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New Ground Stations Enhance Communications Network

*HK1304022789 Beijing CHINA DAILY in English
12 Apr 89 p 3*

[By staff reporter Gao Jin]

[Text] The Ministry of Posts and Telecommunications plans to set up 10 satellite communication ground stations in the next few years as part of an effort to ease the strain on the existing telecommunications network and to offset imports of foreign equipment, ministry sources said.

Chengdu, capital of Sichuan Province, will be the first regional station to install the Chinese-made equipment.

The station, with a capacity of 972 lines and special channels for TV signals, could provide service for the whole province.

The equipment for the Chengdu station was developed by the Shanghai-based No 1 Research Institute of Posts and Telecommunications.

The station includes a parabolical antenna of 11.6 metres in diameter, high power amplifier, low noise amplifier, monitor alarm control and single channel per carrier and other systems, according to the institute's director, Li Yuan.

It could receive, send and transmit telephone and telegraph signals, television programmes and fax and provide other services, Li said.

The equipment, which passed the ministerial approval last week, meets both Chinese standards and those set by the International Telecommunications Satellite.

Vice-minister Xie Gaojue said he hoped the equipment will be produced to offset foreign imports.

Since 1982, satellite communications have developed rapidly in China.

The launching of Chinese communications satellites last year gave impetus to the development of domestic satellite communications.

Telecommunications Venture Set up in Shanghai

*HK3005093389 Beijing CEI Database in English
30 May 89*

[Text] Shanghai (CEI)—A U.S.-Dutch joint venture signed a contract here Monday with Shanghai municipality of China on setting up an optical-fiber digital telecommunication equipment plant in Shanghai, the first of its kind in China.

Signing the contract for the foreign side was Dr. A. Borsboom, director of finance of the American Telephone and Telegraph Network Systems International, which was established by the American Telephone and Telegraph of the United States and Philips of the Netherlands.

The plant will be located at the Caohejing hi-tech park in Shanghai. According to the contract, advanced technologies will be imported from the United States and the Netherlands. When completed, the plant will produce 16 varieties of optical-fiber and digital telecommunication equipment, which will meet the standards for telecommunications both at home and abroad.

Dr. Borsboom said that 25 percent of the products from the plant would be exported while the rest would meet the needs of China's domestic market.

Shanghai Imports Large-Capacity Telephone Equipment

*HK1804031289 Beijing ZHONGGUO XINWEN SHE
in Chinese 1126 GMT 13 Apr 89*

[Report: "Shanghai Imports Large-Capacity, Program-Controlled, Long-Distance Telephone Equipment"]

[Text] Shanghai, 13 Apr (ZHONGGUO XINWEN SHE)—The AXE-10 program-controlled, domestic long-distance 4,000-terminal exchange equipment imported by Shanghai from the Swedish (Ailixin [1947 0500 0207]) Company, was put into operation in the Dianxin Building, Shanghai, today. This will greatly relieve the situation in which Shanghai has "difficulty putting calls through."

This represents a key project for upgrading postal and telecommunications technology during the state's Seventh 5-Year Plan—a component part of the program-controlled 40,000-terminal long-distance equipment being imported. The contract for this project was signed in June 1987. Relevant work on installing the equipment started in May 1988. The whole project calls for a total investment of more than \$4 million.

At present, Shanghai has long-distance telephone access to more than 130 cities, except for the province of Taiwan. But the degree of automation and the rate of success in putting calls through are relatively low. With the said equipment is put into operation, the rate of success in putting domestic long-distance telephone calls through will be raised to a relatively high level. Given further development, the rate of long-distance telephone automation in Shanghai is expected to reach 80 percent.

New Telephone Exchange System Commissioned in Shanghai

*OW0904234789 Beijing Domestic Service in Mandarin
2230 GMT 5 Apr 89*

[Text] An engineering project for a digital telephone exchange system, which is a Sino - Belgian joint venture, was completed in Shanghai. It passed state approval on 3 April and was formally put into production. The commissioning of this engineering project fills a blank in our country's communications industry and will have important significance in accelerating the construction of our country's posts and telecommunications and in relieving the strain on telecommunications. This engineering project, one of the state's key projects, is an assembly line to produce large capacity and program controlled telephone exchange sets. Begun on 1 April 1984, the project was completed at the end of last year. The design capacity for this telephone exchange system is to annually produce 300,000 sets of program controlled telephone exchanges. For several years, 300,000 sets of program controlled telephone exchange were produced every quarter. [as heard] The first batch of products were used in Qingdao, Hefei, and Chengdu with good results. At present, 45 telephone bureaus are using this kind of telephone exchange set and have achieved good social effects. Our technical personnel have basically commanded the production of soft and hardware for telephone exchanges. They also have the capability of independent design.

The telephone exchange sets produced by this joint venture were certified as qualified products by Belgium's (?BTN) Company. The quality of the hardware products was confirmed as reaching the international advanced level for the 1980's after they were put into operation.

Guangdong-Hong Kong-Macao Communications Planned

*HK0405131589 Beijing ZHONGGUO XINWEN SHE
in Chinese 0307 GMT 29 Apr 89*

[Text] Guangzhou, 29 Apr (ZHONGGUO XINWEN SHE)—According to news disclosed by the Post and Telecommunications Department here, Guangdong plans to cooperate with Hong Kong to establish a "digital transmission line" from Zhuhai to Hong Kong and connect the optical fiber communications line between Guangdong, Hong Kong, and Macao into a ring-shaped digital telecommunications system so as to increase the safety of communications and the capacity of transmissions.

The optical fiber telecommunications system between Guangzhou and Hong Kong started operating last October. To date, telecommunications transactions between these two localities have doubled and redoubled. However, the optical fiber cable between Guangzhou and Macao has not yet been completed. For the sake of completing the project at an early date and connecting Guangdong with Hong Kong and Macao, Guangdong is

now stepping up construction of the section of the Guangzhou-Macao optical fiber telecommunications project from Foshan to Zhongshan.

The optical fiber telecommunications line from Guangzhou to Macao is 123 km long. The project is divided into three sections, of which the two sections from Guangzhou to Foshan and from Zhongshan to Macao via Zhuhai, totaling 85 km, have been completed and put into operation. Regarding construction of the section from Foshan to Zhongshan via Shunde (the feeder line connecting Jiangmen), which started this year, the laying of cable will start from the end of this year and be completed by the beginning of next year. The whole project will be put into operation by the end of next year. By then, the two transregional optical fiber lines which run from Guangzhou to Macao and from Guangzhou to Hong Kong will become a parabola-shaped optical fiber telecommunications line. With another digital transmission line spanning the mouth of the Zhu Jiang, the whole project will become a ring-shaped telecommunications system.

Guangdong Province Develops Telecommunications

*OW2205195389 Beijing XINHUA in English
0051 GMT 18 May 89*

[Text] Guangzhou, May 18 (XINHUA)—Telecommunications in Guangdong Province have been developing rapidly since 1981, thanks to the use of foreign loans.

Yang Peilin, deputy director of the Guangdong Provincial Posts and Telecommunications Bureau, said today that since 1981 the province has used 120 million U.S. dollars in foreign loans to improve its telecommunications.

With loans mainly from Japan, Sweden and Hong Kong, the province has installed a microwave trunk line linking Guangzhou with Hong Kong and a Guangdong-Hong Kong optical fibre telecommunications system.

It has built in its 12 cities computer-controlled switchboards with 260,000 telephone lines. The telephone capacity of the province has expanded to one million lines and the province is able to offer direct dialling to 156 countries.

Last year, the province's international calls totalled 34 million, with a total business turnover amounting to 280 million yuan (about 75 million U.S. dollars).

Fujian Province To Improve Telecommunications Service

*OW2905023589 Beijing XINHUA in English
0135 GMT 26 May 89*

[Text] Fuzhou, May 26 (XINHUA)—Fujian Province is going all out over the next two years to improve its telecommunications service in an attempt to attract more foreign investment.

Lin Jinqun, director of the provincial Post and Telecommunications Administration, said that Fujian now has 3,540 long distance telephone lines in operation which can direct-dial 156 countries and regions.

In addition, an optical fibre cable has been laid between Fuzhou, the capital city of Fujian, and the city of Mawei, and a color television conference system, laser newspaper facsimile facilities and magnetic card telephones have been put into service, the official said.

Sixty-two of the province's 68 counties have automated their telephone service and 35 can now provide direct international dialing service, he added.

The next two years will see accelerated development of telecommunications construction, the official said.

The number of long-distance telephone lines will be increased to 8,500, the province's first digit microwave transmitting trunk line will become operational, and two satellite ground stations will be built in the key cities of Fuzhou and Xiamen.

Fujian's Xiamen Installs Programmed Telephones
HK1004082189 Hong Kong ZHONGGUO TONGXUN SHE in Chinese 1230 GMT 5 Apr 89

[Report: "Xiamen Special Economic Zone Recently Installed 10,000 Program-controlled Telephone Sets"]

[Text] Fuzhou, 5 Apr (ZHONGGUO TONGXUN SHE)—On 1 April, 10,500 new program-controlled telephone sets were put into operation increasing the number of program-controlled telephone sets in operation to 23,000.

Xiamen City imported 10,000 program-controlled telephone sets from Japan in 1985, thus becoming the first mainland city with a digital telephone network. In 1987, the city expanded the capacity of its program-controlled telephone network by 2,500 sets. With the development of foreign economic activities in the special economic zone the 12,500 telephone sets reached saturation, so the Xiamen City Government decided to invest 25 million yuan last June to import more equipment from Japan and expand the program-controlled telephone capacity to 20,000 sets.

The city is building a new telecommunications center and the long-distance program-controlled exchange system will provide 800 additional circuits and handle nearly 10,000 additional program-controlled telephones. The equipment will be put into operation by the end of this year and will then effectively improve telecommunications conditions in the city.

International Telephone Service Booms in Hubei

HK1805105189 Wuhan Hubei Provincial Service in Mandarin 1130 GMT 17 May 89

[Text] International telecommunications service has been developing quite rapidly in Hubei province. Now international telecommunications service links this province with 156 foreign countries and areas. Ten years ago, international telephone service was only available in six places in this province, namely, Wuhan, Yichang, Dangyang, Jingzhou, Anlu, and Danjiangkou. By 1988 telephone service offices in this province had successfully handled more than 135,000 orders for long-distance telephone calls to overseas, Hong Kong, and Macao. In the first quarter this year alone, a total of 3,936 orders for long-distance telephone calls between Hubei and Taiwan were handled. Now long-distant direct dialing service is available in all prefectures, cities, and autonomous prefectures of the province; basically all townships have installed telephones; and the daily telegraph handling capacity has increased from 100,000 to more than 200,000 a day.

