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# West Europe Report

SCIENCE AND TECHNOLOGY

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23 July 1984

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## AEROSPACE

### BRIEFS

ARIANE-3 LAUNCH PREPARATIONS--Preparations for the first launch of an Ariane-3 rocket--scheduled to place the European ECS-2 and the French Telecom-1 telecommunications satellites into orbit on 4 August--will start at the Kourou space center in two weeks. Telecom-1 is expected to arrive on 19 June, and ECS-2 the day after. The first two rocket stages, which were shipped late in May, should reach Guiana in the next few days, at the same time as the nose-cone and the equipment pack. The third stage will arrive in Guiana only late in June. The two Italian-made booster sets arrived respectively late in April and a few days ago. The launch campaign will start on 22 June, two days after that of the satellites. The first stage is scheduled to be erected on 25 June, the second stage the day after, and the third stage on 2 July. The booster installation, a difficult operation that has never been done before, is scheduled to take place over three days, 18-20 July. The satellites will be installed on the rocket on 27 July. The countdown to firing is scheduled for 3-4 August, Arianespace indicated. [Text] [Paris AFP SCIENCES in French 7 Jun 84 p 23] 9294

CSO: 3698/500

## CIVIL AVIATION

### FLANDERS MAY LOSE OUT ON A320 CONSTRUCTION

Brussels KNACK in Dutch 25 Apr 84 pp 19-20

[Report by Frank de Moor: "Flanders Sees the Airbus Fly"; items in slantlines published in italics]

[Text] It looks as if Flanders sometime soon, when the tasks for the construction of the A-320 are divided up, will be left out.

During the international airshow in Hannover of 20 to 27 May, the German, French, British and Spanish delegations of the Airbus Industries group will once again discuss their respective jobs in the construction (at the beginning of 1986) of the A-320 /Airbus/, the by now well-known passenger plane which, because of its 150 seats and its thrifty engine, is expected to become the big success of the nineties. At that meeting in Hannover, and possibly even prior to that, the question will come up once again of what Belgium really wants.

As is known, the Walloon government company Sonaca, the French-Dutch company Sabca in Haren, and the Brussels company Asco in Zaventem are currently doing some work on certain wing parts of the A 310, the previous Airbus in the series. They are doing that in the framework of the Walloon-Brussels /Belairbus/ consortium.

Airbus Industries, however, informed Belairbus from Toulouse on 23 February that ultimately, /considering the experience gained/, the same companies could also share in the work on the A-320 but that, although the industrial cooperation can certainly be improved, a greater share of the production really requires further investigation. The Belgian agencies, let alone the Flemish ones, are currently--within a few weeks of a definite task division within the Airbus consortium--far from ready with such an investigation.

The study of the /Interdepartmental Committee for Aviation/ on possible new capital- and/or management structures within Belairbus was never produced and, moreover, that committee has not met since 19 October 1981. What is more, the Flemish Executive has not discussed that participation since 23 July 1981, and neither has the Flemish Aerospace Industries (FLAI), which had been established precisely for the A-320 participation.

The Ministerial Committee for Social and Economic Coordination of 23 July 1981 had nevertheless decided, partly under pressure of the then newly established Flemish Aerospace Group (FLAG), that /the capital of the Belairbus NV [Inc.] was open to participation by all the regions/. Thus also to the Flemish region.

The Flemish region indeed is very involved in that project: on the one hand as a shareholder of Belairbus, and on the other hand because it already had to pay up more than 1 billion francs to enable Sonaca to achieve the serial manufacture of A-310 parts one of these days and thus to artificially keep alive the last remainder of the Walloon aviation industry.

Therefore the national (but Walloon) Minister of the Budget, Science Policy and Planning, Philippe Maystadt (PSC [Social Christian Party]) year was very happy at the end of last year to accept the authority, handed to him unexpectedly by Minister of Economic Affairs Mark Eyskens (CVP [Flemish Social Christian Party]), to negotiate with Airbus Industries on behalf of our country. The result of that is quite clear, partly from the above-mentioned letter of 23 February. When asked about that during a press luncheon on 11 April, Minister Maystadt stated that there was indeed /room for a third or fourth manufacturer/ (besides Sonaca and Sabca), and he confirmed that this could then be Asco or the Watteeuw gear company from Brughes.

Apparently that is the end of the matter for Minister Maystadt. Asco thus is considered--in spite of everything (and that is a lot)--a /Flemish/ company, and the FLAG, the CVP and the Flemish Executive thus would have to be pacified with Watteeuw. Fons Watteeuw, after all, is chairman of the National Christian Middle Class Federation (NCMV), and surely that means something.

