signed by President Belisario Betancur and the communications minister under the provisions of Decree No 222 of the same year. According to Decree No 2820, new radio stations can only be established in the following areas:

A. The border areas.

B. The national territories and islands.

C. The municipalities having no radio stations.

D. The municipalities with no more than three Am and two FM radio stations, if they comply with strict rules regarding the number of inhabitants.

The decree also indicates that at the opening of each bidding process, a list of regulations will determine the frequency, power, and other technical and economic requirements, as well as the nature of the programming.

With the issuance of Decree No 222 and the new decree, the government is seeking to end the serious irregularities that have existed for many years. Among them, the following can be mentioned: The lack of order and the favoritism in the issuance of

permits; the proliferation of radio stations to the extent that to maintain themselves they have systematically violated their programming commitments by yielding space to people, such as sorcerers and quacks, who swindle the public; and irregularities such as those committed by individuals who apply for a license to establish a radio station of a certain power, but immediately purchase equipment for a much more powerful station. Henceforth, this problem will be subjected to a stricter system of controls.

EL TIEMPO will publish the complete text of the new decree tomorrow. [The text of the decree was not published in the 9 October issue of EL TIEMPO.]

CSO: 5500/2017

SATELLITE COMMUNICATION SYSTEM TO BE OPERATING IN 1985

Paris AFP SCIENCES in French 20 Oct 83 p 31

[Text] Budapest--Mexico will have a domestic satellite communications and broadcast system, which is scheduled to become operative in 1985, according to an announcement made in Budapest on 14 October by Mr Miguel E. Sanchez Ruiz, director general of the Department of Space Projects in the Secretariat of State for Communications and Transport.

Mr Ruiz, speaking at the Astronautics Congress, said that the system will consist of two MORELOS satellites that are to be launched by the American Space Shuttle in May and September of 1985 respectively.

Built by the American firm Hughes Aircraft, they will be put into geostationary orbit (35,600 km) at 113.5 and 116.5 degrees west longitude, thus providing full coverage of the country, and even beyond on certain frequencies.

Cylindrically shaped (2.16 m in diameter, 6.60 m in height), the MORELOS satellites will weigh 1,240 kg at lift-off, inclusive of their McDonnell Douglas PAM-D [Delta Payload Assist Module] apogee motor. Their orbital mass will be 666 kg, including 145 kg of hydrazine. Their on-board electrical power will be supplied by solar energy at a maximum level of 940 watts, and they will be equipped with numerous redundant systems designed to give them a record life expectancy of 9 years, Mr Ruiz pointed out.

As regards ground installations, Mr Ruiz provided the following details: The principal earth station, equipped with a 12-meter-diameter antenna, will be located at Iztapalapa, near Mexico City. A standby station will be built at Tulancingo, 85 km from Mexico City.

Mexico already has more than 200 receiving, rebroadcast and domestic telecommunications stations operating via an INTELSAT satellite; these can be used with the MORELOS satellites.

"The intent of the Mexican government," Mr Ruiz said, " is to extend and increase the number of communications services to the rural zones. Mexico has 13,540 population centers of more than 500 inhabitants. Initially, it is planned to build 1,600 stations for this purpose."

These stations will be of different types: Some, with 2- to 4-meter-diameter antennas, will provide mainly television, telephone and telex services. Others, equipped with 6- to 10-meter-diameter antennas, will be used to provide high-capacity interurban communications links. And lastly, it is planned to develop direct satellite-broadcast reception by consumers, using 1- to 2-meter-diameter antennas.

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CSO: 5500/2016

MINISTER TELLS FACTORS HAMPERING TELECOMMUNICATIONS

Calcutta THE STATESMAN in English 8 Oct 83 p 12

[Text] New Delhi, Oct. 7.—Lack of adequate finance and poor maintenance of telephone systems are among the five factors that have hampered telecommunication expansion in the country, Mr V. N. Gadgil, Minister of State for Communications, said here today, reports PTI.

A heavy load on the telephone lines, obsolete technology and lack of high priority for telecommunications development were the other factors, Mr Gadgil said. He was opening a "communications seminar" organized jointly by a East German firm and a Delhi-based firm.

In India, there were only three telehpones for every 1,000 persons, compared to 400 to 500 telephones for every 1,000 in the West, resulting in heavy pressure on the telecommunication lines, he said.

Admitting that the telecommunications systems in the country were not working satisfactorily, Mr Gadgil said that there were difficulties in integrating different types of systems like the cross bar exchange and electronic digitals.

He expressed concern at the level of maintenance of the telecommunications system in the country, saying it was not high. He said that 70% of industrial production in India, both in the public and private sector, was affected because of lack of maintenance.

With regard to mobilization of additional financial resources, Mr Gadgil suggested that clients who had more than one telephone installed at their residences should be charged double the normal tariff.

He said that the projected increase in demand of telephones by 11% each year was an underestimate since the waiting lists in many cities were large.

In Bombay alone, which had at present 500,000 telephone connexions, the waiting list was 150,000. Even if one million telephones connexions were provided, there would be many takers in the city, he said.

Referring to the import of technology, Mr Gadgil said that it should be in such a way that it is conducive to local requirements. The GDR Ambassador to India, Mr Heinz Birch, said that his country was assisting developing countries in setting up telecommunication systems in a big way. About 1,000 qualified engineers from Asia, Africa and Latin America have been trained. About 100 German experts have been assigned for this.

CSO: 5500/7023

NEW ALL-INDIA RADIO TRANSMITTER INAUGURATED

Madras THE HINDU in English 11 Oct 83 p 7

[Text] CUDDAPAH, Oct. 10.

The Union Minister of State for Home, Mr. H. Venkatasubbaiah, inaugurated here today a 100-KW medium wave transmitter of All India Radio. It will reach out to 90 lakh people in the districts of Rayalaseema, Nellore and Prakasam.

With this, the four AIR stations at Hyderabad, Vijayawada, Visakhapatnam and Cuddapah together cover 85 per cent of the area and 90 per cent of the population in the State.

Addressing the gathering on the occasion, the Union Minister of State for Information and Broadcasting, Mr. H. K. L. Bhagat, said Cuddapah town would have a television relay station by the end of next year and a full-fledged broadcasting studio for AIR by March 1985.

The Union Government would accept the proposal to set up a regional film censors office in Andhra Pradesh, he said. It was also considering establishing a TV relay station at Proddatur town.

Mr. Bhagat said that by the end of the Sixth Plan, the number of TV relay stations in the country would go up from 42 to 180, involving an expenditure of Rs. 184 crores. An unofficial agency would be called to improve the content of television programmes.

Mr. Bhagat said radio could go a long way in promoting national unity and integration. By the end of the Sixth Plan, 95 per cent of the country's population would be covered by radio.

Mr. Venkatasubbaiah said the upgraded transmitter would help cultural, educational and agricultural development of Rayalaseema.

The Rs. 1-crore transmitter supplied by Bharat Electronics Limited, Bangalore, was installed in a period of eight months.

The Chief Minister, Mr. N. T. Rama Rao, who was to have presided over the meeting, could not make the trip as he went to Bhimavaram to see the flood havoc. His written speech was read out by Mr. S. Ramamuni Reddi, Health Minister.

CM's complaint: Mr. Rama Rao thanked the Centre for upgrading the Cuddapah AIR transmitter. He said the capacity of the AIR station at Vijayawada had remained static at 20 kilowatts though it was an important centre of culture, commerce and communications. Hyderabad, the capital city itself, had not fared better in successive plans. There was need to provide a second channel at Cuddapah, Vijayawada and Visakhapatnam.

The Chief Minister said it was necessary to upgrade the television station at Hyderabad to the level of those in Bombay, Calcutta, Delhi and Madras and increase its telecast time. With the launching of INSAT 1-B it should be possible to make the programmes interesting and cater to the needs of a wide cross section of the people.

He regretted that there was no regional news bulletin in Telugu from Hyderabad on television. He suggested that Urdu, Kannada and Marathi films should be telecast on Sunday mornings to promote emotional integration. He also suggested that Hindi feature films could be shown nationwide on Saturdays so that Telugu films could be featured on Sundays.

Even on the national hook-up, films of different languages could be screened as frequently as possible as it would give a chance for people to know about the language and culture of other areas and promote national integration.

Mr. Rama Rao said Andhra Pradesh was not getting its due share in the programmes and news on the national hook-up.

He pointed out that for implementing his suggestions no money was required. All that was required was a spirit of accommodation and understanding.

Mr. Rama Rao wanted installation of a high power television transmitter at Tirupati to take advantage of the elevation available there. He also urged speedy setting up of other relay centres which were approved by the Centre for location in the State.

Mr. Rama Rao said the number of Telugu feature films produced exceeded Hindi films. Yet there was no regional film certification office in Hyderabad. A regional film certification

office with full complement of staff and equipment should be opened soon at Hyderabad, Mr. Rama Rao said.

The Chief Minister also stressed the need to improve the quality and content of the programmes to make them more educative and entertaining especially for the youth and women.

Mr. Rama Rao suggested efforts for better coordination between the departments of the Central and State Governments handling mass media.

CSO: 5500/7025

INSAT-1B FULLY OPERATIONAL, DETAILS GIVEN

Calcutta THE SUNDAY STATESMAN in English 16 Oct 83 p 1

[Text] BANGALORE, Oct. 15--India's prestigious satellite, INSAT-1B, became fully operational today, heralding a revolution in the country's mass communications meteorology and telecommunication networks, reports PTI.

The Indian-designed spacecraft has also become the first operational satellite with multiple services.

Though a solar array snag delayed by 10 days the satellite's entry into its geo-stationary parking slot, the space scientists maintained the programme to make the satellite operational on schedule.

INSAT-1B has been in space for the past 46 days--it was ejected into space by the American shuttle, Challenger, on August 31.

Since INSAT-1B was handed over, after all check-outs, on October to the user agencies--the Posts and Telegraphs and Meteorological departments and Doordarshan and All India Radio--it has provided communicatio links between Ernakulam and Lakshadweep and successfully sent out cyclonic warnings in Andhra Pradesh, according to the Indian Space Research Organization.

Good television and weather pictures were received during the pre-operational tests, and INSAT-1B has also improved the quality of radio broadcasting.

Consisting of two satellites, the INSAT-1B system presented India's first step towards complementing the operational space system for socio-economic objectives and national requirements, as distinct from the experimental satellites, such as Bhaskara, Rohini and APPLE.

