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TRANSLATIONS ON TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

(FOUO 7/79)

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INTER-ASIAN AFFAIRS

THAILAND PLACES ORDER FOR CROSS-BAR EXCHANGES WITH NIPPON ELECTRIC

Tokyo NIKKAN KOGYO SHINBUN in Japanese 1 Feb 79 p 1

[Text] Nippon Electric Company (Tadao Tanaka, president) has received an order for a 40,000 circuit close-bar telephone exchange unit and related equipment amounting to 3.25 billion yen from the Thai Telephone and Telegraph Public Corporation, and the contract was signed on the 31st. This may be said to be the largest telephone exchange project let out by the Thai government. Since 1967 this company has received orders for 40 telephone exchange facilities and about 330,000 close-bar circuits for the Thai capital area from the Thai Telephone and Telegraph Public Corporation, which was financed by a yen loan. With this last order, this company's orders from Thai has exceeded a total of 12 billion yen, and Nippon Electric has accounted for more than 92 percent of the telephone network about the Thai capital. Installations will begin within 10 months after the signing of the contract and are expected to be completed in roughly 2 and one-half years.

The Thai Government requested a yen loan from Japan for the purpose of installing this telephone network within its capital, and this agreement was first put in force in 1967. Nippon Electric took this first order from the Thai Telephone and Telegraph Corporation of that year as the opportunity to obtain exclusive order rights. The company has already dispatched more than 150 technicians and project supervisors to Thailand. In addition, the company is also conducting training courses in maintenance technology. There are presently several hundred Thais in Tokyo undergoing training, and more than 150 in Bangkok.

According to Nippon Electric, the Thai Telephone and Telegraph Public Corporation plans to increase its close-bar exchange units by 80,000 circuits per year.

JAPAN

POST, TELECOMMUNICATIONS MINISTRY PLANS 'TELEPHONE LETTER' EXPERIMENT

Tokyo MAINICHI DAILY NEWS in English 24 Apr 79 p 12

[Text] The Posts and Telecommunications Ministry will transmit "telephone letters" to 260 households in the mammoth Tama New Town housing complex in suburban Tokyo in June this year, in an unprecedented experiment utilizing a community antenna television (CATV) system there.

According to ministry sources, shopping and other community information will be sent from a CATV studio by coaxial cable to mini-teleprinters installed at the 260 households, in the form of letters, in the test to be held for the first time in the world.

Officials hope the transmission will also be made possible by telephone cable, indicating that postcards, telegrams and other direct mail items, requiring no secrecy, will be sent in the form of letters to individual homes in the future.

The experiment will be conducted at the Coaxial Cable Information System (CCIS) which is managed by an institute called "Life-Reflection Information System Development Institute" chaired by Toshiwo Doko, president of Keidanren.

The CCIS has been transmitting some 11 kinds of information including local TV programs, spots and other news by CATV to some 500 households in some areas of the huge housing complex since 1976.

Among the programs, the ministry learned, the most popular among local residents was a "memocopy service," which was designed to send memos by facsimile from the CCIS center to 30 households.

Residents are delighted with this experiment because "memocopies" are received automatically even when they are not home.

Ministry officials have been experimenting with an advanced version of this memocopy service by introducing a "home-printer" method.

Through this method, officials reported, the CCIS center will transmit information on shopping, public health, traffic and others to homes. Residents can even carry these copies as "handy" memos, they added.

This 15-square centimeter "home-printer," which was developed late last year, can print some 3,000 Chinese and Hiragana characters. The cost of the machine will be around 20,000 yen when mass-produced.

The Posts and Telecommunications Ministry has set aside 26 million yen for the test, sources said.

In the future, ministry officials hope, direct mail items will be transmitted to individual homes, thus easing the burden of mailmen.