On the Flemish side this is not right away understood, however. They do admit that the Flemish Executive and FLAI /have missed their chance/ the past 2 years of making Belairbus more Flemish and of still becoming full-fledged members of this international consortium through this company (the only one, nota bene, which continues to acknowledge Airbus Industries as a discussion partner.)

So much self-criticism, however, is then put in perspective again. FLAI--with Asco and the steel wire company Bekeert-Zwevegem in front--has only just got over its doubts relative to the opportunities of the A-320, and has all the time been batting the ball back to the Flemish Executive member Gaston Geens (CVP) to /unblock the matter politically/, as that is called.

The Flemish Executive, for its part, however, has always been afraid, just like FLAI, of having to pay too high a price for such a full-fledged membership in the little A-320 club.

That does not, however, prevent thoughts from being given, at the last moment, to opening up the capital- and management structure of Belairbus to Flanders. For the sake of the current structures, that would have to be done in fifths or sixths. That is because the current shareholders are the National Investment Company (NIM), The Walloon Region, FN [Fokker Nederland] Sonaca (again together with the government and FN) and Asco.

It would be possible to split the capital /in fifths/, if the NIM would retain its pivotal role and if, besides the Walloon Government and the private sector, the Flemish Executive (via the Regional Investment Company for Flanders, GIMV and FLAI) would each take one fifth of the capital upon themselves.

The capital could, however, be split /in sixths/ if also the share of the NIM would be evenly distributed over Flanders and Wallonia. But the fact that in similar working hypotheses the Brussels Region (for the time being) is clearly being neglected could make everything more difficult.

The interest of the above-mentioned operations obviously is to acquire more Flemish supervision and say in Belairbus than was the case until now. Right now the only Fleming there is Luc Rommel, Minister of Economic Affairs Mark Eysken's cabinet collaborator. In view of all that, perhaps the demand of Flag and the decision of 23 July 1981 could be carried out, but the big question remains of which industrial has sufficient means to take part in the A-320 and what he can manufacture. If Belgium wants to preserve its current share (2 percent) in the Airbus consortium as an /associate member/, 1.6 billion francs has to be counted out this time. And that is just to finance the development of four prototypes and the necessary work instruments.

Here too the question comes up again of who will pay that anyhow: the national or the regional governments, Minister of Science Policy Maystadt or the ministers Eyskens, Geens, or the latter's Walloon colleague Melchior Wathelet, on behalf of the so-called /Prototype Support/.

All these unsolved questions, which perhaps cannot be solved in the short term, have already prompted many parties involved to simply leave Belairbus for what it is and to negotiate directly with other, foreign, subcontractors of Airbus Industries for the manufacture of certain (electronic and composite) parts.

That is partly because almost all the purely mechanical parts have just about been assigned (amongst others to Asco and Watteeuw), but also in order not to have to work via Asco, the company which so often has been the subject of controversy.

In fact, Asco, starting from the most rabid PSC stable, managed in a still unexplainable manner to install itself next to Bekeart at the top of FLAI, and is in addition the only company in Flanders with the required qualification of the /Airways Administration/ for airplane manufacturing.

Apparently the members of Flag and FLAI thought of that too late also. Thus the possibility remains for them to still take part in the work on the A-320 through foreign subcontractors. With this, however, Belgium's next and last aviation purchase of the century, with which Flag and FLAI so far have tried to avoid any contact, comes up instantaneously. By linking participation in the Airbus program to the purchase of anti-tank and reconnaissance helicopters for the Army, the door is opened for one of the many communal solutions (?) in which this country excels by now.

In fact, whoever dreamt of getting a distinct Flemish technology in the Airbus, in that manner might be carried along as an extra in the Airbus program, via French, German or British helicopter builders, without becoming directly involved with those helicopters either. And then it is really finished for this century.

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## COMPUTERS

### DUTCH SCIENTISTS INVENT NEW COMPUTER LANGUAGE 'B'

Rotterdam NRC HANDELSBLAD in Dutch 14 Jun 84 Supplement p 4

[Report by Bas den Hond: "A New Computer Language"]

[Text] The computer gets its orders in a code; the computer language. One language has more possibilities than another and the simplest one, for beginners, is called BASIC. Shortly, however, a new computer language will be available for the IBM Personal Computer, called "B." B is simpler to use and has many more application possibilities than BASIC.

A few hours of number crunching by a computer last year yielded yet another prime number. The highest known prime numbers in the meantime have become so long that the HAARLEMS DAGBLAD printed them for fun on an entire newspaper page. Once you know which number it is, however, a simpler way of writing it can usually be found. In this case: the formula "two to the power 132049, minus one."

One might think that any kind of reasonable computer can rather quickly print out the solution of that problem. But when you try it on your microcomputer you are disappointed. The BASIC with which that is working can only write out numbers of a certain length. For longer numbers all sorts of tricks are needed which require a program of 100 lines or so.