In view of INSAT-1A being abandoned, INSAT-1B will take the place of the former, and with INSAT-1C, to be launched in 1986, will form INSAT-1 system.

Enough Fuel

INSAT-1B has more than 100 kg of fuel, enough to sustain its estimated life of seven years. INSAT-1A was abandoned following depletion of fuel.

Every on-orbit manoeuvre of INSAT-1B was being carried out with pinpoint precision, until the solar array, critical for the satellite's power supply, failed to unfurl to its full configuration. This snag had hit INSAT-1A too, and resulted in fuel depletion and its deactivization.

However, after a week-long struggle, the scientists crossed the hurdle by rocking the satellite for about an hour.

The satellite was put into three-axis stabilized mode on September 12, soon after the opening-up of the solar array. The solar sail and C-band antenna were then deployed. The satellite achieved its space home, 74° East Longitude and more than 35,000 km above the earth, on September 18. x4°ipe

The successful operation of the satellite also proved the viability of a multipurpose satellite.

INSAT-1B, ninth Indian satellite to be put in space, was built by the Ford Aerospace and Communications Corporation. The box-like structure has the height of a six-storey building.

Reservations have been made to launch INSAT-1C by an American space shuttle.

INSAT-1B will cover through its Very High Resolution Radiometre the Arabian Peninsula, the southern half of Asia and a large expanse of Indian Ocean.

The Government plans to replenish the first generation INSAT spacecraft produced from abroad.

CSO: 5500/7027

BRIEFS

TELEVISION TRANSMITTER STATION--GWALIOR, Oct 9 (PTI)--The foundation stone of a low power 100 kw television transmitter station building was laid here by the Madhya Pradesh Minister for PWD. Balendu Shukla yesterday. The Madhya Pradesh Chief Minister had given a special sanction of Rs 2.18 lakhs for the building in which the low poer transmitter and other imported equipment worth about Rs 50 lakhs would be installed. [New Delhi PATRIOT in English 10 Oct 83 p 5]

MADRAS TELEPHONE EXCHANGE--MADRAS, Oct. 13--The city's first electronic telephone exchange will be commissioned in Nungambakkam by the middle of next year. The 10,000 line-equipment has just arrived and the installation work will begin shortly. Addressing the Lions Club of Madras-Porur, the General Manager of Madras Telephones, Mr. K. C. Ramadoss said the exchange would reduce the size of the waiting list for the Nungambakkam area and help relieve congestion at the Old Anna Road Exchange. Another electronic local exchange at the new building in the Telephone House complex--the Flower Bazaar Exchange, would go into service towards the end of 1984, he said. During the Sixth Plan period, Mr. Ramadoss said, it was proposed to bring 566 cities and towns on to the subscriber trunk dialling network. To this end, Electronic Trunk Automatic Exchanges of the Stored Programme Control (SPC) type would be commissioned in the four metropolitan cities of Madras, Bombay, Delhi and Calcutta. The 4000-line Madras SPC Exchange was expected to be commissioned by December this year. During the last two years of the Sixth Plan, between 1983 and 1985, Madras Telephones would see feverish activity when a large number of imported equipment was expected to be commissioned, the General Manager said. The programme included a 5000-line crossbar exchange at Harbour, to be commissioned by December this year, and a 5000-line Mambalam-II exchange by January 1984. Mr. C. Venkat, president of the club, presided. [Madras THE HINDU in English 14 Oct 83 p 12]

BOLPUR TELEVISION RELAY CENTER--SANTINIKETAN, Oct. 16--The opening of a television relay centre at Bolpur is part of the programme for the improvement of Bolpur town which has been initiated by the Union Finance Minister, Mr Pranab Mukherjee, who is from Birbhum district. The Post Master-General of the West Bengal Circle met the Minister at Kirnahar yesterday regarding the inauguration of the television relay centre by Mr Pranab Mukherjee in early November when the microwave system is also likely to be opened. This will enable quick and effective transmission of telegram messages from the district which for

NEED FOR COMMUNICATION LINK THROUGHOUT KINGDOM STRESSED

Kathmandu THE RISING NEPAL in English 23 Oct 83 p 2

[Editorial: "Telephones"]

[Text] The news report that five thousand more telephone lines are to be distributed soon in the capital will be welcomed by all who have been waiting patiently for telephone connections for the past so many years. However, the new lines are for connections to the new Naxal telephone exchange and until the Naxal exchange is linked through additional cables to be laid in other parts of the city, the full capacity of the exchange cannot be utilised. This means that new cable lines will have to be laid in parts of the city and that the Naxal exchange will be able to cater only to those areas in the northern parts of the city where new cables have been laid. This will no doubt free several hundred telephone lines in the Sundhara exchange which can then be distributed to subscribers uncovered by the new cable lines. Thus, the new additional five thousand lines of the Naxal exchange will hardly suffice to meet the city's demands. However, it is a matter of satisfaction that the Nepal Telecommunications Corporation (NTC) has drawn up plans to lay more cables and commission a second telephone exchange at Sundhara within about six months after lines from the Naxal exchange are distributed. Thus within the next one year or so, there will be ten thousand new telephone lines in the city which should greatly ease the pressure. In addition, there are plans for expanding the Patan exchange so that more lines can be distributed to the residents of Lalitpur from the exchange.

NEW COMMUNICATION SYSTEMS EXHIBITED

Tel Aviv HA'ARETZ in Hebrew 21 Oct 83 (Supplement-"Communications") p 1

[Article: "Novel Communication Systems Shown By 'Iturit'"]

[Text] At the "Communications 83" exhibition that took place during 10-13 October, the "Iturit" company showed two new radio communication systems that operate by means of novel technology.

The two novel systems were shown to the Israeli public for the first time since the Ministry of Communications approved temporary operation, demonstration, and marketing until the final licensing of the equipment.

One system is that of Johnson equipment that operates by a trunking system in the 800 megahertz range. This system makes it possible for any instrument to use a large number of frequencies, and to choose a vacant frequency automatically. In this way, we have achieved the utmost efficiency and advantage from the spectrum of frequencies. For the system's consumer and user, the advantages are many, e.g.:

Privacy of communication (without listening to other conversations).

No possibility of joint interference with a group of frequencies.

Rapidity in making a connection.

No need to listen before transmitting.

Possibility of either individual or group calls.

The second system is a radio communication systems in the VHF range that operates by ACSB over a 5 kilohertz band width. These devices can operate between two existing FM frequencies without mutual interference, or it can operate five separate networks within the band width of one FM network (25 kilohertz). At this stage a smaller equipment load per frequency is also assured, and thereby efficient utilization of radio networks.

The above systems are at present in continuous operation by "Iturit" and are available for demonstration. The ACSB systems for the VHF range can be

acquired for operation in accordance with the licensing requirements of the Ministry of Communications.

At the seminar that was held at the exhibition, a lecture was given by an "Iturit" representative. Representatives of many other organizations also participated, and the working methods of the two systems were explained.

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CSO: 5500/4503

some time past has virtually come to a standstill owing to the frequent breakdown of Birbhum district's only teleprinter service located at Bolpur. Putting through trunk telephone calls is expected to be easier following the introduction of the microwave system. The enormous tower, which has been constructed, will be used for the television relay centre. [Calcutta THE STATESMAN in English 17 Oct 83 p 3]

CSO: 5500/7028

The NTC should, of course, plan for further expansion of telephone facilities in the three cities of the Kathmandu Valley as well as other urban areas while at the same time not neglecting the requirements of rural areas for instant communication links with the nearest urban centres.

Planning in telecommunications have to be done well in advance so as to avoid disappointment to the people. This is specially true in the case of telephones which have become an essential part of modern life. Besides the mere distribution of telephone lines, there is a vast scope for development of telephone services by the NTC. Indeed, the very fact that a subscriber has to pay for dailing for certain services including inquiry and fault reporting is quite unjust. Hence, numbers dailed for requesting NTC services and some essential services such as fire and police should be made toll free, that is, no charges should be levied on such calls. This apart, the NTC should also lay due stress on building up long distance communications within the country enabling the subscribers to dail numbers themselves to atleast big towns. The sattelite communications has brought international telephone and other forms of communications within the grasp of most Nepalese living in the capital. This facility needs to be extended to other parts of the country also as it is one way of developing local areas and to prevent the people from descending to the capital for even their smallest needs. Communications play a vital role in the development of a nation and NTC has the onerous responsibility of building up an effective, fast and efficient and durable communications network in the Kingdom. The telephone distribution in Kathmandu is only one of its many responsibilities.

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NORDIC COUNTRIES TESTING LOCAL RADIO, TV TO END MONOPOLIES

Helsinki HELSINGIN SANOMAT in Finnish 6 Oct 83 p 10

[Text] National radio and television monopolies are breaking up and changing elsewhere in the Nordic countries. They are being beset by satellite broadcasts and no one can ward them off. Television cable networks are spreading. Local radio stations have begun to operate.

The same kinds of winds are blowing elsewhere in Western Europe as well. In a new series of HELSINGIN SANOMAT articles we will be reporting on the rapidly changing situation. Correspondents from Stockholm, Oslo and Copenhagen report on it in this first installment.

Local Radio Stations Popular in Sweden

Stockholm (HS, Vesa Santavuori)—The Swedish Radio Broadcasting Corporation which is as a corporation responsible for radio and television operations, does not believe it will essentially lose its hold on the market in the next few years due to the advance of the new technology.

"We have a monopoly, or actually exclusive rights, to operate in the television sector. That monopoly will most probably be preserved, even though we are experiencing growing competition because of the introduction of foreign television channels into Sweden."

This is the opinion of SR research chief Olof Hulten. "We may acquire new Swedish television channels in one form or another through cable television," he went on.

"It is, however, uncertain as to whether we will acquire these cable channels in commercial form. It would seem that there is no political majority in support of the idea to create a direct competitor to Sweden's present television system.

"At the present time we don't have a monopoly in the field of radio. In Sweden there is a significantly large operation outside the monopoly in the form of local radio," Hulten said.

Private Radio Stations Have More Time on the Air

Local radio stations that broadcast programs produced by private organizations and associations have in fact annually more time "on the air" than the Swedish National Radio (RR) and the Swedish Local Radio (LRAB) companies together.

"Local radio stations broadcast 48,000 program hours a year, while SR transmits only about 42,000 hours a year," Hulten said.