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JAPAN

FUJITSU UNVEILS NEW MEDIUM-SIZE COMPUTERS

Tokyo MAINICHI DAILY NEWS in English 13 Apr 79 p 5

[Text]

The nation's top computer manufacturer Fujitsu Ltd. introduced Wednesday a new cluster of medium-sized mainframe computers—the F com M-130F, 140F, 150F and 160F.—featuring the world's first capability to process in the Japanese language.

Fujitsu said the new machines are cost-performance computers that directly compete with IBM 4331 and 4341 medium-sized computers in performance and prices.

The maker said the 130F has the same performance as the 3031 yet is priced 20 percent lower, while the 140F outperforms the IBM machine by 160% at the same price. The 150F has identical capability with the 3041 and yet is priced 25 percent lower while the 160F outstrips the IBM machine 110% at 90 percent of the IBM machine price, it boasted.

With the use of the latest technology such as 64K bit memory LSIs and others, Fujitsu said the new models improved the CPU capability by 80-100 percent over the existing comparable M-series machines and expanded main storage capacity by 2-3 fold while the machine sizes were reduced by as much as 40 percent.

The manufacturer said the F machines are designed for easy operation even by non-professionals, for distributed and network processing. These machines are also claimed to be able to process the Japanese language (sentences with mixed Chinese characters (kanji) and kana syllables (katakana and hiragana). The machines can process alphanumeric and kana sentences.

Fujitsu also introduced a completely new system for processing in the Japanese language, "JEF" (Japanese processing extended feature). The system, complete from basic software to application programs and hardware, Fujitsu said, makes the computer handle data in the Japanese language as if the data were written in alphanumeric characters or kana.

Since the JEF system is extended from the alphanumeric/kana system, the maker said, the computer can now process data in the Japanese mode, the alphanumeric/kana mode and the mixed mode as well.

Fujitsu said the development of the JEF system promises similar system development for other languages such as Korean, Chinese, and Thai.

The minimum monthly rental price is set at 1 million yen for the 130F, 1.5 million yen for the 140F, 3.5 million yen for the 150F, and 4.5 million yen for the 160F.

CSO: 5500

JAPAN

VLSI ASSOCIATION DEVELOPS 7,000-GATE LOGIC DEVICE

Tokyo MAINICHI DAILY NEWS in English 14 Apr 79 p 5

[Text]

The VLSI Technology Research Association and NTIS (NEC-Toshiba Information Systems) has announced that NTIS's laboratory has developed the world's highest density 7,000-gate logic device based on technology accumulated by the VLSI technology association.

The logic device is, along with the memory device, an essential component in making computers. And the more dense logic and memory devices become, the smaller, faster, and cheaper the computer becomes.

The VLSI association said the 7,000-gate logic device is the first, high density logic device the association member has ever made and incorporates all the essential technology the association has accumulated.

The logic device was designed as an 8-bit one-chip microcomputer measuring 3.8 by 3.8 mm to verify the state of the art at the VLSI association.

When compared with the most advanced logic device available (Intel's H MOS), the NTIS laboratory said, the new device is about half the size, has a 2-3 times faster performance and 2 times the density.

The NTIS lab said the same technology that produced the 7,000-gate logic device makes it possible to produce the 256K bit memory device, a device four times denser than the currently available. most advanced 64K bit memory devices.

The lab also said the high density logic device was developed with heavy emphasis on easy mass production at plants rather than to show off the lab's technological capabilities.

CSO: 5500

JAPAN

SUMITOMO UNVEILS OPTICAL FIBER COMPOSITE CABLE

Tokyo MAINICHI DAILY NEWS in English 14 Apr 79 p 5

[Text]

Sumitomo Electric Industries, Ltd. has developed a composite underwater cable—a combined power and telecommunication cable—using light optical fiber for the first time in the world, the firm said Friday.

A company spokesman said copper wire has been used in the past in producing such a composite cable, but that its defect has been that it is highly susceptible to electromagnetic induction in power transmission.

The new product features the use of light optical fiber—0.15-millimeter-diameter fiberglass free from such induction as material for communication cable, according to the spokesman.