Today marks the 124th anniversary of the founding of the International Telecommunications Union and the 21st World Telecommunications Day. The main theme of the World Telecommunications Day this year is international cooperation. This theme mainly emphasizes the necessity of developing telecommunications service, the enhancement of international cooperation, and the popularization of the scientific and technological achievements of the electronic age, with a view to benefiting all countries.

This morning the provincial postal and telecommunication bureau and the provincial society of telecommunications held a meeting at the Wuhan Opera House to mark the 21st World Telecommunications Day. Present at the meeting were more than 1,000 people from the circles concerned.

Jiangsu To Buy Swedish Telecommunications Gear

HK0405122789 Beijing CEI Database in English 4 May 89

[Text] Nanjing (CEI)—Eleven cities and counties in Jiangsu Province will install AXE-10 program control telecommunication equipment introduced from Sweden's Ericsson company starting this November, the Jiangsu postal and telecommunications administrative bureau disclosed.

According to an agreement, equipment worth 30 million U.S. dollars will be delivered to Jiangsu. The equipment

includes 109,000-line local exchanges and 4,300-line long-distance exchanges. The equipment is expected to go into operation next April.

It is learned that Jiangsu introduces the equipment with loans provided by the Swedish Government, totalling 70 million dollars.

Late this year, Jiangsu will buy another 100,000-line local exchanges and 6,000-line long-distance ones from the company with Swedish funds.

Jiangsu has introduced 87,900-line local exchanges and 5,020 -line long-distance exchanges from Japan and Belgium in the past four years.

To date, Nanjing, Wuxi, Suzhou, Changzhou, Zhenjiang, Nantong, Yangzhou, Lianyungang and Xuzhou in the province have installed program control telecommunication equipment and can dial directly to over 140 countries and regions.

CAMBODIA

TV Stations Being Built With USSR Aid

Station Handed Over in Kompong Cham
BK3005021289 Phnom Penh Domestic Service in Cambodian 1300 GMT 29 May 89

[Excerpts] A ceremony was held on the morning of 27 May at the Kompong Cham Provincial Hall to hand over a television station as a gift to Kompong Cham Province. [passage omitted]

In Kompong Cham Province, the Soviet Union, in cooperation with the Cambodian Television Directorate, has installed a television station to bring televised service to viewers in the province. [passage omitted]

Battambang, Kompong Som Sites
BK1006121589 Phnom Penh SPK in English 1101 GMT 10 Jun 89

[Text] Phnom Penh SPK June 10—Another T.V.-relay station is being under construction in the provincial town of Battambang, 300 km northwest of Phnom Penh.

The station, built with Soviet assistance, will relay programs of Cambodia television and those of the Soviet Union receiving from the satellite ground station in Phnom Penh through the inter-sputnik system.

The first relay station has been put into operation last month in the provincial town of Kompong Cham, 100 km northeast of Phnom Penh.

The third station, also funded by the Soviet Union, is to be installed in the coastal city of Kompong Som.

LAOS

French Firm To Build Vientiane-Paksan Microwave Link
55004302 Vientiane PASASON in Lao 20 May 89 pp 1, 2

[Text] In accordance with the agreement on gratis aid between the LPDR government and that of the Republic of France signed on 5 October 1988, on 18 May the Posts and Telecommunications Company signed an agreement with the Alcatel Corporation. Implementation of this agreement concerns the construction of a 34-megabyte microwave link between Vientiane and Paksan which will enable us to have 24-hour-a-day telephone service. Moreover, should it be desired, we could also have telegraph, teletype, and fax capability.

Signing this agreement for the Lao side was Posts and Telecommunications Company chief Xiengsom Phila and for Alcatel their Southeast Asia zone trade chief Mr (Kwan Vu). Also present at the signing were Vice Minister of Communications, Transportation, Post and Construction Khamleuang Sai-gnalat and French Ambassador to Laos Mr Marc Menguy.

TAIWAN

Taiwan Can Launch Satellite Within 5 Years
40080181 Beijing RENMIN RIBAO OVERSEAS EDITION in Chinese 5 May 89 p 5

[Unsigned article: "Taiwan's Committee To Study Artificial Satellite Applications and Development States: Within 5 Years, Taiwan Can Launch a Satellite"]

[Summary] Hong Kong, May 3—According to Taipei news, the Taiwan "Executive Yuan's S&T Advisory Group" has indicated that, given sufficient funding, Taiwan should be able to launch an approximately 200-lb satellite within the next 5 years. The satellite would provide observations and data measurements for scientific and meteorological purposes.

Dr. Chao Chich'ang [6392 4949 2490], chairman of the advisory group's "Committee To Study Artificial Satellite Applications and Development," pointed out at an S&T Conference called by the "Executive Yuan" that if Taiwan is to develop an artificial satellite, it will need to dedicate 1000 people to the project for the next 5 years and will need to spend a total of approximately NT 7 billion to 10 billion yuan [for the entire 5-year period]. This investment will cover ground control equipment, the launch vehicle, design of an experimental satellite, etc., as well as training of space scientists and technicians.

THAILAND

Cabinet Approves RFI Request for Short-wave Station
BK3105010589 Bangkok BANGKOK POST in English 31 May 89 p 6

[Text] The setting up of a French short-wave radio station in Thailand was approved in principle by the Cabinet yesterday.

The French Government will open Radio France Internationale in this country under an agreement with the Thai Government.

The Foreign Ministry was assigned to appoint a delegation consisting of officials of the Public Relations Department and the Post and Telegraph Department to discuss the matter with the French.

Paris had long been interested in setting up a short-wave station in this country and unofficial contacts between the Foreign Ministry and French officials have been made in recent years.

HUNGARY

Hungarian Telecommunications Upgrades Described

*AN890153 Chichester INTERNATIONAL
TELECOMMUNICATIONS INTELLIGENCE in
English 7 Apr 89 pp 4-5*

[Unattributed article: "Hungary Breaking the Silence"]

[Text] The Hungarian PTT, Magyar Posta (MP), which became a state-owned company in 1986, seems to be stepping out boldly ahead of the other five European Comecon countries towards expansion and modernisation of its telephone network. Soon after the relaxing of COCOM trade descriptions last September, the country signed a HF 7.2 billion (\$140 million) contract involving the deployment of digital switches in eight Hungarian cities, including the capital Budapest, with an anticipated expansion to the network of 100,000 lines. The equipment is being supplied by Austria Telecommunications, a Vienna-based joint venture between Kapsch and Schrack, two Austrian electronics groups and distributors of Northern Telecom (NT) products. The local exchanges, produced on licence by Austria Telecommunications, are based on Northern Telecom's DMS 100 model and adapted to meet Hungary's networking specifications. Although NT was not involved in the deal, it said it "was delighted" that its (modified) exchanges had been selected.

Marking completion of the first phase of the contract, at the end of last month MP inaugurated the first digital exchange to serve Hungarian subscribers, in the Szombathely region in the west of the country. Hungary's first digital network on the edge of an otherwise analogue environment will bring modern telephone facilities to 120 villages (about 9,000 subscribers). Mr. Nemeth, the prime minister, led the inauguration ceremony.

The French company TRT (Telecommunications Radio-electriques et Telephoniques) supplied MP, through Austria Telecommunications, both with the interfaces between the new DMS 100-based digital exchanges and the existing analogue network and the IRT 1500 multi-access radio system. The radio system connects some 1,000 lines in this first phase of the Austrian company's contract.

The Coordinating Committee on Multilateral Export Controls (COCOM) represents all 16 NATO countries (except Iceland) and Japan. Its trade embargoes restrict the export of high-tech equipment from the West to the Soviet Union and Eastern Europe. As of 15 September 1988 a four-year-old ban on sales of digital public exchanges, digital PABXs and some fibre-optic cabling to the Soviet bloc was lifted. Consequently, there could now be an influx of Western suppliers of infrastructure-related equipment into the communist countries.

Hungary was the first to take advantage of the new ruling. A SKr 47 million (\$7.5 million) order for an AXE international exchange in Budapest was signed with L.M. Ericsson of Sweden within the month. Ericsson delivered the 6,800-line transit switch in the middle of March 1989.

In response to U.S. objections, the embargo still stands on switching equipment beyond certain limits in capacity and power (in fact the US had not wanted to remove the ban until 1991), and on advanced semi-conductors and software. However, there is room left for flexibility within the export legislation of each COCOM member country, and they tend to tighten or relax their own restrictions on exports according to their individual requirements.

Hungary's MP had been a department of the Ministry of Transport and Communications (KPM), but three years ago it reverted to its pre-war status—the first Comecon (Committee for Multilateral Export Controls) [expansion as published] PTT to do so—as a separate legal body in its own right. Apparently it is now endeavouring to do away with the political privileges which typify government-run Comecon PTTs and to consolidate the public network. This could mean upgrading the public telephone network to a reliability comparable with the country's networks in other sectors and protected lines which together represent the equivalent of 40 percent of the public network. It is expected these private networks (such as those of the railway and oil industries) will be allowed to extend further as well.

The MP's ultimate target for expansion is an increase of 4,200 main subscriber stations by 1990, with a further 3.1 million stations to be added in the 1990s. Experts have estimated that during 1990, HF 21.7 billion (\$400 million) will be spent on telecommunications development in Hungary; Magyar Posta has plans to invest HF 300 billion (\$5.5 billion) by the end of the century. The World Bank lent \$70 million in 1987 to this end.

It is expected that Hungary will address its existing impractical distribution of telephones. Currently only 50 percent of all Hungary's telephones are in provinces, despite the country's large rural population; the remainder are in Budapest. This means the main exchanges are overloaded, reducing the number of successful connections to less than 50 percent in peak periods. Some predictions put the proportion of main and sub-exchanges needing immediate replacement at 30 percent.

It has been estimated that Hungary loses more than HF 80 billion (\$1.5 billion) because of the poor state of its telephone network. The system is decades behind those of Western Europe—for this the country may in part blame its compulsory requirement to contribute towards developments at the Comecon level, particularly satellite communications, to the detriment to its telephone network.

Before World War II, Hungary could boast the best telephone network in Eastern Europe. Now it is the worst, relative to the standard of living in the country, of the six

European Comecon countries, with 600,000 people currently waiting for a telephone connection. The public is dissatisfied—and following the USSR's new wave of openness, it has been able to express its dissatisfaction and demand government reviews of the situation.