And, while local radio operations depend on transmitters rented from SR, which are now to be found in 48 communities, "they can do whatever they want," Hulten said, with their programming.

In addition to "ordinary" organizations — like the Salvation Army — several less conventional groups, among others homosexuals, the "anathema" religious movement, "Radio Krishna," etc., also appear on local radio. Some associations that concentrate exclusively on the playing of pop music also make use of local radio.

According to Hulten, at least in Stockholm local radio stations are within listening range of several hundred thousand people. An antenna located in the downtown area covers a radius of 10 km within the capital district.

Local radio, however, operates on a nonmunicipal basis. As a corporation, SR does not even consider local radio to be a direct competitor from SR's standpoint in terms of the so-called great listener public.

As for LRAB, it is a program unit subject to SR. It primarily concerns itself with provincial level local affairs involving 24 communities.

The composition of its listener public is now fairly many-sided, which may be one reason for trying to draw monopoly station boundary lines between LRAB and the local radio stations.

Satellites Do Not Frighten SR

Nor is SR afraid of the competition the arrival of foreign radio stations cropping up here within listening range via satellites means.

Satellite-transmitted programs reach listeners' ears in foreign languages, chiefly German, English and French. The audience for such broadcasts is of necessity small.

The most easily receptive items the new selection has to offer will be purely musical programs.

The satellites will also be aimed at reaching Swedish television viewers. These programs too will appear on the screen without subtitles, which will limit the number of viewers.

The arrival of the satellites will, however, mean a certain stiffening of the competition. That is why the Swedish television corporation is also considering making its own selection of programs more competitive.

What is involved is primarily how to improve its own programs and how it can offer viewers programming beyond that of the current two-channel system in the form of some sort of entertainment channel.

Cable TV Also Coming

They also think that Swedish cable television will appear in that nation within the next few years. A committee is at present considering in what form cable television operations ought to be permitted in Sweden.

The committee has received instructions to "be liberal" when it comes to, for example, the reception of broadcasts based on West German, French and British Broadcasting Corporation transmissions.

The broadcasts in question are those that are originally intended for viewing by the domestic public in the country where they are produced, for example, BBC productions.

It is, however, not certain whether they will say yes in Sweden to Satellite-TV type programs produced solely for cable distribution, among others. "Perhaps they too will be allowed," was one opinion heard in Stockholm.

The most controversial issue of all is whether they will in Sweden grant permission for their own local cable television operations on a commercial basis. At present commercials are not permitted on Swedish radio and television.

Income from Advertising for the Press

There seem to be chiefly two reasons for prohibiting commercials on radio and television: the economic difficulties the Swedish press is in and a certain kind of ideological hygiene.

To maintain the latter, they want to protect viewers "from overly intrusive commercials" and the diffusion of superficial consumer ideals.

From the standpoint of the press, the banning of commercials on radio and television is regarded as necessary so that income from ads will remain available to the press. As an industry the press is already dangling on the brink of bankruptcy and ads are its most important source of income.

On the video market, however, they can at present freely advertise in Sweden too. Video tapes are products that "are comparable to records and books, which anyone can freely buy for his own use," the experts say.

The market is a big one but, on the other hand, the sale of video cassettes will hardly nibble away at the number of television viewers. Primarily motion picture industry products are for sale as well as, of course, programs produced for Swedish television.

Among others, the men's magazine, LEKTYR, which publishes a video magazine that appears several times a year, represents a deviation from this pattern. "A bit of excitement and light eroticism," the television people feel. Therefore, it is not dangerous "competitor trash," the monopoly people believe.

Advertising Problem Regarding Videofilms

An in principle interesting new business is also in the offing. They plan to lend people videofilms without cost. The selection will consist chiefly of musical programs. However, these cassettes will also contain commercials.

The legal status of free video equipment and that of commercials in general on the video market in Sweden is uncertain. The television people seem to believe that extension of the advertising ban to the video market will probably, however, be difficult.

At any rate Sweden's broadcasting corporation, SR, has at the present time the powerful status of a monopoly in the country. And a weakening of its hold is not foreseeable either as long as the political Right does not gain a strong upper hand in Parliament.

The corporation's parent firm is SR. It retains 100-percent ownership of four subsidiaries: RR, Swedish Television Company (SVT), LRAB and Swedish Educational Radio Company (UR).

On the other hand, SR is owned by various civic organizations (60 percent of its shares), the business sector (20 percent) and the press (20 percent). The government, however, grants operating licenses and decides on the distribution of funds.

Independently of the Government

The Swedish Government appoints seven representatives to SR's 15-member board of directors, the stockholders five members and the corporation staff two.

According to general manager Orjan Wallqvist, the SR parent firm's job is to see to it that, among other things, the four subsidiaries that engage in program activities are capable of functioning "independently of the government."

Already 44 Private Radio Broadcasting Companies in Norway

Oslo (Pal T. Jorgensen)--Norway's radio and television monopoly is right now in the process of being dissolved. Forty-four private radio broadcasting companies and six cable television stations have received licenses to broadcast programs on an experimental basis alongside the state radio and television corporation (NRK).

The main question for the future concerns the way private radio and television stations are to be funded. Will government officials permit commercials?

The debate over the state radio and television monopoly has been fluctuating in Norway since the 1950's. Many people feel that it is a precarious business for the government to run the country's only radio and television station. The communications media debate has accelerated these past few years.

Only the Right Has a Communications Media Policy

Most political parties in Norway have lacked a communications media policy because they have assumed that the state monopoly would last forever.

The exception is the country's biggest government party, the conservative Hoyre [Conservative Party]. The Conservatives have for a long time in principle opposed the monopoly. In 1981, when they gained sole control of the government, they began to open the sluice gates in the air waves.

The government launched experimental local radio broadcasts. Private organizations and companies were permitted to apply for licenses to engage in local radio activities. As a result of this initiative, there are now — 2 years later — 44 private radio broadcasting companies in Norway. All of them broadcast programs of an experimental nature.

In Norway there are religious radio stations, cultural radio, women's radio, traffic radio (which the motorists' organization operates), student radio, municipal radio (for example, Radio Oslo) and local radio broadcasts administered by local newspapers.

Common to all of them is the fact that they have temporary licenses to operate which will expire in February 1984. But all these permits will probably be extended, initially for 2 or 3 years.

Future Prospects Are Dim

The political decision-makers are to blame for the fact that permanent licenses are not granted. They have been unable to decide what the future of Norway's communications media should look like.

Will private radio and television stations become permanent? How will they be funded? These questions will not be answered until after the 1985 parliamentary elections at the earliest. Today, for example, there is no parliamentary basis for advertising in the electronic communications media. The Worker Party, the Center Party and the Christian People's Party oppose such advertising.

How then will radio stations be able to finance their operations? Most stations belong to organizations that have funds for the maintenance of radio broadcasting. The other stations, on the other hand, obtain income by getting around the bans on advertising. They sell so-called "vocal announcements" to municipal agencies and political parties. During the last election campaign the parties were able to buy broadcast time from local radio stations without its being regarded as advertising.

These local radio stations maintain their balance by themselves deciding what is advertising and what is not. A housing cooperative may, for example, "advertise" its annual meetings, but it cannot "announce" a new construction project.

As for cable television stations' obtaining permits for experimental telecasts, the situation is nearly the same. They may not earn money with telecasts, but they can support their funding by selling air time to organizations and associations.

Business-Owned TV Stations

Most private television stations are owned by business firms since they want to prepare for the day when commercial broadcasts are allowed. For example, the Oslo newspaper, DAGBLADET, and a rather large industrial combine together own the Janco Visjo television station.

Within the next 2 or 3 years foreign satellite telecasts will be within reach of Norwegian television viewers. The officials will not be able to prevent this. For this reason, in the opinion of many, Norwegian electronic communications media ought to be permitted to finance their operations with advertising income now.

A government committee is to issue a report on the question of advertising next March. After that the degate will go into high gear. Most media experts, however, believe that advertising on the air cannot be avoided. And local radio stations and local cable television companies could assure their future with income from advertising.

Denmark Planning a Broad-Band Network

Copenhagen (Nils-Chr. Nilson)--The Danish Broadcasting Corporation's monopoly on radio and television broadcasts is about to be broken. The Danish political Right and Left are of the same opinion on this.

The Right is hoping for a second television channel. It would also telecast commercials, which could strengthen Denmark's economic position against foreign competitors.

TV Cable for Every Family

In the opinion of the Left, the government television monopoly has politically speaking become a dull, toothless and harmless entity, which is why it is only right for a competitor to promote the development of more active journalism in the electronic communications media.

Denmark is getting ready for a "brave new television world" and Communication Minister Arne Melchior himself is leading the way to it. He is planning a so-called broad-band network through which a television cable would reach every family in Denmark's population centers. There would be as many as 20 television channels.

They would receive telecasts from foreign television companies via satellite, two Danish channels, also via satellite, two Danish national television stations and several local stations.

Since construction of a broad-band network will cost about 24 billion markkas, the communication minister will have a job on his hands to procure the funds for it.

New technical possibilities have enabled the Danish economy to support the creation of a second television channel and to allow commercials on it. The justification for it is that foreign telecasts will in a few years time be bombarding Danish viewers with commercials and that a domestic countermove is therefore necessary.

The attainment of a television operation financed by income from commercials does not, however, appear to be possible in Denmark. The small, left-leaning liberal party, the Radical Liberal Party, whose opinion decides the fate of many things in Danish politics, is opposed to television commercials.

Like most other parties, the Radical Liberal Party supports the creation of a second national television channel, but its funding would be arranged for through licensing fees.

Capital Would Get Its Own TV Station

Copenhagen dailies have plans for the creation of a television station for the capital district. Nine papers want to telecast as many as 20 television program hours a day — mostly dramatic films that can be interrupted with brief sports reports and items of local current interest. Telecasts would be funded with licensing fees. It is not surprising that, in the opinion of the newspapers, ads belong in their columns, not on the television screen.

The Ministry of Culture has granted the newspapers permission to conduct experimental telecasts, but on condition that the number of television dramas be limited, in which event the economic basis for the venture would be eliminated.

Communications Committee Report Promised

As for Prime Minister Poul Schluter, as early as a year ago he promised that a second national channel would very soon be created.

The government is now waiting for the special communications committee to complete its report. Parliament will attempt to discuss the matter at the start of next year. A parliamentary majority will probably support a second channel which would be funded with licensing fees. Furthermore, the possibility of establishing local television stations, whose function it would be to strengthen local democracy, is open.