The communication cable to be combined with the power cable is a light communication cable for transmitting computer and control system signals after converting them into electrical signals by means of light emitting diodes (LED), he said.

He said the company has won the first order for the new composite cable from Idemitsu Kosan Co. at a price of about 400 million yen.

The cable has been laid underwater to link Idemitsu's Tokuyama oil refinery at Tokuyama in Yamaguchi Prefecture, western Japan, with an oil storage yard about three kilometers away from the refinery.

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JAPAN

YOSHIKAWA-DKB GROUP STRENGTHENS TIES WITH SIEMENS

Tokyo NIKKAN KOGYO SHINBUN in Japanese 1 Jan 79 p 1

[Article: "United in the Electronic Area, To Sell Computer Terminals and ME"]

[Text] The Furukawa-DKB Group whose principal members are Daichi Dogyo Bank (DKB, Shuzo Muramoto, president), Fuji Electric Co., Ltd. (Fukushige Shishido, president), and Fujitsu (Daisuke Kobayashi, president) has adopted a policy to strengthen its comprehensive cooperative relationship with West Germany's largest general electrical manufacturer the Siemens Company (Kutar Bernhalt Prattner, president). To this end there are plans to set up a joint sales company in Japan this spring to deal in nuclear energy equipment, medical equipment (ME), compressors, and computer peripheral and terminal equipment. Up to now Siemens has been in a financial cooperation relationship with Fuji Electric on comprehensive electrical equipment and has been tied in with Fujitsu on computer business and sales. This projected establishment of a large sales company will not only further promote closer relationships, but will result in a German alliance to offer an all-inclusive confrontation in the electronics area against the giant American industries such as GE and IBM.

One of the major factors responsible for this new cooperative agreement between German and Japanese industries is the business and sales agreement that Fujitsu and Siemens entered into in April of last year which emphasized the growth of the electronics industry centered mainly on computers and semiconductors. In addition, the Furukawa-DKB Group arrived at the conclusion that such an agreement with Siemens could activate this company's comprehensive capabilities in the electronics area and thereby strengthen the group's international strategy policy.

The establishment of this new company will have to await the final decision on the part of Siemens' upper echelon, and the present intent is to introduce the Siemens' main line of ME equipment, nuclear power equipment, and computer peripheral and terminal equipment in Japan through a massive sales effort. Examples of some of the equipment that will be included are the medical treatment system and the high speed impact printer, both of which

are regarded with great trust by the world. According to the top echelon of Furukawa.DKB, "We are presently pushing this project with Siemens along two to three parallel fronts." It also explained that this sales company will be established through financial contributions from the main companies of this group, and it is projected that this sales company will be of considerable size. At the same time, it is planned to use the Fujitsu FACOM plant to produce computer peripheral and terminal equipment, and it is expected that the mode adopted by the leading rival producer (OEM) will be followed. Other medical equipment and compressors are presently thought to be more effectively handled from the Siemens plant. It is expected that the financial arrangements, business outline, and personnel assignments will be drawn up between the Furukawa.DKB group and Siemens top echelon by this spring at the latest. In addition, Siemens' Japanese corporation, Japan Siemens (the company that is presently marketing Siemens products in Japan), is expected to undergo a realignment.

There are old ties between the Furukawa group and Siemens. Furukawa Electric Industry and Siemens had already entered into a financial and technology agreement back in 1923 as a result of which the joint company "Fuji Electric Production" was born. There was a reduction on Siemens' share of the financial outlay following this initial step, but there was the computer business and sales agreement between Fujitsu and Siemens that was concluded last April for a 2-year period. In the particular aspect of computer agreement, Fujitsu found it necessary also to set up a separate vigorous U.S. partner in the form of the Amdahl Company to promote its strategy against IBM. These two agreements are considered very significant for promoting Fujitsu's superlarge machines "M-200" and "M-180 II AD" in the European market, and it is said that the results have been favorable. DKB, the main banking interest behind Furukawa, has also favorably evaluated this agreement. DKB has also been evaluating the relationship between GM and Isuzu, which enabled Isuzu Automobile to rebound from its stagnant business position, and the impact of this evaluation on its assessment of the present agreement is evident.