MP believes that its promised HF300 billion investment will bring the total number of telephone lines to 3 million from the current 1.7 million figure.

Saddled with antiquated equipment, deprived for so long of the latest advances in telecommunications technology

from the West, and withheld from making modern developments of their own by the Comecon Council, the Comecon PTTs are almost totally unfamiliar with digital telecommunications technology. In Hungary this poses a serious economic problem for its telecommunications infrastructure industry in the light of the country's ambitious plans which embrace digital technology. Hungary and the other countries will probably try to secure local production and licensing agreements with Western companies under which domestic manufacture and subsequent export (outside the Soviet bloc) of Western products is allowed. Hungary appears to be the leader in Eastern Europe's slow migration out of the technological dark ages.

BRAZIL

PRC Negotiates Bid for Brasilsat-2 Launchers
33420050z Sao Paulo FOLHA DE SAO PAULO in Portuguese 19 Apr 89 p F-1

[Article by Roberto Lopes, followed by interview with Chen Shouchun, executive vice president for science and technology of the China Great Wall Industry Corporation, at Avibras headquarters in Sao Jose dos Campos on 17 April 1989]

[Text] Ten months after President Jose Sarney's visit to China, the Chinese have come to Brazil to test a few of the possibilities for trade between the two countries. This morning, the China Great Wall Industry Corporation—the industrial arm of China's Ministry of Astronautics—will submit to the Ministry of Communications in Brasilia the documents with which it hopes to qualify for Competition No 004/89, which will determine the type of rocket that will carry the Brasilsat-2 program's two artificial satellites into space.

The competition involves a deal that will probably be worth between \$60 million and \$100 million, and there is already a clear favorite: the French Arianespace firm, which uses the world-famous Ariane rocket (launched from the Kourou base in French Guiana). Arianespace was responsible for the launchings that were part of the Brasilsat-1 phase 4 years ago. The French price is normally lower than that charged by the U.S. launching services—which will also submit bids—but the Chinese promise that they will be competitive. The qualification documents will be examined by experts at Telebras [Brazilian Telecommunications, Inc.] and Embratel [Brazilian Telecommunications Company] (the chief user of the Brasilsat program). Companies qualifying to participate in the competition will have to submit their technical and commercial proposals this coming 4 May.

First and Last

Arriving in Sao Paulo on the morning of the day before yesterday to coordinate the preparation of Great Wall's proposals was the firm's executive vice president for science and technology, Chen Shouchun (see the interview at the end of this article). In recent days, the Chinese have had their headquarters at the comfortable facilities of Sao Paulo's Avibras firm in the municipality of Sao Jose dos Campos (85 km northeast of the capital of Sao Paulo). In Beijing on the 4th of this month, that firm's London subsidiary, Avibras International, signed a partnership agreement with Great Wall establishing a new company known as International Satellite Communications (Inscm).

Inscm's plan is an ambitious one: It wants to sell rocket launching services and ground-based satellite tracking stations to the countries of Latin America, the Middle East, Asia, and Africa—that is, the so-called Third World countries. The competition for Brasilsat-2 is

therefore the first and the last bidding process in connection with rocket launchings in which Great Wall will participate without the support of Inscm—which will not become operational until it is officially launched at the International Air Show at Le Bourget in Paris this coming June.

The day before yesterday, the director of government relations for Avibras (and Brazilian representative of Inscm), Pedro Vial, told FOLHA DE SAO PAULO that the new company had "a potential market worth \$50 million annually through 1994 and at least \$100 million annually thereafter through the end of the century," but those are conservative figures.

In the bidding for the Telebras contract, Great Wall has a trump card for use at the right time: the possibility of carrying out one of the two launchings from the new Brazilian space center in Alcantara, Maranhao. That center is being built by the Ministry of Aeronautics, and FAB (Brazilian Air Force) officers involved in the project know that any and all joint experience with a foreign power in the field of space launchings is welcome.

This is not the first time that the Chinese have held out the possibility of using the Alcantara center to entice Brazilian authorities. During last year's talks leading up to the signing of a scientific cooperation agreement between Brazil and China for the construction of two artificial satellites, the Chinese also hinted at the possibility of launching the second of those satellites from Alcantara. The FAB did not want the agreement with the Chinese. The top leaders in the Ministry of Aeronautics are afraid that the \$45 million which the country is going to spend on that agreement will be needed for development of the space rocket that the Space Activities Institute (IAE) of the Ministry of Aeronautics is developing with so much difficulty.

The Chinese believe that the option of making a launch from the Alcantara center is a strong argument. They consider it unlikely that another space power such as France will agree to bring its technicians, its infrastructure, and especially its launch technology to the humble State of Maranhao.

What the Chinese are not saying, but thinking, is that their greatest chance of winning the Telebras contract lies in the excellent relationship currently existing between the two countries. They are gambling on the Brazilian desire to expand cultural exchange with China—a desire that has already produced the scientific cooperation agreement in the field of artificial satellites—and especially on a kind of Third World spirit with which China seems to be strongly imbued.

Telebras To Choose Supplier

By the end of June, Telebras will announce the winner of the contract for supplying the two artificial satellites for geostationary orbit that will operate in space as part of

the second phase of the Brasilsat Satellite Communications Program (Brasilsat-2). Competing in the bidding are the Spar Company of Canada and Hughes of the United States, the latter with a price on the order of \$155 million (about \$320 million new cruzados at the unofficial exchange rate).

A little over a month ago, when Hughes announced details of its technical proposal during a luncheon at the Maksoud Plaza Hotel in Sao Paulo, some Brazilian sponsors of the event leaked information that the American proposal could be estimated at \$90 million. But Brazilian businessmen interested in a victory for Hughes now say that Spar's price is even higher than the American company's price, since it comes close to \$200 million (about 400 million new cruzados at the unofficial rate of exchange).

On the other hand, Spar has joined with the Victory firm, a member of the Roberto Marinho group, in its bid to win the satellite contract, while Hughes has joined with Promon Engineering—a firm with a good technical reputation but without Victory's lobbying strength.

The first of the two Brasilsat-2 satellites is to be placed in orbit in 1991. The Brazilian Government has established a few requirements for foreign companies wishing to qualify for the bidding. The most important are these: 1) there must be an association with the Brazilian business community for actual technological cooperation; 2) exports of Brazilian products must equal the full value of the contract signed with Telebras; and 3) two military communication channels to be administered by the Armed Forces General Staff (EMFA) must be included.

Chinese Technology Not Attractive to Brazil

Ever since diplomatic relations were restored on 15 August 1974, Brazil and China have had a cordial relationship, with many projects for cultural and scientific cooperation but few business deals of any importance. The Chinese have a taste for rusticity—which they label simplicity—on an unending list of consumer goods and production goods, while Brazil, like a typical nation of the future, skids along in search of high technology.

As a matter of fact, high technology has become a national mania. The Brazilian consumer demands high technology even in his toothbrush. Strangely enough, there are pockets of knowledge in which the Chinese have developed highly competitive advanced technology. This is the case, for example, in certain sectors of military science—nuclear experiments, for example. In the second half of last year, the Chinese announced successful experiments with neutron bombs that surprised the most attentive military observers in the West and the Soviet bloc. It is also the case in the field of astronautics.

China has been developing rockets and artificial satellites for 40 years. In the 1960's and 1970's, it prepared to place an artificial satellite in space, something it did not achieve until 24 April 1970. In the following year, it launched its second satellite, and between 1975 and 1984, it launched half a dozen of those satellites, easily achieving the rank of the world's third-largest space power (being surpassed only by the United States and the Soviet Union).

Long March

China's real technological leap in space has been achieved, however, in the field of rockets. Driven by a real obsession not to be left too far behind in the arms race among the big powers, the Chinese developed the family of Long March rockets. The first Chinese long-range rocket—Long March-1 (or CZ-1)—was ready in 1970 for launching the first artificial satellite ever produced in that country. Long March-2 was ready in 1974—and became the first weapon of truly strategic value in the Chinese arsenal—while Long March-3 became operational during the first half of the 1980's.

That is the niche in high technology which Brazil has been trying to approach in recent years through such projects as the one for cooperation in building artificial satellites. The Chinese are aware of this, and they are gambling on that Brazilian desire to achieve other successes.

Interview with Chen Shouchun

The China Great Wall Industry Corporation's vice president for science and technology, Chen Shouchun, is a smiling man about 40 years old who wears simple but elegant clothes of European cut. There is nothing to remind one of the tasteless suits of the Mao era. He does not speak English well (or pretends not to), but seems to understand perfectly whatever is said to him in that language. His answers are not always brief, but their content is never very detailed. In addition to that, he smiles a lot, of course.

The day before yesterday, in an office at the Avibras firm in Sao Jose dos Campos, Sao Paulo (Avibras recently concluded a partnership agreement with the Chinese for offering satellite launchings to Third World countries), Chen—who on his business card precedes his title as "executive vice president" with the words "senior engineer"—granted a quick interview to FOLHA DE SAO PAULO. He talked about the ability of his firm in particular and his country in general to participate in international bidding.

FOLHA DE SAO PAULO: "Aren't you afraid to do business with the government of a country like Brazil, which is in an almost permanent state of economic crisis?"

Chen Shouchun: "I feel that we are not offering commodities or superfluous articles, items of clothing, or anything like that. We are talking about a long-term investment in high technology, something that is necessary to any country."

FOLHA DE SAO PAULO: "Those who compete with the Chinese in the international market usually complain that China's proposals lower prices too much, even to the point of debasing them. Is that a market strategy or the consequence of cheap manpower in your country?"

Chen Shouchun: "I can give you at least five reasons. And the first of them is the simplicity of our products. The best example of this is the success of the Japanese firm of Toyota. You can cover a lot of distance on the road in a German car in complete comfort. But you can also cover the same distance in a Toyota vehicle, which is simpler, more economical, and just as reliable."

FOLHA DE SAO PAULO: "The second reason?"

Chen Shouchun: "I would say that it is a question of reliability. We have already made 25 launchings with our Long March rockets, and all were completely successful. That is important."

FOLHA DE SAO PAULO: "The third reason?"

Chen Shouchun: "The fact that we produce all the components we use in our rockets and in other systems serving our space program, such as satellites and ground control stations. We import nothing from the United States or the Soviet Union. Thanks to that domestic production, we reduce the final cost of the products."

FOLHA DE SAO PAULO: "So far you have not mentioned the matter of manpower. Isn't that a determining factor in Chinese competitiveness?"