Until World War II three or four newspapers were published in most Danish cities. Many of them have ceased publication, which is why a large portion of the population has to make do with one local paper. The new television stations will help to break that monopoly.

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CSO: 5500/2512

PRODUCTS, ACTIVITIES OF STANDARD ELEKTRIK LORENZ

Frankfurt/Main FRANKFURTER ALLGEMEINE in German 13 Oct 83 p 16

[Article: "'New Epoch' for SEL: Postal Service Selects System-12 Central Switchboard"]

[Text] Standard Elektrik Lorenz AG, Stuttgart. "For the first time," says the grey-haired man in a Schwabian dialect at TELECOM, the fourth World Exhibition of the International Telecommunications Union in Geneva, "for the first time we are not second but have won a contract from the Postal Service (DBP) ourselves for building new central switchboard equipment." The contract and the fact that the DBP's long-distance service will be completely reequipped are much discussed topics in telephone circles. Standard Elektrik Lorenz AG (SEL), Stuttgart, considers itself as a company strongly involved in telecommunications, office communications, navigation and traffic control; however, telecommunications is its main interest. "And the heart of telecommunications engineering is switching equipment," the man continued. For these reasons, the contract from the DBP for building, along with Siemens, the new digital telephone switchboard equipment is extremely important to the company.

To the employed is a technology the Stuttgarters have named System 12. It has been their principal focus for several years and has absorbed investment funds amounting to about DM 700 million; concerning the system, board member Mecklinger says: "System 12 represents our most important project and will usher in a new epoch in our more than 100-year history."

The company employs more than 30,000 employees in 20 factories and in more than 100 division and branch locations at home and abroad. Annual sales amount to about DM 4 billion. Of this, about ten percent is spent for research and development. In past years, the System-12 project consumed the biggest part of this budget--and this was not a matter of small concern for the other branches. Mecklinger: "It became obvious several years ago that, due to rapid technological change, conventional electromechanical switchboards would no longer be competitive and would thus no longer be exportable." Facing this prospect, SEL has in a "concentrated action involving almost all divisions successfully broken new technological ground."

At TELECOM in Geneva there was relief for management in the fact that with the DBP contract the entire work force finally understood the necessity for the company's policy. Joy and pride appeared to be universal amidst rewon self confidence: confidence had suffered a heavy blow a few months earlier. At that time, the DBP, almost at the last minute, turned down the CRT-text switching technology developed by SEL engineers. The contract went instead to neighboring IBM in Stuttgart. As it later turned out, the CRT-text centrals would not have been ready on schedule. This did not aid SEL's cause. They pointed out that their product would have cost about half as much, but they had no way to prove that they could deliver on time. Now that they are supplying new telephone central switchboards for long distance traffic, they can line up proof for both reliability and punctuality.

9160
CSO: 5500/2514

FIRST PHASE OF 'DFS' TELECOMMUNICATIONS PROJECT UNDERWAY

Duesseldorf VDI NACHRICHTEN in German 30 Sep 83

[Article: "Calls from Space: Telecommunications Satellite to Distribute Information and Conversation over Germany in About Four Years"]

> [Text] The initial development phase of the Germen Telecommunications Satellite (DFS) has begun. The German Federal Postal Service (DBP) as the future system operator has released a declaration of intent to purchase the construction work for a total of three satellites and has fixed the overall cost at DM 815 million.

The development of the satellite facilities for the national area of the FRG and Berlin is of decisive importance for the companies involved and for the user, the DBP. With the project a step in commercializing space is being taken; the DPB is responding to the increasing demand for satellite-based communications and German industry is increasing its chances for export orders. Within the framework of the project, the construction of three telecommunications satellites is provided for. The first 1,400 kg payload will be put in orbit in June 1987 with a French Ariane booster rocket at a position 36,000 km above the Equator; a second will be placed in orbit as a reserve and the third will be stored on earth as a replacement.

The use areas of the first planned telecommunications satellite are telephony and data transmission between Usingen and Berlin and TV-program relay between these two ground stations. Other tasks include wide area distribution of TV programs for injection into local cable networks and wide area traffic for fast data transmission for such uses as teletype, data processing installations and video conferencing. The telephone satellite is of modular construction and consists of communication, power and antenna modules.

The main elements of the communications payload are 11 active and 6 reserve transponders. With them, 7,000 telephone conversations and 7 TV programs with color and stereo sound can be transmitted simultaneously. While operations over the frequency range 11, 12 and 14 GHz are being established, a new 20/30 GHz band will be put into service, on an experimental basis at first. For this, ground stations with antennas of 11-m diameter are planned

in Berlin and Usingen while for the 12 and 14 GHz range, 30 transponders with antenna diameters of 3.5-m will initially be distributed over the FRG.

Electrical power is provided by a solar generator consisting of two wings. Each wing carries three panels and each panel holds 3,222 cells. At the start of the mission, the delivered power will be 1,990 watts and ten years later at the end of operations the power will be 1,545 watts. During the shadow phases, electrical energy will be supplied by two batteries. When the wings of the solar generators are unfolded, the satellite's diameter reaches a span of 15.5-m and a height--over its 3 antennas--of 3-m. The operating condition of the satellite will be monitored continuously by a controller which includes telemetry, orbital tracking and telecommand. This controller transmits the collected data to earth, receives commands from ground stations and executes these instructions after verification. A path and position control unit is in control of vehicle attitude during all phases of the mission; it ensures that antenna alignment is maintained within a specified range of +/- 16 degrees.

In putting together the telecommunications satellite, the designers are employing proven technology. Thus, solar generators are used which were developed by MBB/Erno for the Intelsat-V program; the combined two-part propulsion system for path and attitude control is derived from the radio and television satellite TV-Sat/TDF-1 and the systems integration concept for joining the individual parts is based on a modified design of the European Communications Satellite (ECS). From the ECS and TV-Sat programs also stems advanced telecommunications equipment. Responsible for development and construction of the German satellite are MBB/Erno and ANT Telecommunications Engineering; in addition, Siemens and SEL have assumed responsibility for development and manufacturing of the telemetry, tracking and command subsystems.

9160
CSO: 5500/2509

FIRST ELECTRONIC PHONE BOOK IN NORDIC COUNTRIES IS TESTED

Helsinki HELSINGIN SANOMAT in Finnish 6 Oct 83 p 14

[Text] The Nordic countries' first electronic catalogue, ELPU, will go into operation in Turku on Monday. ELPU provides a television screen with requested data — unless they are secret — in a few seconds.

There is, however, a condition, that the user be a Telset employee. There are only about 1,500 of these users in Finland, almost all of them from the business world. It is, however, anticipated that Telset will extend its use into homes as well before long.

ELPU contains the same information as in a printed telephone book, but the advantage of ELPU is that it is up to date. A printed phone book is already out of date when it is issued and in the course of a year from 30 to 40 percent of its information has changed.

The other novel feature of ELPU is the fact that a computer quickly combines the information in the book. If, for example, someone wants to find all the painters whose first name is Antti, the computer searches the book for a list of them.

ELPU will also find Matti Virtanen, although in the phone book he would only be listed under Virtanen, Ulla and Matti.

TURUN SANOMAT and the Turku Municipal Telephone Company have developed the electronic phone book. TURUN SANOMAT at present prints all of Finland's phone books.

For the time being ELPU is being tested in the Turku network, which has about 130,000 customers. In addition to the usual personal information, its memory bank also stores the so-called yellow pages.

11,466
CSO: 5500/2512

COMPUTERIZED DATA TRANSFER NETWORK STARTS OPERATION

Helsinki HELSINGIN SANOMAT in Finnish 25 Oct 83 p 26

[Text] On Monday the Helsinki Telephone Company started operating the so-called package transmitted data transfer network. Through it more automatic data processing centers and company data transfer systems can contact one another.

The Post and Telecommunications Service put a similar network into operation as early as the beginning of September. In a package transmitted data transfer system many individual bits of information are assembled into "packages" which wait their turn to be transferred in the memory banks of the network's junction centers and concentrators. The data bits go through the network as packages and are again separated from one another when they arrive at the receiver terminals.

The Post and Telecommunications Service package transmission system serves to develop automatic data transfer needs through a common data network. The phone company's new network, on the other hand, is based on the Greater Helsinki area's common telephone network.

The best thing about the package network is its appicability to joint operations with other networks. Among other current data transfer applications, computer networks, Telset and data banks, credit and bank card payments and electronic data exchange between banks can be added to it.

Need for Additional Equipment Is Lessened

While operating without interruption, a package network hookup is capable of single-handedly and simultaneously handling several hundred data transfer connections between the computer and the package network. The number of additional pieces of equipment required is lessened.

The line produced by the package network is bigger than that of the earlier so-called circuit-linked independent networks. This is why package transmission is best suited to users who have many fairly short messages or data items to be transferred.

Despite the advancement of package and circuit networks, regular telephone networks will also continue to be maintained as the main channel for automatic data transfer connections. For example, the package network that went into operation in the Helsinki network group on Monday will probably only have amassed about 4,000 customers by the end of the 1980's.

11,466
CSO: 5500/2512

BRIEFS

TEXT TV ADVANCES—In operation 2 years, text TV has developed faster in Finland than at first anticipated. There are at present about 40,000 or 50,000 text TV receivers in Finnish homes. Text TV daily produces from 200 to 250 screen-sized pages. There are now more pages of text in Finland than in Sweden and as many as in the Federal Republic of Germany. However, as far as the production of programs of importance to people with impaired hearing is concerned, Finland is still behind many other countries. They plan to double this form of service next year. According to the results of the latest Finnish Broadcasting Corporation study, text TV viewers are most interested in news, sports, television program and weather reports. Among others, the opportunity to view additional exercises for those who follow television courses in English and German will be offered this fall as new forms of service. [Text] [Helsinki HELSINGIN SANOMAT in Finnish 6 Oct 83 p 9] 11466

CSO: 5500/2512

PTT HEAD INTERVIEWED ON TELECOMMUNICATIONS PERSPECTIVES

Paris REVUE PARLEMENTAIRE in French Sep 83 pp 8-9

[Interview with Louis Mexandeau, Delegate Minister of the Ministry of Industry and Research in charge of PTT [Postal, Telecommunications and Cable Broadcasting], interviewed by Christian Pose; date and place not specified]

[Text] [Question] Mr Minister, I believe that we should first define the word telecommunication in its most general sense. If we take a definition of the word in a dictionary, we find: "Telecommunication: all of the means of long-distance communication; service uniting all transmissions and electronic location processes."