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CSO: 5500

JAPAN

BUDGET FOR SUBSIDIZING COMPUTER SOFTWARE PROJECTS APPROVED

Tokyo NIKKAN KOGYO SHINBUN in Japanese 11 Jan 79 p 1

[Article: "Research and Development To Start Next Japanese Fiscal Year on 47 Billion Yen Scale"]

[Text] Research and development on software for the next computer systems that will be produced domestically will begin next Japanese fiscal year. In order to counter IBM's future system (FS), the Ministry of International Trade and Industry has requested an overall budget of 70 billion yen over the next 5 years (one-half through National Treasury funds) to develop software (OS=operational system) and new peripheral and terminal equipment, but it was decided at the ministers' conference on the 10th that the budget for the first year will be 1.7 billion yen (overall scale of 3.4 billion yen) and total outlay of 47 billion yen. This ministry has already promoted the formation of a research organization among the computer main body and peripheral equipment makers that should initiate activities next year in order to promote the research and development end. This development together with the 5-year extension of the financial aid from the Development Bank to JECC (Japan Electronic Computer) that was granted the same day and the "preferential tax treatment for software" enacted at the end of last year have helped establish domestic software development and a sales system that will compete with IBM and similar businesses.

Research Organization To Be Formed Quickly

It is said that IBM will announce sometime during the course of this year its next generation computer (FS) that is expected to offer sensational improvement in cost-performance ratio as well as incorporate innovative technology in the software and peripheral equipment, and there is need for Japan to quickly develop computers that can compete with this new IBM line. This possibility had been anticipated, and Japan embarked on a 4-year plan back in 1976 to develop LSI technology, which is the heart of computer hardware technology, and next year will be the final year of this plan when all of these technological results should be completed.

On the other hand, there is a wide gap between IBM and the Japanese in the area of software, and it is said there is urgent need for the development of technology suitable for FS software. This was why the Ministry of International Trade and Industry planned and requested a 70 billion yen budget for a 5-year plan of research and development on the basic technology of the next generation computers centered on basic software (OS) and new peripheral equipment. This budget was condensed somewhat at the ministers' budget confrontation, but a start had been made on software research and development, which is the item closest to the industry's heart. The Ministry of International Trade and Industry has begun to form a research organizational system including both hard and soft makers to initiate activities at as early a date as possible.

On the other hand, the special funding of JECC by the Development Bank, which was originally to be terminated this year and was a subject of deliberations at the various concerned offices to the last minute (basically 6.05 percent rate) was finally resolved. The preferred tax treatment to promote software development that was set up during last year's tax modification, and the increase in the technological development subsidy for software production handled by the Information Treatment Industry Cooperative from 1.112 billion yen to 1.522 billion yen augmented by the final decision on basic software development have put finishing touches on the development and sales setup for domestic software starting next JFY.

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BRIEFS

VLSI MASS PRODUCTION--The VLSI Technology Research Association (president: Taiyu Kobayashi, president of Fujitsu, Ltd) on 22 March announced success in development of a reflection-projection method deep-ultraviolet exposure unit, one element for mass production of VLSI's. Thanks to reflection-projection by concave and convex mirrors of deep ultraviolet rays, shorter than ultraviolet rays, the unit enables mass production of VLSI of greater precision than heretofore. "This allows a great improvement in precision over existing LSI's." Practical use will start around 1980. For VLSI's, light or an electron beam is used to prepare the original pattern and the pattern is then projected onto silicon using light, etc., to draw the circuit. The new unit burns the pattern onto the silicon by projecting deep ultraviolet light of wavelength 0.2 to 0.26 micron (1 micron equals one-thousandth of a millimeter) via high-precision concave and convex mirrors. The Association explained that the new unit was the first in the world to draw the circuitry without the fine pattern touching the silicon, thus avoiding damage to the silicon and making mass production easy. Further, the unit is described as capable, in principle, of drawing the 256 kilobit (memory capacity unit) VLSI previously announced by IBM to a scientific society. Manufacture will be handled by Cannon, and the schedule reportedly is to take orders starting this fall and enable practical use starting in 1980. [Text] [Tokyo YOMIURI SHINBUN in Japanese 23 Mar 79 p 8]