Chen Shouchun: "Yes, undoubtedly."

FOLHA DE SAO PAULO: "Brazilian manpower?"

Chen Shouchun: "Yes, cheaper than in Brazil."

FOLHA DE SAO PAULO: "You mentioned five reasons."

Chen Shouchun: "We are not looking for profits" (and he burst into sonorous laughter).

INDIA

Nation Seeking Spare Communications Satellite Capacity

55500073 Madras *THE HINDU in English* 24 Mar 89 p 1

[Text] Madras, 23 March—Faced with uncertainty over the continued operation of INSAT 1-B and the fortunes of its successor, INSAT 1-D, which is due to be launched in a couple of months, the Union Government is actively seeking to secure space on another satellite in an arrangement with INTELSAT, the world-wide organisation that operates 15 satellites carrying the major part of the international communications traffic.

At the moment, INTELSATs three satellites positioned over the Indian Ocean do not have any capacity to spare. That was made clear to the Indian Government months ago. But in a new opportunistic manoeuvre, INTELSAT is attempting to acquire a satellite from Arabsat, a consortium floated by some West Asian countries. Arabsat has two satellites already in orbit, but what INTELSAT is keen to secure is the third which is lying in cold storage at the manufacturers' facility in France.

Trying to help India: Mr John Hampton, a Deputy Director-General at INTELSAT, on a visit to Bombay told *THE HINDU* in a telephone interview that INTELSAT was trying to help India overcome the shortage of satellite capacity. "We are holding discussions with the Arabsat authorities," he said. "We are hopeful that by June some arrangement can be worked out.

According to Mr Hampton, India has indicated that it would require 11 transponders on the satellite. (A satellite such as INSAT 1-B has 12 transponders for communications).

No contingency measure: With the backlog of satellite launches being large, Mr Hampton believes that it will be a full 18 months before the new satellite can be found a launch slot. This implies that the Arabsat plan is no contingency measure for India in the event of INSAT 1-D not being an effective replacement for the aged INSAT 1-B. But it will be useful nevertheless as a stopgap arrangement till the second series of INSAT satellites is commissioned.

China has shown as much interest as India in the new satellite, and the two countries together are expected to lease most of the 25 transponders on it.

Reportage on Constitution of Telecommunications Panel

Organization, Responsibilities

55500074 Bombay *THE TIMES OF INDIA in English* 12 Apr 89 p 5

[Text] New Delhi, 11 April (PTI)—The government today announced the constitution of a high-powered telecom commission on the lines of Atomic Energy Commission.

According to a resolution placed on the table of the Lok Sabha by the minister of state for communications, Mr Giridhar Gomango, the telecommunications secretary shall be the ex-officio chairman of the commission which will have full executive and financial powers.

The commission which will have full time and part-time members will have responsibility in the entire field of telecommunications.

It will be responsible for formulating the policy of the department of telecommunications for the approval of the government, for preparing the budget for the department of telecommunications for each financial year and getting it approved by the government, and the implementation of the government's policy in all matters concerning telecommunications.

Within the limits of the budget provision approved by parliament, the commission shall have the powers of the government of India both administrative and financial for carrying out the work of the telecommunications department.

It will have power to form its own rules and procedures. The commission shall meet at such time and places as fixed by the chairman.

The commission shall take over all legal and statutory authority vested with the telecom board.

The resolution placed in the house said the telecommunication service was an essential infrastructure for national development. It had an impact on social and economic activities. Besides, business, industry and administration depended heavily on information and telecom for productivity, efficiency and their day-to-day operations.

Its development, therefore, was vital for nation-building. The government considered it necessary to establish to telecom commission in order to promote rapid development in all aspects of telecommunications including technology, production and services.

Analyst on Problems Faced

55500074 New Delhi *PATRIOT in English* 26 Mar 89 p 1

[Analysis by Satish Misra]

[Text] The Telecom Commission starts functioning from 1 April with Sam Pitroda as its first chairman, marking the end of a long controversy in which multinational giants and vested interests had mobilised their strength to prevent it from ever taking shape.

The five-year gestation period saw a continuous clash between those who wanted the commission to serve as the fulcrum for a quantum leap in telecommunications through indigenous efforts, and a strong group that wanted to opt for opening up to international company perks.

The lobbies found early support among a section of the bureaucracy which saw in the advent of the technocrats, a basic threat to its own perch at the top of the hierarchy.

Significantly, the first moves in the setting up of the commission have been to sort out bureaucratic confusion. With Mr Pitroda, who holds ministerial ranks as Mr Gandhi's technology advisor, taking up as chairman, the post of Communications secretary is being done away with. The established official hierarchy will however, be accommodated in six posts who will work as members of the commission.

The Commission will have a full-time chairman and four members with a three-year tenure. In addition, there will be four part-time members represented by secretaries in charge of industrial development, departments of electronics, finance and planning.

The full-time members will comprise a member in-charge of technology, another for production, a third for finance and a fourth in charge of services.

The Commission is expected to conceive strategies and give an overall direction to the vital sector of communication. Its basic role will be as a nodal agency responsible for developing industries related to the telecom system, aiding them in applying for industrial licences for collaboration and import of capital goods.

It aims to promote autonomy, flexibility and indigenous R&D efforts, and usher organisational change at the local level.

The telecom sector had been suffering because of no overall direction. As a result, the local-level machinery in terms of personnel and approach had never been involved in planning. The local personnel is still using obsolete technologies and also lack proper training. Existing rules for employing a telecom engineer's demand that an engineer should know wireless functioning.

The local level planning is not need-based but patronage-based. Modern technology requires an entirely different organisational structure. There is need for an intensive training to handle the new technologies.

Efforts were made to set up a commission on the lines of the Atomic Energy Commission when it was felt that the communication within the country was collapsing. Moreover, an efficient communication system is the vital prerequisite of any nation's development needs.

Modernisation of the country's telecommunication system requires investment worth Rs 40,000 crore. Over a crore of telephone lines installation is envisaged, while only 40 lakh lines presently exist in the country. Even the existing lines are based on obsolete technology.

Sighting big business opportunity in the telecom sector in India, the multinationals began painting a bleak picture of indigenous technology.

The Centre for Developments of Telematics (C-DOT), established to develop indigenous technology was attacked as a wasted effort and resources. The multinationals roped in bureaucrats and politicians to speak for their technologies and to run down indigenous research efforts.

As C-DOT began to deliver one system to another it was blamed for failing to keep its delivery schedule for the main exchange module. Now that C-DOT has promised that the first prototype of the main exchange would be ready with just a lapse of six months, the import lobby has changed their direction of attack and are concentrating upon Mr Pitroda himself, who has been the main force behind the setting up of the commission to boost up the indigenous efforts and self-reliance.

One of the main reasons behind the attack appears to be the competition offered by India in the markets of Africa and Asia. About 12 developing countries have already approached India for the import of Indian telecom system. India is in a position to offer the technologies at a competitive price.

Communication Demonstration of Satellite Planned

55500071 Bombay THE TIMES OF INDIA in English 9 Apr 89 p 10

[Text] The Indian Space Research Organisation (ISRO) will have a communication demonstration of an aeronautical satellite using the space segment of the International Maritime Satellite Organisation (INMARSAT), in the early 1990s.

The agencies which would be participating in the programme, which marks an increasing collaboration between the field of space and aeronautics in India, are Videsh Sanchar Nigam Limited, the department of telecommunication, the National Airports Authority, the directorate-general of civil aviation and the department of space.

This is a new field of service being developed for providing data and voice communication between aircraft and the ground. For the demonstration, INMARSAT will provide a set of aeronautical earth station (AES) avionics, a high gain aircraft antenna system and a set of aeronautical earth station functional test equipment, according to the annual report of the Department of Space (1988-89).

National Airports Authority sources, explaining the significance of the aeronautical satellite told THE TIMES OF INDIA said that the current communication system between aircraft and the ground had restricted range. With the launching of the satellite however, the aircraft crew could communicate over any distance, thereby enhancing the overall safety factor.

The other advantage of the aeronautical satellite would be that passengers flying in an aircraft could make international subscriber trunk dialling calls to any part of the world.

Referring to the Polar Satellite Launch Vehicle (PSLV) and the Indian National Satellite-2 (INSAT) test spacecraft programme, the report said Indian industries had made significant contributions during the year towards their development. "Specialised production lines created in Indian industry were successfully geared to meet the higher throughput requirements for supply of rocket hardware and components with increased complexity, for PSLV project," the report noted. Among those playing a vital role in the prestigious PSLV programme is Hindustan Aeronautics Limited (HAL) in Bangalore.

The PSLV, tentatively scheduled for launch next year from the Sriharikota space complex in Andhra Pradesh near Madras, will launch a 1,000 kg satellite in a 900-km polar sun-synchronous orbit. The second stage 'Vikas' engine has gone through a series of successful endurance tests, according to the report.

Preparations are now afoot for the PSLV launch at Sriharikota with the fabrication and erecting of the 75-metre structure for the mobile service tower and the umbilical tower. The launch pedestal, door, sliding roof and sliding mechanisms for the door have been completed. Data and control cables connecting the launch pad to the mission control centre and the launch control centre too are complete, the report states.

The report also states that the INSAT-ID launch is scheduled for next month in a McDonnell Douglas launch vehicle.

The liquid propulsion systems centre at Bangalore and Trivandrum and test facilities at Mahendragiri are studying various options for the liquid propulsion stages for the geosynchronous launch vehicle (GSLV) tentatively scheduled for launch in 1992. "Several versions of the cryogenic sub-scale engines are being developed and studied in an effort to generate technological inputs for the design of engine and stages of GSLV," the report states.

Meanwhile, the country's military space programme will receive a considerable boost when the "Agni" intermediate range ballistic missile is tested in the near future. The test is a part of the nation's integrated missile programme.

High Speed Digital Communication to Link Four Cities

55500072 New Delhi PATRIOT in English 6 Apr 89 p 8

[Text] The metropolitan cities of Bombay, Calcutta, Delhi and Madras will be interlinked in the next one year with high speed digital communication channels for effective telephone, telex and computer signal Transmission, Union Telecommunications Secretary Satya Pal said on Wednesday, reports UNI.

He told reporters in the Capital that the change from the analogue transmission system to the digital one would raise the inter- metropolitan telecom channel speed and capacity from 2.4 kilo bits to 64 kilo bits.

This would facilitate prompt and fault-free telephone, telex, telefax and a host of computer communications between these cities, he added.