Is this definition complete, in your judgment? If not, could you update it?

[Answer] In fact, this definition, which corresponded to a state of affairs a good 10 years ago, should be extended. Today, the field of telecommunications is being broadened by its increasingly strong involvement in business and by the multiplicity of forms of operation. Generally, the boundaries between telecommunications properly speaking are being abolished. Thus, in this sector we will have telephone switching stations, telephone terminals, cable networks, wireless and satellite networks. By extension, we will also find new products that are often only transformations of old products, like the typewriter becoming the word processer which, in conjunction with others of the same type, will give birth to this new sector that is being called office automation.

[Question] Compared to the daily "chatter" from the Americans, Japanese, and Germans joining the functional to the pleasing, it would seem that the state of health of the telecommunication sector is closely related to the acceptance of modernity by the French. Which, according to Francois Mitterrand, is far from being a sure thing. Considering this state of affairs, could you paint the broad picture of the state of health of telecommunications in France?

[Answer] It is very healthy. It is even one of the best in the French industrial system. However, since it is far from being guaranteed, we must be careful.

It is good for several reasons.

--First, in the area of telephones, equipping the nation is being actively carried out. We are close to having 21 million connected phone subscribers. In order to reach the goal in several years in the area of private telephones, we are averaging 1.5 to 1.7 million hookups per year. That represents big investments that are good for foreign trade and that brings big money into France. If many other industrial and commercial sectors were like that of telecommunications, the exterior deficit of the nation would become a considerable surplus. In our area, there is really no way to be skeptical. The orders are there, the sales are very satisfactory for the year 1982.

Our state of health is also good from a technological standpoint. With its scientists from CNET [National Center for Telecommunications Research] in particular, France has developed new products in large quantities: for example, the Cit Alcatel and Thomson electronic switching of the E 10 and MT 20 types. We occupy an important place in the world market: between 30 and 40 percent. I am talking about all of the so-called non-captive markets, which means they are not protected by a monopoly situation. We finally have a plan, projects in line with the first answer: which is, the extension of the very notion of telecommunications.

[Question] If we are to believe Maurice Nivat, a professor of computer science and programming at Jussieu and a lecturer at the Polytechnical, invited by ministers Fabius and Savary to write a report on the teaching of computer science in France and declaring to Jacques Fontaine of L'EXPANSION: "Computer science is not taken seriously in France!"...

[Answer] There are two things in computer science: a problem of learning and use, and a problem of production. They must be considered separately. On one hand, one could imagine adults and children receiving strong training in computer sciences, a nation where administrations and private firms are equipped with computer terminals, but which produces none, buying everything abroad. Conversely, one can imagine a nation that is a large producer and small user, although this case is rarer than the previous one.

France had gotten behind, for a basic reason: the computer industry is evolutionary and presupposes a certain national dimension. Investments are excessively great and, from this standpoint, the choices must be lucid, quick and judicious. That has not always been the case. You have to know where the French computer industry hesitated between the European temptations and the American ones, between the will for autonomy and independence that had been affirmed in this area by General De Gaulle and the fact that, for various reasons, we became allied. And often, these marriages turn out to be unhappy, followed by costly divorces. But that leaves scars.

That is why, today, the computer industry, which was nationalized--I am talking specifically about large mainframe and minicomputers, specifically Bull--should restructure its bases. Small computer and electronic office machine manufacturers are numerous (c.f. the explosion at the SICOB [Commerical Industries and Office Organization Exhibit]) and in the midst of

change. But let's be careful. We are only in a period of convalescence. That is one of the reasons that this sector was entrusted to the PTT, to the General Direction of Telecommunications which has already more than proven itself.

[Question] "Computer science is not taken seriously in France."...

[Answer] I'm getting to that. First of all, in the areas of information and training we are very much behind. Specifically, due to a lack of instructors. A considerable effort has been undertaken.

The National Education Ministry is proposing to install 2,000 microcomputers in the schools. But in the final analysis I wonder whether the greatest effort will not be made by the PTT when our Minitel, our telematic terminal, becomes a true microcomputer. And I can guarantee that it will not be by the thousands, but by the millions, that it will be installed in homes. We hope for a million hookups per year. Think about this true revolution of minds, about this pedagogical revolution....

[Question] In the area of telecommunications, and I am alluding here to the recent accords signed between the CGEE [General Electric and Electronic Company] and Thomson, what portions of the market are available for the small- and medium-sized industries that are not connected to the "big boys" by subcontracting here and abroad?

[Answer] Very generally, people always imagine that size is most important and decisive. Yes, it is, to a certain extent, when it comes to the search for new generations of equipment. But that should in no way be considered exclusive. That presumes a very diversified network of small and medium-sized companies. Don't forget that they are the ones that sometimes dominate by their innovation, imagination, creativity. And, we have just issued a bid tender for the cables, the communication video and, among the first firms selected, there is a firm with a small number of employees, only about 100 people. This company in the north supplied us with a much better copy of an image than the one supplied by the big manufacturers, and it has invented clever techniques that make it possible for us to take a lead in fiber optics.

But there is still a problem that is much more important than that of equipment. I want to speak about the services, the systems, the programs, the software which is the connection of data for a very precise sector or even the software packages which are the ready-to-wear products in the computer industry: prepared programs that can be immediately adapted. There, too, the small- and medium-sized industries have an important role to play. Let's not forget that the American giants, Victor, Atari, began in garages made over into shops.

In order to promote the growth of these small private firms, the PTT ministry has created a special PMI-PME [small- and medium-sized industries and companies] delegation whose mission is to prepare the terrain, to help the most effective firms. I believe that it is important to give the industrial birthrate a helping hand to partially remedy, specifically, the employment problems that we are experiencing..

[Question] In the middle term, the CGEE would like for the government to concentrate upon it most of the financial resources designated for communications. And Mr Quatre-Point, in LE MONDE dated Wednesday, 21 September, puts forth the following logic: "The CGEE gets what it wants and that means asphyxiation for the other companies in the sector." But the General Direction of Telecommunications is increasing the shares of companies such as Matra, Bull, Sat, Sagem in all markets except public communications, in a desire to maintain competition.

[Answer] The General Direction of Telecommunications, an integral part of the PTT, is founded solely on criteria of public service: to obtain the best equipment at the lowest price for the users, for users in whose homes this equipment is installed. It is as a function of these criteria that we make our judgments, because we are careful about the rational and efficient utilization of the money belonging to subscribers who are giving us the resources to go forward.

Of course, we continue to deal with the big firms. I said that we were ready to make an increased effort in exports. Of course, I won't hide from you the fact that sometimes regrouping amounts to loss of market shares. We must be very careful to avoid this big risk. For the PME we are continuing our policy of aid, since we have a field in constant evolution where new companies are being born and are developing. This movement must be helped at all costs.

[Question] There is already talk about this unification of the manufacturing of telecommunications equipment as a relative victory, in principle, compared to the giants such as ITT, Olivetti, Philips, IBM.... They are talking about a middle term victory of CGEE over Thomson, or of Thomson over CGEE. But, in the final analysis, isn't it a policy of a socialist government caught short, in an expensive project of economic relaunching, both for the sectors of nationalized activity and for all of its foreign trade?

[Answer] If there is a sector where we are not caught short, it is this one, telecommunications, because it is a sector where we really know where we are going. We have five broad directions: to assure the renewal of telephone equipment and that of network equipment, to assure business communications, what is sometimes called private telephony, but which is increasingly taking on the name of office automation, to assure the equipping of the nation with telematics, to develop new technologies, such as memory cards, electronic money, electronic mail.

I have signed the document, a decree, creating the Postal and Telecommunications Research Services, the SEPT, which is going to be located at Caen. The mission of the center will be to advance all problems of electronic banking--all electronic questions related to these avant garde technologies. On this point, we are ahead of the rest of the world. Then we will have to ame a complementary industrial effort and follow up with a marketing effort.

The fifth direction: Communication video, cable, for which we already looked over a bid tender, will be inserted in an ongoing program, in conformity with cabinet decisions.

These are the five "work horses" of telecommunications, to which will be added in the future telecommunication satellites and perhaps cable transmission satellites, since TDF [French cable transmission] from the equipment standpoint, is also under the ministry of PTT.

[Question] In evaluations on the CGEE-Thomson agreement, the judgments range from "astonishing" to "ideal", from "paradoxal" to exemplary", from "troubling" to "doubtful." Eric Lecour, in the QUOTIDIEN DE PARIS, writes: "This electronic Yalta worries the unions." At a time when union tension is at a high pitch in France, was it necessary to further fan its fires with a contract that many characterize as feverish, lacking consultation, too broad?

[Answer] This new agreement is not a sacred document. It is perpetual creation. It will be what we make of it!

At the PTT, we will concentrate on developing all the possibilities that it contains and, on the other hand, on eliminating the risk element of regrouping. We will try to implement its results in the same perspective as that established with the medium range telecommunications management charter.

[Question] Could you detail for us the exact share of imports in the area of telecommunications?

[Question] All that I can tell you is that our exports are way ahead of our imports. We are in a very peculiar situation to the extent that our market is partially captive, like that of all industrialized nations. In the future we will see if it is possible to open up a portion of this market to foreign competition. In any case, it would be accompanied by an agreement to strict reciprocity. The foreign share in the entire electronics industry is low. In telecommunications and electronic office equipment, it is almost nil.

[Question] Isn't that a return of the "bad industrial protectionism" towards our trade partners?

[Answer] We were just talking about exports. Does that mean that I am satisfied with the results? No, we have to strengthen our marketing organization in the face of foreign regrouping.

Of course, we are comfortably ahead from the standpoint of time. So, we are taking advantage of that to refine our production system. The direction that we should take is that of the industrial nations which are tending to proceed by what is called deregulation, or a free choice in the commercial and area. That is what happened in the United States, with the order that was given to ITT to divest itself of its many management companies. In the future it will be all the more formidable since it is concentrating its resources on research and intermediate markets. It is no longer satisfied with its former American market. But, at the same time, competition can be present on this American market. You have to know how to take advantage of it. You also have to have significant results on recently deregulated markets, such as the English market.