CSO: 5500

BRIEFS

NORWEGIAN TELEPHONE EQUIPMENT TO SPAIN--The telephone company has acquired telephone exchanges in Norway valued at 800 million pesetas. These exchanges can replace the ones currently in use in a twenty four hour period. This thus prevents any risk of accident or sabotage. [Text] [Madrid CAMBIO 16 in Spanish 15 Apr 79 p 5]

CSO: 3110

FRANCE

SPACE TELECOMMUNICATIONS PROJECTIONS NOTED, DISCUSSED

Paris PARADOXES in French Jan-Mar 79 pp 41-47

[Article by Jacques Houbart]

[Text] For some years French engineers have been ready to launch the war of the air waves which is going to turn communications between peoples and commerce among nations topsy-turvy. For a long time the vicissitudes of European space [efforts]. The victims of American interference, and the foot-dragging of our own administration which, for example, has restrained the industrial development of earth stations, have postponed the burgeoning of a "data civilization" upon the Old Continent.

Following the recent decision of the French government to construct a system of telecommunications by satellite--Telecon-1--and the projected establishment of a European company for commercial exploitation of the Ariane [Ariadne] launcher--the transpace group--it may be hoped that the efforts of our researchers, effected during the last decade, are finally going to result in industrial materialization and to affirm our country's eminent position in space and data transmission applications.

At Dallas several weeks ago, Gerard Thery, chief of the DGT (General Telecommunications Directorate of the Posts and Tele-Communications Ministries) declared: "The paper civilization's days are now numbered, because the transportation--on foot, on horseback, or in vehicles--of ever increasing quantities of paper is smothering our companies. Besides, it is a costly and vulnerable process: just think of banknotes and securities."

Fleeting Talk

"Fleeting talk," perhaps the sceptics will say, in taking notice of that diatribe against paper delivered at Intelcom, the annual ground telecommunications exposition where a large French exhibit bore witness of the preeminent place our country occupies in this industrial field. In fact, thanks to the telecommunications revolution, words (and pictures) are going to fly higher and higher and farther and farther, but htis is not going to prevent written material--words, figures, or drawings--from appearing, when desired, upon a screen or other supporting apparatus.

For example, in 1981 the telephone subscribes in [the department of] Ille-et-Vilaine are going to have the benefit of a world first: the Post and Telecommunications Ministry (PTT) will provide them, free of charge, with a device called the "Videotex" by means of which by simple interrogation upon a keyboard they can obtain, upon a screen, a whole series of information: the date of an electronic almanac, continually brought up to date, but also the status of their bank accounts. They will be able to receive stock exchange information as well as reserve seats upon airliners or at the theater. This service will progressively be provided to all subscribers.

An Enormous Market

The year 1981 will also be that of a new PTT service, the TGP (Grand Public Telecopier). This new system, which owes much to the research of the Secre Company in particular, combines the techniques of photocopying and data transmission over the telephone network. The device should cost only 2,000 francs when it is placed into service and sale of 500,000 units annually is foreseen.

In general,--be it telecopying, videotext, videoconference, or data transmission--it is an enormous market which stands out on the world scale. The American firm of Arthur D. Little and Co. estimates that in the next few years the worldwide telecommunications market should increase considerably; nearly 8 percent annually from 1977 to 1987, and reach the level of 65.3 billion dollars in 1987.