Mr Satya Pal said it was planned to link Delhi by optical fibre channels with Bombay and Calcutta. The Bombay-Madras and Madras-Calcutta links would make use of a mix of optical fibre, coaxial and microwave systems.

Mr Satya Pal said important cities on the telecom links would also be hooked to the trunk lines, making telecom services easier for urban areas on route.

The telecommunications secretary said the telecom department had already exceeded the seventh Plan target in the first four years of the Plan period itself.

Against the current plan target of an additional 1.1 million new telephone lines and 1.3 million more switching capacity, the actual achievement was 1.26 million new telephone connections and 1.49 million new switching capacity.

Insat Proposed for Telegram Transmission to Rural Areas

55500069 Bombay THE TIMES OF INDIA in English 12 Apr 89 p 7

[Text] New Delhi, 11 April (UNI and PTI)—The government proposes to use INSAT for quick transmission of telegrams, particularly in the rural areas.

The minister of state for communication, Mr Giridhar Gomango, told the Lok Sabha today that a pilot project had been sanctioned at a cost of Rs 4.39 crores for the establishment of a satellite-based rural telegraph network in the north-eastern region.

When fully expanded, this would cater to 1,000 terminals. All the 50 terminals planned initially were expected to be installed in 1989-90, he said in a written reply.

Mr Gomango said despite the expansion of the subscriber trunk dialling (STD) network, revenue from trunk calls had increased. While the revenue was Rs 39,008 crores in 1987-88, it was Rs 322.2 crores in the first nine months of 1988-89.

Wireless Telephones to Link Villages in Rural Areas

55500070 Bombay THE TIMES OF INDIA in English
10 Apr 89 p 3

[Text] Hyderabad, 9 April (PTI)—For most urbanites in the country cordless telephones may be a distant dream. But wireless telephones would soon become a reality in rural India.

A system developed by the Visakhapatnam-based Marine and Communication Electronics (India)-MACE—enables connection of even remote villages with telephone exchanges without laying cables or erecting poles.

Field trials of this indigenous system, developed in a record time of about a year, have been carried out in some villages near Delhi and Amethi in Uttar Pradesh and results have been exciting. Two such systems are soon to be installed at Tirupati and Annavaram towns in Andhra Pradesh, each covering 15 surrounding villages.

“The shared radio system,” where only one person can use a line at a time, is nothing but a wireless system operating on a given frequency. Each base station could be connected to 15 villages in a radius of 30 km. The base station, which is connected to the conventional telephone exchanges, would connect any number desired from a village.

Calls within the 15 villages covered by the base could be made directly and would be free. All phones, including the base station, would be unmanned and would require minimum maintenance.

MACE managing director, Mr R. S. Sivaswami, said 1,200 sets of 2/15 shared radio systems would be manufactured within the next two months and this year it could reach a capacity of 10,000 sets. The firm's managing director, Mr V. V. Warlu, said through the telecom research centre had entrusted the work of producing the system to several public communication firms, only MACE had developed it in a year.

The system, he said, was more economical but initial costs and maintenance compared with conventional telephone systems. Each set of the shared radio system costs Rs 21,008, he said.

Mr Warlu, who is also chairman of the Andhra Pradesh Electronics Development Corporation, said the Central Government was planning to install the system in all villages by the end of the century to achieve the goal of

“one” phone in every village by 2000 AD.“ Five lakhs sets would be required to bring all the villages on the telephone map of the country.

The technology developed by MACE could be transferred to other public sector undertakings manufacturing telecom equipment. It would be used now only for rural communication. But it had other applications industrial houses could connect its factories and city office by this system. The Rural Electrification Corporation has also shown interest in using the new system, he said.

However, the system cannot be used on commercial lines in urban areas where load on lines is high. But in rural areas it can easily be used because, according to survey, average telephone calls made from a village is just 1.5.

IRAN

Television Relay Station Becomes Operational

NC1305054389 Tehran Domestic Service in Persian
0430 GMT 13 May 89

[Text] The 50-watt television relay station at Jahrom has become operational. The station had been set up by experts of the television and FM transmitters' repairs and maintenance unit in Shiraz. The Central News Unit reports that the central districts of Qotbabad and Simakan in Jahrom, as well as Mobarakabad village in Qir and Karzin District of Firuzabad, will receive the programs of the second network of the Vision of the Islamic Republic of Iran. With the operation of this relay station, the residents in these areas can watch network two programs of the Vision of the Islamic Republic of Iran on Channel 3.

OMAN

Developments in Telecommunications Outlined

55004520 Muscat AL-WATAN in Arabic 29 Mar 89 p 3

[Interview with Nur Ibn-Muhammad Ibn-'Abd-al-Rahman, the Executive Chairman of the General Organization for Radio and Wireless Communications by Mu'min Khalifah; place and date unspecified]

[Excerpt] [Passage omitted]

Ibn-'Abd-al-Rahman: The second stage of the al-Batinah coast project includes parts of the al-Rustaq area, in addition to other areas. Other projects include the establishment of four new telephone stations and the implementation of changes related to capacity and terminals in two telephone stations in Salalah; a new station, in Raysut and another in Sadah; and internal networks in the city of Salalah, which is one of the expansion projects undertaken by the General Organization for Radio and Wire Communications from time to time.

The Siemens Company is currently implementing a project to establish 13 telephone stations. It is also negotiating with the international [Ariksut] Company to establish other stations in remote areas of the Suhar administrative district, as well as stations in the interior.

AL-WATAN: What about the sultanate's currently existing station?

Ibn-'Abd-al-Rahman: We currently have 100 main telephone stations distributed in different areas of the country. Each station is independent for economic reasons. Some small stations are called branch stations, which we established to make computer available.

AL-WATAN: His grace pointed to the organization's plan for the next period, saying:

Ibn-'Abd-al-Rahman: With the end of the coming year, God willing, we will have about 130 telephone stations. The new expansion project for the al-Batinah coast will provide about 9,600 telephone lines, while the expansion project in Salalah will provide 2,500 telephone lines. There are expansions in the area of Muscat, because the number of operating lines has been increased as demand has increased. Praise be to God, our telephone station-sand our current network are planned for many years, not less than 40 years. There are also expansions in the interior area and the al-Sharqiyah area.

81,000 Telephone Lines

AL-WATAN: I asked his grace about the telephone lines currently operating in the country, in view of the increase in demand for telephone service in the current year.

Ibn-'Abd-al-Rahman: The number of telephone lines in operation in the country totalled 81,000 lines at the end of January 1989, while full capacity exceeded 130,000 lines. As I mentioned previously, there is no problem. Our telephone network has an enormous full capacity, which can absorb any possible increase in the use or installation of new telephones.

AL-WATAN: Do you believe that we will have covered all areas of the Sultanate with the modern digital network upon the completion of these projects?

Ibn-'Abd-al-Rahman: Almost all of the areas are currently covered by the modern digital network. Our current problem is implementing coverage for several small villages lacking telephone service. The basic network covers all areas of the sultanate. For example, the second phase of the al-Batinah coast project is currently bringing telephone service to small or large areas which have lacked such service.

AL-WATAN: What is your appraisal of the mobile telephone program, especially since it has experienced a period of stagnation and disinterest?

Ibn-'Abd-al-Rahman: From our standpoint, this is an excellent service. We are working continuously to maintain the high, excellent level of this service. There has been a noticeable increase in demand for mobile telephone service. We are currently waiting for more new telephone equipment, because we do not maintain large inventories of the equipment due to its high cost. I can assure you that demand for this service is increasing.

Mobile telephone service currently covers all areas of the sultanate, excluding a very small area in Sahra. We are waiting for equipment to install on the Salalah road, so that there will be complete coverage. However, when we look at any expansions, we must ask about their benefit, for how many cars with car phones pass through this small area. Nonetheless, we decided to establish a new station to serve mobile telephones on the Salalah road in the future.

The coverage of the mobile phone project is not complete. Such coverage is 90 percent in any country, which is therefore complete coverage. Our roads are 100-percent covered at present, and Salalah road is 90-percent covered. The coverage provided by the mobile telephone network in the country is very adequate.

The mobile telephone project is economically successful. Our first priority is to provide a home telephone to every citizen before equipping his car with a telephone. However, let me emphasize that there is a significant, steadily increasing interest in mobile telephone service, and we expect that demand for this service will increase as the cost of mobile phone equipment drops due to its continued development. Perhaps the present obstacle is the high price of this equipment.

75 Percent Reduction in Mobile Telephone Rates

Ibn-'Abd-al-Rahman: We expect that any new service will enjoy acceptance. We expected as much regarding mobile telephone service. However, since the start of the service until now, we have lowered the mobile telephone tariff by 75 percent. The mobile telephone user fee in Oman, considered the cheapest in the world, is currently 250 Omani riyals per year, compared to 1,000 Omani riyals when this service was begun. We cannot reduce the price of mobile telephone equipment, because the companies manufacturing it own the rights to it.

A mobile telephone station with a 4,500-line capacity has been set up. Additional lines can be added in the future as needed. However, as expected, less than 4,500 lines are used. In this respect, I should clarify that it was more cost effective to have 4,500 lines, inasmuch as the cost would have been the same to equip a station with fewer lines.[Passage omitted]

The Public Telephone Problem Will End!

AL-WATAN: It has been noted that the distribution of the public card phones does not please everyone. For example, there is a phone at the airport, and another at the SABCO Center, in addition to telephones located at the office of the organization in Ruwi. Therefore, the office is always crowded with people wishing to make calls. What is your comment on this phenomenon?

Ibn-'Abd-al-Rahman: Initially, we offered a limited number of card telephones as an experiment, and it was observed that these telephones are located in places which offer some security, such as near the organization's offices, the airport, the defense ministry, the Sultanate of Oman Police, and government collectives. Next month, we will install a large number of these telephones in many areas in Muscat and the administrative divisions. Subsequently, there will be no problem.

We maintain that there is no need to go to the organization's offices to call abroad. One can go to any other area inside Muscat to call abroad from any telephone. This will reduce crowding at the offices of the organization.

We will soon begin to post signs marking the locations of public telephones so that they can be identified. We will also regularly announce the locations of these telephones in the local press.

Evaluation of Public Telephone Experiment

AL-WATAN: After your evaluation of the public telephone experiment in the sultanate, what is your opinion of this project from an economic standpoint?