Another point: I believe that the regrouping that took place should not mean turning inwards on ourselves. We must make allies, that is imperative. Either an alliance between products, such as the discussions with Germany on cellular radiotelephony, on portable telephones. Or regroupings by companies, at a time when some countries are going to change from traditional electromechanical technology to electronic technology. And why not make contracts between governments?

But that must be done primarily in Europe, since we favor the creation on a world scale of a third pole of electronics where France can be a leader for certain products, such as telecommunications, along with the Japanese and the Americans.

[Question] In this real saga, we have not yet talked about the postal system, about postal systems.

[Answer] It is very important to note that we have what is a modern postal network adapted to the new needs of the users. It is experiencing a basic imperative: modernization. That extends both to the Unitel terminal and to the Poste Eclair service using telecopiers, from the word processor to the modernization of financial services. Do you know that 17 million savings accounts are connected to each other thanks to the Cheops network, making it possible to make long distance transactions? This adaptation operation also involves checks, the "blue bird" savings account. Don't forget that it is a deposit of 45,000 million centimes. I will remain firm on this point: the French postal system must be one of the best in the world, if not the best one.

[Question] When we talk about the problem of regionalization of telecommunications, a question arises: do the opposition regional councils prefer to place orders with the government, with foreign competitors or with private French companies?

[Answer] They have no choice. They are part of the PTT. We install and we will always install the equipment. Let no one imagine that a municipality, a department or a region can buy anything of this nature abroad.

We have received responsibilities from the government and we are carrying out these responsibilities. We play a separate role. The networks must be compatible, they must have equipment that is mutually compatible. There is no policy divergence at that level, just as there is no inequality of pay.

Let us take, for example, the telematics program, which is an extension of telecommunications and the telephone. It is regional councils that made the first requests for them, which are among the first regions to be equipped: there was Britany, Ile de France, that is the opposition, the North-Pas de Calais, the South-Cote d'Azur, that is the majority, Basse Normandie, that is the opposition. What we are seeing, above all, is the general interest. There is no political discrimination at that level.

[Question] By promoting decentralization, by accelerating home and commercial telematics the birth of the "homo electronicus" we note the already advanced state of the breakdown of the family cell. By giving the green light to uncontrolled growth, in the regions, to the development of modern technologies, of telecommunications, are not you going to drive the French to a new form of power, more absolute than ever, and find the ideal form of subjugation for governing?

[Answer] Communications do not divide people, they bring them together. The breakdown of families? I don't know to what extent that is a reality. In any case, that is not the fault of the PTT. The PTT bring people and families together. That is important.

[Question] I am not talking about the PTT as such. I am talking about the announcement of the new era and of several years of modernization, perhaps to an excess, that we are going to be subjected to in one way or another.

[Answer] How can you think an increase of means can be harmful for cohesion. Isolation is a factor, a criterion of dispersion and of network building, an important element in the reinforcement of social relationships.

We only place the equipment at the disposal of the citizens. Now, there is the problem of contents, of programs, for which our ministry is not directly responsible. A government that will soon have granted 800 free radio [stations] cannot be reproached for promoting centralism, for having instituted some sort of dictatorship!

We are, I repeat, a factor of cohesion, of functioning, and we give equal opportunities to all collectivities, to all individuals.

We are the guardians of equalities, of opportunities, of the means of communication between all men and all groups.

9969
CSO: 5500/2515

PTT HEAD ON TECH TRANSFER, INDUSTRIAL ALLIANCES, DEREGULATION

Paris ELECTRONIQUE ACTUALITES in French 21 Oct 83 p 7

[Article: An Interview with Mr Mexandeau, Post & Telecommunications Minister]

[Text] Technological transfer, cornerstone of French cooperation with the Third World

"With regard to telecommunications, France's action toward the countries of the Third World is centered on a cooperation aimed at real technological transfer," Mr Mexandeau, minister of the Postal and Telecommunications Administration (PTT) told us during an interview he granted the day before the opening of "Telecom 83." As examples of this form of cooperation "in the French style," Mexandeau cited the contract concluded with India and the offers made, notably to China. Equally open to cooperation with the industrialized countries, the minister, however, makes a distinction between Europe, a privileged structure which should set itself up as a "third world electronics pole," and the other industrialized countries, notably the USA and Japan, with which relations are "a matter of competition and verification." Finally, while acknowledging the importance of the action of the ITU [International Telecommunication Union], Mexandeau expressed the conviction that this international organization "cannot do everything and cannot, in particular, take the place of the bilateral agreements which France intends to pursue, for this would contradict the purpose of the ITU."

On the day before the fourth world telecommunications exhibition, which will open in Geneva, with over 650 exhibitors from 72 countries, Mexandeau told us of the special importance that France attaches to this show. "We have chosen to bring together over 80 French exhibitors in a 7,000-sq.m. pavillion, which will represent one of the largest participations at Telecom 83," said the minister, emphasizing the special role accorded to the small- and medium-size businesses "which are the source of great enthusiasm as regards innovation and sometimes inventiveness and which are capable of adapting well to technical evolution." This massive presence of the small- and medium-size businesses illustrates the PTT's desire to encourage these businesses to play a greater role on the international scene, alongside the big companies.

Foreign Policy

In this international context, the PTT traditionally develops a veritable foreign policy with regard to the post and telecommunications, the key word of which is cooperation. For reasons which are partly historical, the action of the PTT was directed mainly toward our former colonial empire, before spreading throughout the Third World, then to the industrialized countries.

Toward the Third World countries, France has chosen an original route which Mexandeau summarizes as follows: "Our attitude is not that of a dominating country toward a dominated one but is based on the will to cooperate. We offer, in particular, our assistance in on-site training of mid-level supervisors, while continuing to welcome trainees. Of course, we supply equipment, but, with the countries that have many engineers and technicians, we want to arrive at a real technological transfer. The contract that we signed with India is a good example. It is far from a strictly commercial contract. It represents a solidarity in technical and industrial terms, as we are not only equipping a country but giving it the means to equip itself, to approach the problems of training and to partly resolve the problems of employment. It's a contract of this type that was also proposed to the People's Republic of China. The benefits expected will of course help our own industry but also the economy of our partner, who can make this cooperation the basis for an economic take-off."

European Cooperation

With the European countries, it is, of course, another route of cooperation that is explored. "Our ambition is that France be both the voluntary initiator in certain sectors and the principal actor in a third world electronics pole," affirmed Mexandeau, adding that "it is necessary to be pragmatic and open-minded and to seek agreements diligently, which may be of different kinds: agreements on standards, on a product or a line, on a research structure, and even agreements concluded on a governmental level." The minister, however, warns against any rigidity or any reference to institutions of the supra-national type, which "would make us lose precious time."

With the other industrialized countries, relations are "a matter of competition and verification," explained Mexandeau. "Competition because, with the United States and Japan, it is obvious that we are and will be in competition. Verification in two respects: the industrial respect, that is, the ambition to have the best products possible, and the commercial respect, because one cannot really prove oneself unless one is established in the industrialized countries like the U.S. and Japan. It's a real challenge."

Industrial Alliances

Regarding France's relations with the ITU, Mexandeau emphasized the importance that our country attaches to the action of this organization. Addressing the conference of plenipotentiaries of the ITU last year in Nairobi, he had underlined that, in terms of trainees received (in absolute figures), France ranks first in the world. "We are also very interested, in terms of technical solidarity, in the assistance that the ITU gives to the definition of common

standards for telecommunications," declared Mexandeau, adding "but the ITU cannot do everything. It cannot, in particular, take the place of the bilateral or multilateral agreements that France intends to pursue, without contradicting the purpose of the ITU."

The Question of Deregulation

Concerning industrial alliances on the international level, Mexandeau replied: "We are not hostile to such cooperation, but we feel that the European objective must not be forgotten. If we want to exist after the year 2000 as a reasonably complete, coherent and autonomous unit, it is indispensible that ties be established first among European firms. The creation of a common telecommunications research center like that planned for data-processing would help this cooperation. France is ready to receive such a center."

Asked about deregulation, Mexandeau said that his ministry "is not the eternal partisan of a closed market, but we would like to see deregulation carried out in the framework of Europe and with regard to the products made in Europe. In this sense, the opening of public markets in telecommunications can have a stimulating effect. It is necessary, however, to approach this question with prudence and pragmatism: the opening-up should be accomplished on an equal footing and should favor cooperation among European constructors and the products, including the telephone centers."

In these cooperation projects, the minister hopes "that we will not forget the Mediterranean countries, which should take advantage of the technological change to equip themselves with temporary European technology. For its part, France, the 'hyphen' between northern Europe and Mediterranean Europe, is ready to help them."

12368
CSO: 5500/2524

FRANCE MOVES TOWARD DIGITAL INTEGRATED SERVICES NETWORK

Paris ELECTRONIQUE ACTUALITES in French 21 Oct 83 p 11

[Article: "European Strategies Toward the Digital Integrated Services Network"]

> [Text] Because the current telecommunications networks are showing their limits in the face of the exploding needs in communications, the telecommunications administrations are eager to define their network for the year 2000. It is to be a digital integrated services network [DISN] incorporating the advantages of digital techniques in order to fully integrate many different services (telephone, data, telecopy, teletex, videotex, videocommunications) into a single network. But it will obviously take a decade or two to move from the present situation to the DISN. Therefore, taking into account the level of modernization of their current facilities, the various countries are determining development strategies toward the DISN. Generally speaking, the transition to the DISN will be accomplished in two stages, the first of which will be the telephone and data integrating network [TDIN]. In Europe, the implementation of the TDIN will itself be preceded by pilot operations. Such experiments could begin, on a small scale, next year in Great Britain and Germany and, on a larger scale, in France in 1986, with a view to arriving at an operational network in 1988. At the same time, an international standardization of the DISN is now being defined at the International Telegraph and Telephone Consultative Committee [CCITT].

Data transmission needs have led the postal and telecommunications administrations of many countries to create, alongside a telephone network of limited performance, specialized connecting systems, circuit-switching data-transmission networks, and pack-switching networks. But these new systems are expensive, require improvements themselves, and oblige the user to equip himself with a multitude of terminal installations. Whence the interest in designing an integrated network.

Research by [CNET] National Center for Telecommunications Studies

The research being done in France, notably by the CNET on the development of the network is guided by the necessity of offering high-level telematic services, in a first step, to the professional sector (from independent workers up to big companies). This is to be followed by a generalization phase resembling that of the telephone: residential subscribers are to have access to the same services as professionals.