The Space-Time Couple

This revolution in the field of data transmission is not due solely to progress in telecommunications; it is the result of the unparalleled convergence of technologies under the umbrella of electronics--technology of materials (intended for components of processing transmitting, and data transmission and reception units), design of data equipment and logic, rocket propulsion technology, and energy supply, piloting, and transmitting apparatus for satellites.

The data revolution at various levels in fact manifests the interactions of the space-time couple. By means of our Telecom-1 satellite--which is to be launched in 1983 by the European Ariane rocket from the Guiane Space Center at Kourow--the letter within an envelope can be replaced by a telecopy transmission and, for less than 1 franc, the message thus sent will be received by the addressee within 2 minutes of its dispatch, a contact "in real time," thanks to an apparatus positioned thousands of kilometers away in space.

By virtue of the possibility of launching into space heavy satellites crammed with miniaturized electronics, a veritable planetary "dialetic" system can thus be installed, a transmitter-receiver system enabling earthlings to communicate with negligible lapse of time and the earth to be reflected at any instant and at any point in the electronic mirrors constituting its new environment.

The "Network" Phenomenon

Right now national telecommunications satellites are in place in Canada and the United States. Projects are on the way to completion in Japan and Great Britain. Invitations for bids have been put out by the Scandinavian community. As for Third World countries, which must often consider their vast areas and low population densities, space represents an ideal solution for telephony and television. It is estimated that in the year 2000 the aggregate receipts of the various space telecommunications systems will correspond to a market on the order of 500 billion francs annually.

As pointed out several weeks ago by Jacques Pomonti, president of the ICS consulting firm, at a meeting of the Telequal Association and the International Telecommunications Institute, telecommunications satellites are going to play a major role in the policies of large companies, whether it be applications of the "teleconference" type or of systems management. In 1980 firms such as IBM, Ford, and Western Union are going to launch their own telecommunications satellites. Planned for the beginning of 1981, the Business Systems satellite, jointly owned by IBM, Comsat, and Aetna Life Insurance Co, will be based in the United States. At the rate of several million bits per second it will enable voice, pictures, and data to be transmitted over the same network.

French Programs

An uncooperative Europe, where France alone has for a long time supported the principle of applications satellites, has indeed experienced space disappointments, notably the failure of the Europa rocket 7 years ago. Since then, thanks to reshaping of organizations and the dynamism of France, which is financing 65 percent of the Ariane launcher the, European Space Agency (ESA) has turned the tide.

Ariane, with a thrust at take-off of 250 tons--which is equivalent to that of four Concorde aircraft--maintained for 145 seconds by a first stage which burns a ton of fuel per second, is one of the most powerful rockets in the world today. It can lift 4.5 tons to 300 kilometers altitude and place satellites of 1,000 kilograms into geostationary orbit of 36,000 kilometers altitude. The series of flight tests is to begin at the end of this year at Geneva Space Center and will terminate at the end of 1980.

Right now the series of bench tests by the European Propulsion Company are encouraging and like Hubert Curien, president of the CNES (National Center for Space Studies), "we may very reasonably believe that our big problems are now behind us." During the next 10 years it is predicted that this launcher will have a business volume of at least 10 billion francs, which implies a comparable business volume for the satellites, not to mention the significant industrial activity arising from ground exploitation of the space apparatus; systems for telecommunications, television broadcasting, data gathering, and observation. Faced with American competition and the threat of the United States monopoly which now controls 75 percent of the international data traffic, French strategy seems well founded; support European efforts whenever they are manifested and launch national programs if need be.

The Cannac Report

A real boast, moreover, was decided upon following the positive report by the study commission which the government had assigned to Yves Cannac, president and general manager of the HAVAS Agency. After the meeting of the ministerial council on 7 March, Andre Girand, Minister of Industry, and Norbert Segard, Secretary of State for Posts and Telecommunications, announced that launchings of telecommunications satellites would take place at the end of 1982 and in April 1983, a third satellite serving as a spare on the ground being delivered in the middle of 1983. The total cost of the system, launchings included, is estimated at 1.5 billion francs, with operating expenses thereafter of 1 billion francs per year.