Income from Public Telephones Is Rising Constantly

Ibn-'Abd-al-Rahman: The public telephone program is an outstanding project, which has succeeded in the sultanate. If not for its success, we would not have spent these great sums to set it up in different areas of the country. The citizen or resident benefits from this service. Currently, anyone can call abroad from any place in the sultanate. This makes matters easy for the organization as well. There is no need to open field offices, or to send employees to work in them. Actually, following the success of the public telephone experiment, we closed many of our offices in the administrative divisions. I would like to emphasize that the project is very successful economically, and that the income of the organization from this service has increased.

Public telephone service is like any telephone service in the country in that we are constantly striving to support and spread it. As demand for it increases, we will contract for new public telephone equipment, and will install it in new areas which did not have public telephone service previously.

The organization is determined to provide telephone services to vital areas with high population concentrations, such as bus stops on highly-trafficked roads. [Passage omitted]

New Projects

AL-WATAN: Does the organization have new projects at present?

Ibn-'Abd-al-Rahman: Yes, there are new projects under study. We are currently studying the provision of a number of services that can be of use in the future to businessmen, bankers and merchants. We are studying them from an economic standpoint. We have completed a study of a project to construct a new satellite ground station, which is needed. Bidding for this project will be opened within several months. We currently have a main communications station, which operates with the Intel-sat satellite orbiting above the Indian Ocean. Trans-Atlantic communications traffic goes by way of other intermediary locations, costing the organization large sums. The large volume of communications traffic has made it necessary to build another main station. At the same time, we have two international stations. One of them is a new station which operates with a satellite over the Atlantic Ocean, and the other is a ground station for the Arab satellite, "Arabsat."

Reduction With GCC States Only

AL-WATAN: Will there be any reduction of the communications tariff required of foreign countries during the next period?

Ibn-'Abd-al-Rahman: The reduction of the international communications tariff is enjoyed by the GCC states only. As for others, the matter is only being studied. So far, no decision has been made on this matter. The study includes all states of the world, without exception.

Last year, you published the reduction which we announced with regard to the local tariff.

We Welcome the Hosting of Arabsat

AL-WATAN: What are the most important problems being examined in meetings of the plenary session of the Arab Organization for Arabsat Satellite Communications, which is being attended by the ministers of posts and communications of the Arab states?

Ibn-'Abd-al-Rahman: I would first like to extend the full welcome of the sultanate to their excellencies the ministers of posts and radio and wire communications of the sister Arab countries. We also welcome the meetings of the administrative council of the Arab Organization for Arabsat Satellite Communications currently being held at the Qasr al-Bustan hotel. We hope for, and are confident of, the success of these meetings.

These meetings will discuss a number of important issues, such as the renewal of Egypt's membership in the Arab Organization for Satellite Communications. This return of Egypt is very important for promoting communications via the Arab satellite, especially since about 20 percent of communications traffic is to and from Egypt.

Other topics include, for example, the second generation of the Arab communications satellites, the report of the general director, new nominations to the post of general director of the organization, training, the marketing of Arabsat services, and other issues pertaining to the support of communications traffic via the Arab satellite.

SAUDI ARABIA

Telephone Network in al-Kharj Expands

55004519 Riyadh AL-RIYAD in Arabic 21 Mar 89 p 21

[Interview with 'Ali al-Qarba'; place and date unspecified]

[Text] In an exclusive interview granted by 'Ali al-Qarba' to AL-RIYAD regarding the telephone communications network in the al-Kharj area, he stated that al-Kharj communications supervision services extend administratively and technically to Wadi al-Dawasir. He added that, in the Kharj area, there are three exchanges, - 548 - 544 - (550) - 541, whose capacities are as follows: 548 - 544, 10,000 lines; 550 - 1,000 lines; and 541 - 3,000 lines.

AL-RIYAD: Has telephone service been extended to all quarters, cities and villages of al-Kharj? Which cities lack telephone services?

Al-Qarba': Telephone services are provided to almost all the cities of al-Kharj. The villages have their own service, called rural phone, or citizens' band radio. Government offices in the villages will have temporary service, and there will be pay telephones when permanent service arrives.

AL-RIYAD: Do the new expansions include al-Kharj and its villages?

Al-Qarba': There are two types of expansion: The first is an expansion of the network. It is on-going in the cities, and pertains to any house being constructed, or business which requires service inside the boundaries of the network.

The second is an expansion of the exchange. In al-Kharj, the capacity of the exchange is being upgraded by a 6,000-line expansion.

AL-RIYAD: What is the annual revenue taken in from pay telephones, and how many pay telephones are there?

Al-Qarba': There are 43 pay telephones in al-Kharj. We will soon install 10 more, for a total of 53 booths. Last year, pay revenues from telephone and telegraph in the city of al-Kharj totalled 5,255,076 riyals.

AL-RIYAD: Is there coordination between the telephone administrations and the municipality?

Al-Qarba': There is constant coordination between the telephone administrations and the municipalities, especially with the mayor of the municipality of al-Kharj, Engineer Ahmad al-Mazru', inasmuch as he has cooperated fully and excellently. I would like to take this opportunity to express my thanks and appreciation to the mayor of al-Kharj and his associates for their cooperation.

AL-RIYAD: How long does a citizen have to wait for telephone service after requesting it?

Al-Qarba': If possible, there is no waiting period, and the telephone is installed three days after the submission of the request.

If the citizen does not have access to a network, the wait depends on when the network is implemented.

If there are no numbers, the wait lasts until numbers are made available.

UNITED ARAB EMIRATES

Achievements of UAE Telecommunications Firm Described

55004523 Dubayy KHALEEJ TIMES in English
26 Apr 89 p 15

[Text] The Emirates Telecommunication Corporation (Etisalat) registered a total revenue of Dh1,294 million for the year 1988, a 10.6 percent increase over the 1987 figure of Dh1,170 million, it was announced at the shareholders meeting held yesterday night at the Abu Dhabi Intercontinental Hotel.

Muhammad Sa'id al-Mulla, Minister of Communication, and chairman of the Etisalat board, said that the directors have approved of an interim dividend of Dh597.6 million, 40 per cent of the issued share capital to be paid in two instalments of 20 per cent each. In addition Dh65 million had been transferred to the general services, and Dh8.8 million to the assets replacement reserve, with Dh1.4 million to be carried forward.

Mr al-Mulla told the members that 1988 had been a highly successful year for the Etisalat, which generated remarkable financial results and improved the quality and service. He said that the company's far sighted policies played a major role in national development and progress.

The general manager of Etisalat 'Ali Salim al-Uways in his review said that the year 1988 for Etisalat was of superb achievements and unprecedented growth.

Mr al-Uways said that the enhancement and maintenance of the latest telecommunication network helped to provide high quality of service in the most cost effective manner. Although the UAE's rates are among the lowest in the region Etisalat's endeavour to provide further incentives would contribute to the development of national economy, he added.

Mr al-Uways pointed out that the introduction of the nation-wide paging system had greatly increased communication accessibility and was well received by the public. The completion of major fibre optic cable link connecting major sites, the high speed of implementing facilities in rural areas, and modernising the digital PMBX and the latest facsimile machines were some of the achievements of the corporation during the year 1988, he added.

The number of fresh telephone lines recorded an increase of 49,573 (20.1 per cent), bringing the total to

296,143, against the exchange capacity of 334,552. Similarly 5,498 facsimile services were installed during the past year. Consequently, the telex system showed a slow rate of growth with only 6,312 reaching the total against the capacity of 9,344 connections. This is a marginal increase of 2.7 per cent (166 connections).

Mr al-Uways said that only 0.8 percent was achieved in the mobile telephone system with a total connection of 13,794 making a mere 112 fresh connections.

Mr al-Uways pointed out that although tariff rates were reduced for the fourth successive time during the past year, a revenue of Dh1,294 million was achieved.

Mr al-Uways said that Dh380 million fixed assets were added to the inventory and an additional amount of Dh1.2 billion is expected to be invested in the coming year. Recognising the pressing need for qualified UAE nationals with the government policy, the corporation had initiated scholarship programmes.

CANADA

Rogers Communications Offers To Buy 40 Percent of CNCP

55200033 Toronto *THE GLOBE AND MAIL*
in English 20 Apr 89 pp B1, B4

[Article by John Partridge]

[Excerpt] Cable television magnate E. S. (Ted) Rogers, ebulliently promising an end to the telephone companies' "Soviet-style communications monopolism," finally has managed to fulfill one of his best-publicized dreams.

With William Stinson, president of giant Canadian Pacific Ltd., the president and controlling shareholder of Rogers Communications Inc announced yesterday that the two companies have struck a tentative deal in which Rogers Communications will buy 40 percent of CP's wholly owned subsidiary CNCP Telecommunications for between \$250-million and \$275-million.

Rogers Communications, based in Toronto, will finance the deal with bank borrowings.

The deal paves the way for what Mr Rogers, Mr Stinson and CNCP president George Harvey are billing—although not in so many words—as a full-frontal assault on the monopoly on long-distance phone services currently held by Bell Canada and the other members of Telecom Canada.

Mr Harvey told a packed news conference in Toronto that CNCP expects to file a new application with the Canadian Radio-Television and Telecommunications Commission within the next six months for permission to get into the business. He added the CRTC likely will hold a public hearing on the matter next spring.

Rogers and CP, which is based in Montreal, also will need the CRTC's blessing to consummate their CNCP deal, assuming they are able to reach a definitive agreement.

If the CRTC does approve a move into long distance by the jointly owned company—which is to be given a new, but as yet undecided name—Mr Harvey said it likely will take a capital investment of between \$750-million and \$1.5-billion. The operation would become profitable in 1999, he added.

He and Mr. Rogers suggested the CRTC likely will be more amenable to a long-distance application than they were in 1985 when they rejected a previous CNCP bid.

That was partly because CNCP has a new business plan that answers the CRTC's concerns, and partly because of a growing recognition of the benefits of such competition in other countries, they said.

Mr Rogers and Mr Stinson apparently have already done some spade work in Ottawa. They are thought to have paid a call on Communications Minister Marcel Masse and CRTC acting chairman L.R. (Bud) Sherman in Ottawa on Tuesday to inform them of the impending announcement.

Mr Rogers and Mr Harvey conceded they also have a selling job to do to convince consumer groups of the merits of opening up long distance to competition. In the past, the groups have argued such a move would lead to rising phone bills because it would force Bell and other conventional telephone companies to raise local rates.

However, when pressed to estimate the cost savings that might flow from having a new player in the game, Mr Rogers and Mr Harvey said they could not. Instead, Mr Rogers said "innovative new services" would be the key to the benefits competition in long distance would bring to Canadians.

Mr Stinson said telecommunications is one of the high-growth, non-cyclical businesses in which CP has long said it planned to expand. He described the deal with Rogers Communications as CP's recognition of "the importance of strategic alliances" in the field.