The situation of the existing French network is very favorable, in terms of its degree of modernization, in relation to that of neighboring countries: our telephone network is highly digitalized both in transmission and in switching. Toward 1986, half of the network will be digitalized around autonomous relay centers "E 10" and "MT 25."

The strategy that seems to be developing at the DGT consists in taking advantage of this situation in order to offer end-to-end digital relay to professionals by selecting a marked-out path of digital switches. Along with the telephone network, "Transpac" offers a high-performance data-transmission service.

From the technical point of view, the French approach to the TDIN thus lies in these two networks: the telephone network, especially its digital component, which will make it possible to provide a 64-Kbits/s switching service, and "Transpac" for the transmission of data by packs. This approach has the advantage of ensuring the continuity of the present services, by offering substantial improvements in terms of quality of circuits (thanks to the digital system), greater output, and facilities (taxation, identification, etc.), as well as a simplification of the terminal installation, by integrating procedures to the maximum. Indeed, the integration of services, from the user's side, is to allow access to the services through a single line, a unicity of procedure for the implementation of services (numbering, control of facilities, operation, and maintenance), and the simultaneity of communications. Moreover, these systems are to take the place of the costly specialized connecting systems, and the price of telematic services should drop.

Advantages

In the field, the implementation of the TDIN will be effected basically by the digitalization of the local network: the heart of the present automatic switching system ("E 10" and "MT 25") will not be significantly modified (however, there will be digital connectors), but a digital connecting unit will be installed in place of the existing automatic connecting units. And interoperation points will be installed between the telephone network and "Transpac." Also, the signaling system by semaphore channel will be inserted in the telephone network.

The services offered by the TNID should reach 1 to 3 million terminal installations in 3 or 4 years. The users will have at their disposal 2 to 8 channels of 64 Kbits/s, providing simultaneously telephone communications and telecopy, as well as 16-Kbits/s data links (for videotex and teletex transmitted by pack switching). Finally, the TNID will offer many address possibilities for all the services (telephone, telex, teletex, "Transpac"). This unified address plan will be accomplished (partially) upon start-up of the service.

The step toward the DISN will combine with the TNID (itself connected to "Telecom-1") a wide-band network. This phase could begin with the installation of the second-generation digital switches.

In Great Britain and Germany, the development strategies toward the TDIN differ from those in France because these countries do not have digital switches (though Great Britain has a highly digitalized transmission network). Therefore, Britain Telecom has undertaken the installation of digital automatic switches ("System X") in the country's big cities, so as to be able to provide digital services (64-Kbits/s and 16-Kbits/s channels for data) to the professional sector.

In Germany, the method is similar to that of Great Britain. Having no digital telephone centers, Bundespost is going to create from scratch an integrated network around automatic switches "EWSD" and "System 12." There will be 64-Kbits/s and 16-Kbits/s service for data.

CCITT Normalization

On the level of the CCITT, discussions concerning standardization of the DISN seem to be progressing. The specialized commissions have outlined many recommendations, some of which should be adopted in 1984. The proposals envisaged concern the concept and principles of the DISN, the service possibilities, the general characteristics and functions of the network, the user-network interfaces, and the interfaces among networks.

With regard to the link structures and the access capacities, it has been confirmed that, in the basic structure of the links, consisting of two B links and one D link, the former (64 Kbits/s should serve to transmit all types of digital signals on a specialization or simultaneity basis, while the D link (16 Kbits/s) will transmit signaling information and data (by packet-switching). Along with this basic access, an expanded 2,048-Kbits/s access is planned, with a link structure of the type [number illegible].

Among the other recommendations anticipated, let us cite Proposal 1320, which will give the numbering and address principles of the DISN, Proposals 1431 and 1432 on the characteristics of level 1 of the basic user-network interface, a recommendation on the upper levels relative to the protocols of link D (present Proposals 1442 and 1451 specify levels 2 and 3), and two recommendations on inter-operation with the terminals operating in modes X21, X21bis, and X25.

12368
CSO: 5500/2525

COMMUNICATIONS UNION CHIEF: TAKE LIMITS OFF AGENCY OPERATIONS

Oslo ARBEIDERBLADET in Norwegian 31 Oct 83 p 6

[Article by Roger Bergersen]

[Text] "Give the Telecommunications Agency a chance to build more cable TV facilities as soon as possible."

This demand was made by the biggest labor organization in the Telecommunications Agency, the Norwegian Union of Teleservices (LO [Federation of Trade Unions]). Today the union begins its national congress in Kristiansand and it is expected that the delegates will unanimously ask that the authorities allow the Telecommunications Agency to become more involved in new areas.

Union chairman Ove Ragnar is impatient and believes he has the entire membership of some 12,000 workers behind him in the demand that the Communications Ministry should act quickly to allow the Telecommunications Agency to compete on an equal footing with others on building cable TV facilities. A few weeks ago the ministry issued a temporary stop order to the monopoly firm in the anticipation of new political guidelines and the order was greeted with statements of disapproval by both the management and the employees.

"The Telecommunications Agency must now be allowed to compete with private firms. In the long run it alone should have the responsibility for planning, building and operating as well as owning the so-called telematics network," Ove Ragnar said in a conversation with the Oslo Labor press editors. The telematics network refers to a common network for such different teleservices as telephones, cable TV, data transmission and alarm services.

Uniform

He said that not until this has become a monopoly job will we get a uniform teleservices offering over the entire country. "The demand involves good district and industrial policy. Through the Telecommunications Agency we can be sure that Norwegian industry will get favored treatment and there

will be equal prices for teleservices no matter where in the country one lives," said Ove Ragnar.

The union chairman, who incidentally wants to change the title to the nonsexist union leader at the congress, said that he does not think the Telecommunications Agency should start out by having a monopoly on the construction of cable TV facilities that will be part of a telematics network. "I am not that naive. For the time being the Telecommunications Agency will have to compete with private firms and I am convinced that the state-owned firm will do well in this competitive effort.

Majority

"But in the longer view, I think only the Telecommunications Agency has the competence and the resources for such a project covering the entire country. I also think there is a political majority that supports our view," he added.

He rejected the possibility of allowing private firms to take part in construction projects where they want to. That means they can skim off the cream by just becoming involved in lucrative areas. That would not benefit society, in his view.

It is anticipated that the top leadership of the Norwegian Union of Teleservices will be re-elected at the congress. Ove Ragnar has been chairman for two periods and everything indicates that both he and vice chairman Tore Lundberg will continue in their posts.

6578
CSO: 5500/2532

COUNTRY'S LEADING COMMUNICATIONS FIRM SEEKS EXPORT MARKETS

Oslo AFTENPOSTEN in Norwegian 31 Oct 83 p 29

[Article by Knut Lovstuhagen]

[Text] Geneva, 30 Oct--Now that it has practically been decided that Standard Telephone and Cable Factory will get a contract with the Telecommunications Agency for digital public telephone exchanges, Elektrisk Bureau will put even more emphasis on international markets.

"We will direct our efforts toward international customers in the power plant sector, stressing maintenance systems for telecommunications networks, equipment for air traffic control, radio lines, satellite systems, cables for offshore drilling activities and systems for business communications, EB [Elektrisk Bureau] administrative director Kjell Kveim told AFTENPOSTEN.

Elektrisk Bureau has worked deliberately for many years on an internationalization line and in 1983 a third of the total sales of 2.3 billion kronor will come from activities outside Norway's borders. "Our activities abroad employ only a tenth of our employees, so it is obvious that internationalization creates jobs here at home," Kveim pointed out.

With reference to information obligations to employees, Kveim did not want to say anything concrete about the employment consequences the loss of the Telecommunications Agency contract for the digital telephone exchanges will have for EB, especially for the firm at Hisoy outside Arendal, which was earmarked for the production of telephone exchanges. But he did emphasize that Hisoy would remain and said that no matter what, technological developments will lead to reduced labor in the production processes, something that normal volume increases cannot offset. That is why the concern will now intensify even more its market assault abroad in an effort to create new jobs at home.

Elektrisk Bureau is one of the Norwegian firms that made a good impression at this year's Telecom exhibition and Kveim said that they talked to a number of potential customers that he thinks will lead to contracts later on. "In that way Telecom has been a fine intermediary and the exhibition was an excellent point of contact where one could meet customers and discuss matters of mutual interest," he said.

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COMMUNICATIONS MINISTER DISCUSSES ROLE OF AUTOMATION

Oslo AFTENPOSTEN in Norwegian 1 Nov 83 p 7

[Article by Truls Martinsen]

[Text] In a short time, sometime this fall, the government will discuss a draft of temporary regulations for the establishment and operation of cable television facilities, Communications Minister Johan J. Jakobsen revealed at the national meeting of the Norwegian Union of Teleservices in Kristiansand on Monday. In his speech to the meeting, the communications minister made it clear that the Telecommunications Agency will play a central role in the future integrated computer and telecommunications service in this country. The Telecommunications Agency must be a featured player and a coordinator in the work, the communications minister said.

The minister's signals seem to have met with a good reception by the participants at the meeting, who represent over 12,000 employees of the Telecommunications Agency. The union strongly opposes the proposals to privatize installation work and other telecommunications services, which the Telecommunications Agency has supported in its latest report on expansion of the telematics network, the future digital network for transmission of sound, text, pictures and data.

The communications minister could say nothing concrete about the Telecommunications Agency's place in the picture, but promised a demanding and exciting job for all who see it as their job to make the Telecommunications Agency as well-equipped as possible to bear the main responsibility for stepping into the telematics age. Few other areas of public administration and private business can look forward today to such opportunities, he said.

"The efforts of the agency and its employees will be the central driving force in building up competence," said the cabinet minister, but he pointed out that there must be clear political decisions of principle to back up this line. The necessary funds must also be available, but the Communications Ministry views it as a primary task to further develop the Telecommunications Agency as a good place to work, he said.

The cabinet minister also mentioned the formal side of the Telecommunications Agency's situation when it must both participate in competition on the telecommunications market and at the same time act as the state's administrative body with the job of supervising and approving equipment and setting standards.

The Telecommunications Agency's freedom of action as a state institution was also mentioned in relation to the national budget, wage regulation, the ability to take out loans, etc. The question of so-called cross-subsidies with the profits from telephone operations being used to expand cable TV was also mentioned. These problems are to be studied by a committee that will be appointed soon, the minister said.