Within the scope of the ESA, a second meteosat satellite (the first has been in orbit since November 1977) will be launched with the third firing of an Ariane in June 1980. As for the SPOT satellite program--a French satellite but with Belgian and Swedish participation--construction will begin in a year, with the launching of the first satellite set for March 1984.

All these satellites will be launched by the Ariane. To promote the new launcher France has proposed that a European marketing company be established in which the CNES would hold one third of the capitalization. With the CNES combined with the manufacturers building the launcher, in the end this would leave a majority of the capitalization with France. The government also hopes to have the present Ariane program, which will terminate after the first production run, followed by a program of improvements. In a first phase, estimated at 300 million francs, the payload may be increased to 2,300 kilograms. Beyond that, in another phase, the use of liquid hydrogen and liquid oxygen for the second stage would enable that performance to be tripled.

Television Status in Suspense

The Cannac report supported the United project for a direct television satellite situated in a geostationary orbit at 19 degrees West above the equator. This system, first of all, would permit television coverage of "black-out zones" distributed especially throughout mountainous areas, which represent 20 percent of French territory--or about a million people without reception. In addition, it would come in time to help Television-France which, in 1982-1983 must settle the matter of replacing antennas.

The French government seems to be hesitant in making a decision in this area because over the short term it is a question of ending its television monopoly. There is talk of a decision in April or the summer, after consultation with West Germany. In any event the spreading of direct television, with or without France, is going to happen. So let our German neighbors, who positively are going to initiate their program on 1 July, to be the first would be a disastrous policy. On the other hand if we are going to lead the way our satellite could count upon several "passengers"; probably Television-Monte Carlo and Television-Luxembourg, and even the British ITV Commercial Network.

The Pessimists

As always, when the level of French research appears to promise an important industrial breakthrough, the "pessimists" display feverish activity (remember the attacks against "the grand programs" of the 1960 decade, against the computer plan, against the nuclear plan, and against our bold space ventures).

Today, while the French, by virtue of their worldwide advances in the matter of earth stations, their rapid progress in the field of networks (due, in particular, to the efforts of the IRIA [expansion unknown] and the experience of Transpace), their electronic mastery, and their launchers, are well situated in the great mutations of our various societies, the "pessimists" state that "the French are poorly prepared, and affirm that the forward leap is going to displease the personnel of the posts and telecommunications ministries.

In L'OBSERVATEUR DE L'OCDE (THE OECD OBSERVER), Hans Peter Gassman, head of the information, data processing, and communications unit, states: "In view of the sharp reduction in the birth rate in most of the developed countries, it may be said that electronic automation is coming 20 years too soon. If the rate of electronic innovation can be slowed until less numerous cohorts of young people are entering into active lives perhaps the problems of technological unemployment can be avoided. Unfortunately, the dynamics of technological evolution, amplified by international competition and trade, are such that we are no longer in control."

Enjoyment of Benefits

Let the honorable OECD official be reassured; curtailment of the birth rate precedes by only a little curtailment of brains. If the present trend is confirmed it will not be necessary to wait 20 years for deadening of innovation to be accompanied by burial of the peoples of the Occident. (See the study of demography we have published on page 57).

The entire question is to know whether our industrialized societies are going to be able--not to extirpate technological evils--but simply to enjoy their victory, to share the extraordinary fruits of productivity. A completely new world is in sight, one in which it will be possible to delegate to industrial automation the tasks which are mechanical and distasteful, but this obviously presupposes intensive cultural adaptation. Control of the transition cannot in any event be abandoned to the economic specialists who seek to maintain the peoples on the road to "liberation" in the traditional confines of industrial aberation. Can today's man have his huge "enjoyment of benefits" or not? We shall soon know and at the same time learn whether the conquest of space is stricken with a curse comparable to that of the Tower of Babel.*

* See also our inquiry into "Exploitable Space" in INDUSTRIES ET TECHNIQUES, No 382, 31 October 1978, p 20

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