The CNCP deal comes after more than a year of on-and-off negotiations in which Mr Rogers tried to strike a deal with CP through which he could marry the operations of mobile telephone subsidiary Cantel Inc with those of CNCP.

Cantel has more than 127,000 subscribers, which it says is slightly more than 50 percent of the total in Canada, and expects that to grow to as many as 500,000 by 1993.

The deal also comes a little more than a month after Rogers Communications closed the \$1.63-billion sale of its U.S. cable television systems, and slightly less than three weeks after the company announced it would pump more than \$600-million in capital spending into Cantel during the next three years.

Mr Rogers said that because Cantel now plans to use CNCP's recently completed Montreal-Vancouver digital microwave and fibre-optic networks, it will be able to cut back on that spending. He could not say by how much.

Other Rogers Communications officials termed the deal a "turning point" in Rogers' strategy of moving much more heavily into telecommunications.

As demand for CNCP's bread-and-butter Telex services has fallen, so, too, has the company's financial star. From having a profit of about \$14-million in 1986, CNCP last year had slipped to the point where it lost a total of about \$7-million.

However, it has begun to build up a strong facsimile transmission arm, along with other voice and data communications services.

Mr Rogers and Mr Harvey said the deal would offer great opportunities for cost savings and other benefits for CNCP, Cantel and Rogers Communications' cable operations, which are the biggest in Canada.

Mr Stinson said the price is closely based on the \$235-million CP paid last November to buy Crown-owned Canadian National Railways' 50 percent stake in CNCP, with an allowance for the investment—and interest costs—CP has since made in the struggling company.

But observers suggested it was probably the balance of ownership rather than the price that took the toughest bargaining.

Mr Rogers has stated publicly that he is not happy unless he is firmly in control of the ventures in which he is involved.

Under the terms of the tentative deal, which was polished up to Saturday after two weeks of intense negotiations, Rogers Communications will have four of the 10 seats on CNCP's board of directors. Mr Rogers, however, will be chairman.

Perhaps more important, Rogers Communications will have 50 percent of the seats on the company's executive and audit committees, as well as veto powers over major investments and other decisions, such as whether to bring in new shareholders. Mr Rogers said that in the case of a deadlock on the committees, the matter will be turned over for decision to the board where CP has the majority.

Rogers Communications also has the right to move the CNCP holding from its own books to those of one of its subsidiaries—likely Cantel—if it seems appropriate for tax or other corporate reasons.

FEDERAL REPUBLIC OF GERMANY

Space Research Cooperation With USSR Assessed

AU0606135889 Hamburg DIE WELT in German
6 Jun 89 p 8

[Editorial Report] Hamburg DIE WELT in German on 6 June 1989 on page 8 of a special supplement on "Gorbachev in Bonn" carries a 1,200-word article by Dmitriy Poletayev, headlined "Space Research Could Be More Effective," discussing cooperation between the FRG and the USSR, and referring to scientific contacts between the USSR Academy of Sciences and the Max-Planck Society, which in his view are insufficient and should be extended to include "numerous firms, technical research organizations, and engineering departments" as the "most important space technology organs."

Poletayev notes that following Chancellor Kohl's visit to the USSR in 1988-89, the situation has improved, with one of the "positive results of this process being the creation of the German-Soviet Kosmos work group." He says that the group met for the first time in February this year, and taking part in the meeting were "representatives of Messerschmitt-Boelkow-Blohm (MBB), Dornier, AEG, and General New Technologies (ANT), as well as the technical centers of the main administration for the development and use of space technology for the USSR's national economy and scientific research (Glavkosmos SSSR)." Poletayev says that the FRG's contribution could be "determined by its achievements in the area of microgravitation, the creation of solar batteries, etc." He mentions two joint projects that are being implemented—the space apparatus "foton" and the "launch of the Dornier space apparatus by our cyclon rocket."

RTL-Plus, SAT-1 to Outlive Competition

36200178b Hamburg DIE ZEIT in German 12 May 89,
pp 25, 26

[Article by Marie-Luise Hauch-Fleck: "Everything Under Control: Two Private Television Networks, SAT-1 and RTL-Plus, Have the Market Firmly in Hand"]

[Text] Even before the first film was broadcast by a private network, there was no doubt among economic experts. Only two networks, they predicted, would have a chance at surviving in the FRG in the long run. Even though experts are often wrong in their prognoses, they have proven to be right about commercial television. Even though the market is still fluid, only RTL-Plus and SAT-1 are going to survive the battle for supremacy among the four West German private networks. This is because no outsider can match the media power concentrated there.

The managers of private networks realized long ago that television is not only an expensive business, but a risky one as well. Advertising is the only source of income, but the advertising market is limited. Pursuing a dual strategy, the more powerful of the actors on the West German television market are now in the process of reducing their risk to zero. On the one hand, they are attempting to eliminate the competition by takeovers of and investments in financially poor stations, while on the other hand they are becoming increasingly active in market segments in which money can be earned through film as a commodity. And in view of the worldwide explosion in the number of commercial channels, this means dealing in film licenses and broadcasting rights in particular, as well as in film and video production. Here, their own stations serve not only as a secure sales market, but also as public relations instruments for their other activities.

In the battle for viewers and advertising millions, politicians have proven to be very helpful to Sat-1 and RTL-Plus from the very first day of broadcasting. Even though four networks were licensed, Eureka TV, which

has in the meantime been renamed Pro 7, and Tele 5, which started out as Musikbox, were never able to seriously compete with the two others, nor disrupt their expansion of stations.

In order to not spoil things with powerful stockholders such as the Springer and Holtzbrinck publishing houses in the case of Sat-1 or Bertelsmann and the WAZ group in the case of RTL-Plus, the politicians made sure that those two channels got the ground frequencies that they wanted, so that many households still without cable could receive these programs. The two other channels came away empty-handed. While Sat-1 and RTL-Plus now reach more than 10 million households, Pro 7 and Tele 5 get exactly half that. A handicap that is primarily responsible for the scanty advertising revenues and the correspondingly heavy losses being suffered by the two networks.

In the long run, the two smaller stations could have just as well given RTL-Plus and Sat-1 a run for their money. Eventually, thanks to advances in cable and satellite technology, they would have made up for their lag in technical range. In that case, the attractiveness of the programming alone would have been the critical factor in the struggle for ratings.

But that race will never take place, as far-sighted stockholders in the big two have ensured. Specifically, the stockholders of Tele 5 and Eureka TV have long since run out of financial steam. Even the co-owner of Moenchengladbach's Allkauf chain of retail stores, Gerhard Ackermans—eventually the sole stockholder in Eureka TV—was no longer willing to finance losses of more than DM 30 million a year. One helpful savior from acute financial need who appeared on the horizon last fall was Thomas Kirch. His father, Munich film dealer Leo Kirch, controls not only Europe's largest stockpile of films, but also 40 percent of Sat-1.

Consequently, with Thomas Kirch's investment (49 percent) in Ackermans' enterprise, a potential competitor to Sat-1 was elegantly eradicated for the time being. Although Kirch spokeswoman Armgard von Burgsdorff swears that the younger Kirch was acting completely independently of his father, the son's activities in television have thus far been only to the advantage of the elder Kirch. For example, the broadcast times at Pro 7 have been cut back radically; instead of 24 hours a day, the Munich network is now on the air only from late in the afternoon until midnight. Game shows, which have worked as audience magnets for all the other commercial networks, have been eliminated entirely.

There has also been a new partner at the other footsore soldier on the West German television landscape, Tele 5, since the end of April. The Compagnie Luxembourgeoise de Telediffusion (CLT) has purchased a 24-percent investment there. The striking thing about the deal: CLT is the largest stockholder in RTL-Plus, with a 46-percent share. Still, the new investment could also be a first step

by the Luxembourgers towards getting out of Cologne; industry sources say that relations between them and the number two stockholder, Bertelsmann, are extremely chilly.

However, another interpretation is more likely: A competitor that could become troublesome sometime later is brought under control now. Even if in purely legal terms CLT's 24 percent is not enough for it to have a decisive influence on company policy, it will, nonetheless, be well-informed about Tele 5 projects and plans in the future. After all, it was granted a seat on the board of directors by the other stockholders. Consequently, all the RTL-Plus partners agreed to the investment by the Luxembourgers in Munich under the condition that Tele 5 not compete with Cologne, but continue to offer supplementary programming.

The rapid infirmity of the small competitors has also been promoted by the publisher-stockholders of Sat-1 and RTL-Plus through massive use of their print media. The managers of Tele 5 and Eureka have complained time and again that they lack newspaper support most of all. RTL-Plus and Sat-1 have that access at no charge, and thus also a competitive advantage that can scarcely be overestimated.

In order to make their way through the growing jungle of programs, viewers depend more than ever on program magazines and schedules in daily newspapers. In the nightly battle for viewer favor, the print media are indispensable to the networks as advertisers. And the two big networks can apparently depend on the fact that their publisher-stockholders will know how to use this advertising potential accordingly. "WAZ," RTL-Plus press spokesman Peter Hoenisch is happy to announce, is "making an intensive effort" to include references to RTL-Plus broadcasts. Hoenisch: "They get along with us especially well."

Nor can Sat-1 complain about a lack of publicity in the pages of its stockholders' publications. For example, Springer's HOERZU, with a weekly circulation of around 3.1 million the largest television program magazine in the FRG, regularly uses announcements of new Sat-1 series to evoke the curiosity of viewers about these broadcasts.

In contrast, Tele 5 and Pro 7 are learning first-hand what harmless-sounding terms like "media conglomerate" mean to competition on the television market. Generally speaking, they have to settle for minimal program notes that merely satisfy the need to be objective. These notes rarely contain more than the time a program begins; the program sections almost never include detailed information on films. The critical shortcoming: None of the stockholders come from publishing circles.

On the other hand, the potential benefit of a television network as a marketing instrument has been demonstrated by film merchant Leo Kirch at Sat-1. Once a

week, he is running a Simmel film from his stockpile. Once the last sob has resonated, the last kiss exchanged, the friendly announcer steps in: The film you have just seen, she explains to the viewers, still immersed in emotion, is available on video cassette in VHS format for DM49.90, from Sat-1—send your card in today.

Response to the offer, says spokesman Stefan Rabe, has been "overwhelming"—this in spite of the fact that anyone with a video recorder could themselves tape the films. But apparently they have trouble with the fickle nature of modern technology, or perhaps they simply want to enjoy the dramas without the interruption of commercials.