The chairman of NTTF [Norwegian Union of Teleservices], Ove Ragnar, said in his speech to the meeting that the Telecommunications Agency should now be given clear permission to participate in the competition to expand cable television. We know that many people are interested in having the Telecommunications Agency expand the facilities. The customers are probably not much interested in cross-subsidizing. The important thing for customers is quality at the cheapest price possible, Ragnar said. However the Telecommunications Agency's opportunities to give bids for such things were canceled this summer.

When it comes to the future expansion of the telematics network in general, an area that includes cable TV, the union chairman said that only the Telecommunications Agency has the apparatus and the competence to handle this kind of gigantic task.

A proposed statement from the meeting said that the implementation of the telematics network as a whole right up to the first pieces of equipment for household subscribers must be seen as a natural part of the Telecommunications Agency's monopoly activity.

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TELECOMMUNICATIONS AGENCY SEES ROLE IN OFFICE COMMUNICATIONS

Oslo AFTENPOSTEN in Norwegian 1 Nov 83 p 33

[Article by Truls Martinsen]

[Text] The Telecommunications Agency's board of directors voted unanimously Monday to approve the agency's moving into the market for delivery of equipment for internal business communications systems. The intention is to offer sales and installation of equipment that the Telecommunications Agency will buy on the open market. It is planned to establish this service starting 1 January 1984. If the government approves the board's decision, the Telecommunications Agency will cast itself into a market in which such computer giants as IBM have a large share.

It is mainly the high-tech part of internal business systems that the Telecommunications Agency intends to deliver, communications systems that are developed on the basis of the new digital inter-office telephone exchanges that can transmit any kind of information, speech, text, pictures and data. It is estimated today that well over 100 Norwegian firms will be interested in installing digital inter-office telephone exchanges, which would permit them to plan their communications systems based on these exchanges.

The board's decision was based on initially offering the service under the auspices of the Telecommunications Agency, without setting up a stock company for the new service. But accounts for the activity will be kept separate from the agency's accounts, so that income from telecommunications services is not used to finance the new service. A central main office for the Telecommunications Agency's internal business communications (TBK) will be set up and local offices might also be established, said the chairman of the Norwegian Union of Teleservices, Ove Ragnar, who has taken part in preparations for this service.

It has been a union demand that the Telecommunications Agency set up a TBK in order to participate in the competition to deliver internal communications systems. Ove Ragnar did not expect much growth in Telecommunications Agency jobs as a result of the new service, but it could help maintain the jobs the agency provides today.

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CSO: 5500/2532

PANEL TO EXAMINE FUTURE OF TELECOMMUNICATIONS AGENCY

Oslo AFTENPOSTEN in Norwegian 7 Nov 83 p 28

[Text] A committee that will examine among other things the Telecommunications Agency's association with the national budget and its ability to take out loans on the private loan market and set up subsidiaries was appointed by the cabinet on Friday. In all the committee is made up of 11 people who are supposed to present a report to the Communications Ministry during the spring of 1984.

Per Arne Watle, personal secretary to the transportation and communications minister, said he was glad the committee had finally been appointed.

"It is urgent that we clear up a number of questions concerning the activity and future sphere of the Telecommunications Agency and here at the ministry, for example, we are constantly dealing with matters where we would like to have some principles to refer to," Watle pointed out.

A growing amalgamation of computer and telecommunications services and the trend toward integration of services will lead to a larger offering of services in the future. The Telecommunications Agency will enter a new market situation that will be characterized by much more competition than was the case in the past. The agency also has a number of tasks in its capacity as an administrative body. These conditions are the framework forming the background for appointing the committee.

From the mandate presented to it, it appears that the committee will look into how the Telecommunications Agency's external organization should be formed, so that the agency can fulfill its job in society as appropriately as possible and be run in a rational and businesslike way. The committee will take a stand on the extent of the Telecommunications Agency's future freedom of action with respect to superior authorities and present proposals on how the future political guidance of the agency should be exercized.

In its work the committee will evaluate among other things how to organize the administrative and monopolistic activity on the one hand and competitive activity on the other, including standardization and model approval

activities. It will also examine how to avoid having the Telecommunications Agency act as both supervisor and competitor in the same market and how to assure the kind of bookkeeping that will prevent subsidies that destroy competition. Under its mandate the committee will also assess the association of the Telecommunications Agency with the national budget and its ability to borrow money on the private loan market, to establish subsidiary companies and holding companies for them or to enter business companies with others.

"We are not embarking on this work in order to fetter the Telecommunications Agency but for the purpose of clarifying matters that are currently a burden to live with," Watle said.

The committee is a so-called expert committee supplemented by representatives of the most important special-interest groups. The chairman is Professor Gunnar Stette of the Norwegian Technical College. Other members are Ole J. Haga, assistant technical director of the Telecommunications Agency, Per H. Haga, undersecretary in the Ministry of Cultural Affairs, section leader Ida Helliesen of Norwegian Hydroelectric, Berit Klemetsen, deputy administrative director for the Association of Norwegian Savings Banks, director Jorgen Longem of Teleplan, Inc., Professor Preben Munthe of Oslo University, Professor Knut S. Selmer of Oslo University, Kjell G. Skar, assistant director of the Communications Ministry, administrative director Rolf Skar of Norsk Data, Inc. and telecommunications chief Odd-Kare Kvalheim. Kvalheim is acting as joint representative for the Telecommunications Agency's personnel organizations.

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CSO: 5500/2532

BRIEFS

FIRM GETS PHONE EQUIPMENT ORDER--The Telecommunications Agency has placed an order for 30,000 so-called compact telephones with Elektrisk Bureau. The new one-piece apparatus--which consists of just one part--was shown for the first time at the Telecom exhibition in Geneva and according to reports from there the equipment aroused great interest. The apparatus was developed over a period of 9 months, which is a short space of time for this kind of product. The compact telephone can store nine phone numbers and repeat the last number dialed. [Text] [Oslo AFTENPOSTEN in Norwegian 2 Nov 83 p 27] 6578

CSO: 5500/2532

BRITISH ACHIEVE RECORD IN OPTICAL TRANSMISSION WITH NO AMPLIFIER

Paris INDUSTRIES ET TECHNIQUES in French 20 Jun 83 pp 92, 94

[Excerpt] A spectacular advance has just been made by a group of British Telecom scientists at Martlesham, who successfully tested a line 102 km long which can transmit 140 Mbits/s without amplifier, a rate equal to that of 2,000 standard telephone lines. This is twice the previous record obtained in the laboratory, which itself was 6 times better than presently existing first-generation optical lines.

The Martlesham group worked in three sectors to achieve such results: the fibers themselves, the signal-output source, and the receiving system.

The fibers used are hollow fibers having a very small inner diameter (5 μ m) and made of a very pure glass, so pure that a block 20 km thick would be as transparent as a window pane. The "tube" through which the light rays pass is so narrow that it permits the passage of only one beam or "mode." This is what is known as a monomode fiber, in contrast to the so-called radial-gradient refraction index multimode fibers (which are easier to manufacture) which allow the passage of 200 different light beams. The differences in speed among these beams, tiny as they may seen, cause the transmitted impulses to spread out more and more as they travel, with the possibility of overlapping. The spread is about one nanosecond per km for these fibers, whereas it is only 10 to 100 picoseconds over 30 km for the monomode fibers. Further, the multimode fibers normally carry infrared light of wavelength 850-900 nanometers, the energy attenuation for which is from 2 to 5 dB per km. These two aspects--impulse spread and energy attenuation--explain the need for amplifiers every 7-10 km.

The energy attenuation for monomode fibers is much smaller, and the Martlesham group has found that it could be reduced still more by using a higher wavelength (further into the infrared). Thus, at a wavelength of 1,500 nm, the attenuation is only 0.25-0.35 dB per km, so that the total loss over the 100-km fiber (made with 11 "joints") used in the experiment was only 33 dB.

But another factor, called a "material factor," induces impulse spread. This is the impurity of the output signal. If it has different speeds in the fiber it will cause the signal impulses to spread. With a laser broadcasting at a wavelength of 1,500 nm, with a band width of 4 nm (thereby emitting a slightly

impure light of wavelengths between 1,948 and 1,502 nm), the impulse spread would be about 4 ns over 100 km, which is far too much for a transmission of 140 Mbits/s.

A very pure source was thus required. The problem was solved by the use of an injection laser coupled with a primary laser operating uninterruptedly at a carefully controlled wavelength of 1,500 nm.

The emitted light thus has an extremely high special purity: its band width is about 10^{-3} nm. The impulse spread is now only about 2 ps over 100 km (as far as the "material factor" is concerned).

Finally, the receiver at the other end of the fiber is the world's most sensitive for the wavelength used. It uses gallium arsenideindium PIN type detectors (an "I" layer of intrinsic semiconductor as photoelement, intercalated between 2 P and N layers), and gallijm arsenide field-effect-transistor (GaAs FET) amplifiers.

In addition, the Martlesham laboratories have developed a method for manufacturing the fibers, and the various required tools, including an apparatus to join two fibers together; it is extremely precise (the inner diameter which must not be blocked is 5μ m!), but tough enough to be used in the field. They have also produced a 30-km prototype section in the field. This section has been successfully tested for transmitting rates of 565 Mbits/s (equivalent to 7,680 standard telephone lines), as well as transmitting frequency-modulated television pictures.

The conversion to practical applications seems certain, which would indicate some nice profits for British Telecom in the future.

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CSO: 5500/2518

BRIEFS

BBC SATELLITE TV--The British Broadcasting Company (BBC) will establish a two-channel satellite TV service which will be put into operation in September 1986. Via this satellite, the British will be able to receive television programs from the rest of Europe; and likewise, Europe will be able to receive English programs. BBC has signed an agreement with United Satellites (UNISAT), a consortium consisting of British Telecom, British Aerospace and British General Electric, concerning the construction of two satellites, one of which will be used for relay purposes and the other for a spare. Movies will be sent on one channel while the other channel will transmit three 8-hour cycles of a selected program for shift workers. The funds for the 168-million pound project will be raised from the estimated more than 2-million subscribers. In addition, each subscriber will have to pay about 400 pounds for the installation of a receiver signal-conversion unit on the backside of the TV set. Although France and the FRG will institute similar systems by 1985, BBC claims that it will be the first to operate a system with a back-up satellite. [Text] [Duesseldorf VDI NACHRICHTEN in German 30 Sep 83 p 25] 9160

CSO: 5500/2509

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