The prime beneficiary of this type of media conglomerate is Sat-1 stockholder Kirch. He is profiting twice over; as a film supplier, he charges the network around DM600 a minute, while as the producer of the video cassettes, he also takes in the lion's share of the sales revenues.

Even Bertelsmann has come to realize that a television network is well-suited to public relations work. Twice a month, on the half-hour "Videoshow," RTL-Plus recommends movie videos that are available for purchase. What the viewer does not learn is that the suggested cassettes are primarily marketed by the company Medienplus, which is a joint venture by RTL-Plus and the Bertelsmann subsidiary Ufa.

FINLAND

Nokia's New Chairman Announces New Directions for Firm

55002462 Helsinki HELSINGIN SANOMAT in Finnish 6 Apr 89 p 32

[Text] Drastic organizational changes are being made in the Nokia Group. It will be reorganized to consist of four electronics divisions and two other divisions that will lump together the remaining branches. Each division will be headed by a designated executive director.

The administrative board of Nokia made this decision on 5 April. The reorganization means that, in a sense, Nokia will now have, besides its director general, six executive directors.

None of these six directors will serve as deputy to the chief executive director, Simo Vuorilehto, in his position as the chairman of the executive board. If the chairman is not present at a meeting, it will always be chaired by a separately appointed member of the board. There will be no general executive director, and, according to Vuorilehto, none will be appointed later.

The new organizational model, designed by Vuorilehto, is almost a complete opposite of the old. Vuorilehto has included the division heads in the executive board.

During the time of Kari Kairamo, his predecessor, the board was a separate entity, operating independently from the management of the different divisions.

In Vuorilehto's opinion, the division managers were isolated in the previous system because information did not necessarily reach them, and the executive board could not follow their work sufficiently closely.

In the news bulletin announcing the new organization, Vuorilehto openly criticizes the old organizational model. According to him, "there now exists a division of responsibility in the management of the group," and its organisational makeup corresponds to that fact. "The management model of the group, in other words, has been purged of ambiguities."

Vuorilehto said that the administrative board ratified the new organization model after a discussion. According to him, the administrative board first wanted to get some additional information on individual appointees and their areas of responsibility.

The New Divisions

The different divisions of the redesigned organization are as follows: Consumer Electronics, Nokia Data, Mobile Telephones, Telecommunications, Cable and Machine Industry, and Basic Industries.

Consumer Electronics will be headed by Jacques Noels, Nokia Data by Kalle Isokallio, Mobile Phones by Antti Lagerroos, and Communications by Sakari Salminen.

Seppo Ahonen will manage the Cable and Machine Industry division, which includes Nokia Kaapeli, Nokia Koneet, and Sähköliikkeiden OY, SLO [Nokia Cable, Nokia Machinery, and Electric Retail Co., respectively]. Harry Mildh will transfer to the managership of Basic Industries, which includes Nokia Paperi, Nokia Chemicals, and Nokia Kumi [Rubber].

The new executive board will have eight members, with the only permanent position belonging to its chairman, Mr Vuorilehto. Other members will serve for fixed periods of time.

The new members of the board are Seppo Ahonen, Kalle Isokallio, and Sakari Salminen. Besides Vuorilehto, the following previous board members will continue: Antti Lagerroos, Harry Mildh, Jacques Noel, and Paavo Rantanen. Rantanen is the only member of the board who is not a division head. He is responsible for international relations and trade policies.

Appointed as deputy members of the board are Comptroller Hannu Bergholm; Financing Director Jorma Ollila; and Matti Paasila, director of the German operations of Nokia Consumer Electronics.

Nokia no longer will have a central administrative unit. The activities of the different conglomerate staffs will be incorporated in the director general's office, the financial operations office, and the department of services.

The following will be stationed in the director general's office: Director Paavo Rantanen, Prof Matti Ojala, Information Director Matti Saarinen, and Chief Attorney Taavi Heinila. Ojala is responsible for research and development activities and technological matters; Saarinen for information service and the entrepreneurial profile; and Heinila for legal affairs, while functioning also as the secretary of the administrative and executive boards. Some of the legal affairs have been transferred to the divisions.

Hannu Bergholm will bear responsibility for the planning and overseeing of both the financial operations and administration. Finance Director Jorma Ollila will be responsible for the allocation of resources and the channeling of investments.

Personnel education and development, a part of the conglomerate services, will be directed by Lauri Stahlberg; information and PR activity by Viljo Henninen; support operations for export by Stefan Widomski; and real estate by Otto Bjorklund.

Nokia no longer has a board of directors.

More Changes to Electronics

According to Vuorilehto, new organisational moves are expected to take place in the electronics industry division. He said that the consumer electronics still entails some overlapping that must be resolved. The decisions will involve units both within Finland and abroad.

Shareholders' Meeting Takes One Vote

After a vote, the Nokia shareholders elected the director general of Kymmene Oy, Mr Casimir Ehrnrooth, as a new member of the administrative board to replace retiring member Kurt Swanljung, vice chairman of the Kymmene Oy executive board.

Nominated to replace Swanljung was a representative of the employees, shop steward Pertti Ahtola, who received well over 76,000 votes out of the 249 million voting shares represented. At the meeting, 57.64 percent of the voting shares were represented.

Continuing on the administrative board will be Minister Mika Tiivola, Chief General Manager Jaakko Lassila, Prof Edward Andersson, Executive Director Carl-Olaf Homen, investor Pentti Kouri, and Chief General Manager Pentti Talonen.

Mika Tiivola, chairman of the Nokia administrative board, introduced the executive board proposal to grant it authority to issue one or more convertible debenture loans a year, the intention being to create for the management of the company a fee system that is tied to the stock exchange rates.

The total value of convertible debentures could not exceed 77 million markkas.

The bearer of the convertible debenture would have the right to exchange the debenture for preferred free shares in the company according to the conditions set for each debenture, at a rate set by the executive board.

According to Tiivola, this system will provide for increased continuity and incentive for longer periods of employment in the company.

If all of the authorized convertible debentures were to be exchanged for free shares, it would increase the amount of free shares from the present 19.5 percent to 23.03 percent of the total share capital.

The attorney of the Rubber Union, Jukka Heikeman, proposed that the executive board study before the next general meeting the possibility of including on the board one representative each from the workers and office employees.

The chairman of the meeting, Esko Rekola, responded by announcing that he would record the proposal in the minutes.

The general meeting ratified a dividend of 16 percent on the share capital for the year 1988.

FRANCE

Nokia's Mobile Phone Network Operating in Paris

55002461 *Helsinki HUFVUDSTADSBLADET*
in Swedish 6 Apr 89 p 12

[Article by Kristina Hakala: "Nokia's Telecommunications Network Now in Use in Paris"]

[Text] Paris—Nokia's mobile telephone network is now ready to begin operation in Paris. The base stations are placed both in the basement of the Eiffel Tower with antennas on the first level and on the roof of the Pompidou Center, and the really major effort in marketing Nokia's mobile telephone will be initiated as soon as the long Easter vacation in the capital is over.

During the next few months the mobile telephone network will be expanded throughout all of France, but Nokia will gradually withdraw from the game, to the advantage of French cooperation partner Alcatel Radiotelephone

(ATR), which, starting in the summer, will assume complete responsibility for the manufacturing of as well as the installation of base stations in the rest of the country.

Next, Nokia's mobile telephone network will begin operation in Lyon. This will take place in May, in Marseilles in June, etc., so that the network, based on the Nordic NMT [Nordic Mobile Telephone] system, will cover all of France by 1991. The mobile telephone network operated by Nokia and ATR is competing with the French telecommunication agency's already existing Radiocom 2000 network, and at this stage is able to offer a capacity of more than 100,000 subscribers. In the rest of France the network can easily be expanded to greater capacity, says project chief Jorma Pohjalainen. On the other hand, the very narrow frequency band in Paris at least temporarily limits capacity in the capital to the existing one, that is to say 35,000-40,000 subscribers.

Nokia's mobile telephone will cost 13,000 francs and up in France, but the Finnish-French mobile telephone network is able to offer somewhat more advantageous rates than the French telecommunications agency's competing network as regards local calls. Furthermore, the country-wide cell system increases competitive strength, since a telephone call can automatically be moved from one cell to another without interruption.

The real challenge from Nokia and ATR has been to expand the mobile telephone network in an area as densely populated as Paris without opportunity for experimentation during the installation. The French partner had the task, among others, of negotiating for permits to locate the base stations—49 within the Peripherique expressway circling the capital.

Minister Paul Quiles, who is responsible for the French postal service and telecommunications, was able to make the first call by Nokia mobile telephone on Thursday. With the startup of this new mobile telephone network in France, the gap to the other neighboring countries has been reduced—until now France has lagged behind with about 60,000 subscribers as compared to for example 300,000 in Great Britain and 500,000 in the Nordic countries.

NORWAY

Further Privatization of Telecommunications Services

55002456 Oslo *AFTENPOSTEN* in Norwegian
22 Apr 89 p 12

[Article by Ulf Peter Hellstrom: "Competition on the Telecommunications Network"]

[Text] Private contractors are to compete with new companies owned by Televerket regarding advanced services based on the telecommunications network. That is apparent from the Storting announcement concerning so-called value-increasing services which was submitted to the cabinet on Friday, 21 April 1989.

Value-increasing services can be described as telecommunications plus data processing. An example is Bankenes Betalingsentral (BBS), which transfers large amounts of money with the help of Televerket's network or through permanent lines that BBS leases from Televerket on an annual basis.

The announcement regarding value-increasing services is a shot across the bows of the new company, NetCom, that is owned by the Swedish company Kinnevik together with the Norwegian concerns Nora Industrier and Orkla Borregaard. In the announcement, the government says that Televerket is to continue to have sole responsibility for mobile telephone service, among other things.

NetCom was launched earlier this week with a view to building up a private mobile telephone network that will compete with Televerket.

Thus the Storting announcement gives private contractors a green light to offer value-increasing data services through the telecommunications network, but the government puts a stop to offering telephone services through established communications facilities, for example, for the present. The reason behind this is that such offers of telephone services would weaken Televerket's income basis at today's rates.

In other words, telephone rates must be adjusted to Televerket's real costs before private contractors slip in, too, with competing telephone services. Televerket reported earlier that the present rates for local telephone conversations are too cheap, while long-distance telephone rates are higher than they can be set, strictly speaking. The Storting's announcement indicates that the long-distance rate, too, should be considerably cheaper by comparison with the rate for local calls.

22161

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