In B that same program simply reads: WRITE 2 132049-1.

Between BASIC and B there might be competition in the coming years. Both are computer languages, codes resembling human language in which computers can be told what they are supposed to do. BASIC has existed for a long time already; any microcomputer owner is exposed to it. B is a beginner's language which was developed at the Center for Math and Information (CWI) in Amsterdam, and outside of that it is only known in scientific circles.

If it were up to Leo Geurts, who together with Lambert Meertens is the inventor of B, the situation will be reversed about 10 years from now. The origin of the name of the new language has disappeared in the mist of history. But Geurts' story can be summarized in a few words: B means Better.

Geurts: "We thought that there was a need for a language which does not use the computer as efficiently as possible, but in which it is recognized that computers now are so fast and have so much space for memory that the emphasis can fall on the efficiency of the programmer. Our ambition is not to have to be programming for two days on a problem which the computer subsequently solves in two minutes, but to work on it for one hour after which the computer perhaps puts in 10 minutes."

### Ideology

The development of B started in 1975. At the end of this year, thus 10 years after the work started, B will be available for the IBM Personal Computer, a 16-byte computer with a memory of 256 Kbytes. Only that generation of computers, which in the seventies were still dreams of the future, is large enough to accommodate the program which the B language itself is and is priced low enough to be accessible to those for whom B was designed: the beginner in the computer world, the nonprofessional programmer.

The B language originates from the manner of thinking of the human being behind the keys. Geurts: "That was primarily Meertens' ideology, but all of us were guided by that, and then, during the past years when all six of us were at a work discussion, we would continually ask ourselves: aren't we really making this decision because it is so easy to implement it this way on the computer? And if that was indeed the case, we proceeded in a different manner."

That thinking yielded a language which does not resemble BASIC much, but which on the other hand does resemble PASCAL, a somewhat more difficult language which lacks a number of the disadvantages of BASIC. BASIC consists of a limited vocabulary of commands, such as PRINT, READ, and END which, put in lines together with reading symbols, are readable to the computer and thus can be carried out. A program is processed line by line and command by command. BASIC can be learned rapidly, but it is extremely difficult to keep long programs surveyable and understandable.

In B, as in PASCAL, the program is not recorded in lines but instead in procedures. In B there is no longer even any distinction between commands which are in the basic version of the language and commands which have been created by the user himself during the course of the programming with the aid of those basic commands. That makes B programs short, understandable and easily correctable.

For example, the command with which in BASIC a value is put on the screen is called PRINT. B also has such a command: WRITE. But B also has an expression with which other commands can be made: HOW'TO (the apostrophy serves to make it one word for the computer; B is also not free from concessions to the chip). By giving the command

HOW'TO PRINT a:  
□ □ □ WRITE a

the PRINT command is fixed in the memory, and the user who was accustomed and attached to that BASIC word can, without frustration, continue to program with the use of that command.

Renaming a command in that manner is the simplest, but certainly not the most important application of HOW'TO. With it, actually, more complicated operations with data or numbers can be provided with a distinct name. For example, when now and then in a program the number series 1 through 10 should come on the screen, the programmer will just once, after the line HOW'TO COUNT TO 'TEN,' let a little program with basic commands follow which can complete that task. He can then forget exactly how it was done; if COUNT TO 'TEN' is commanded, the computer will count to ten.

BASIC can do something similar. However, the little program which does the counting is then filed at the end of the main program and brought into action when one refers to its beginning line with the not very meaningful shout: GOSUB 1000. B's intention on the other hand is to have readable programs, as if they were descriptions of the way in which a human being would approach the problem. Something like:

#### HOW'TO GOBBLEDYGOOK

text:

□ □ □ TAKE 'TWO'WORDS'-FROM text

□ □ □ EXCHANGE'WORDS

The terms used in the description are not basic commands and therefore they must be guided back to those commands through other HOW'TO's which have been entered into the memory.

#### Unique

Another relief which B can give to a BASIC programmer is the manner in which that language looks at collections of data. To the computer itself, only one is the most obvious group in which a piece of data can occur. Most computer languages show clearly the manner in which they tackle data one by one which must be saved or processed.

B suppresses that preference of the computer. The language knows five types of data: numbers and texts which are singular data that can occur in larger quantities in lists, tables and packets, or plural typing.

The list is the simplest of all; everything put into it during the course of the program will stay there (in order of size). The content can consist of numbers or texts, but also of other lists as well.

BASIC puts data to be gathered in an array in which every element gets a number. When such an array is emptied, a short program must see to it that element after element is put on "empty." In B the programmer suffices with DELETE, followed by the name of the list.

In lists, operations can also be executed which immediately answer logical questions, but are not so easily answered with other computer languages, such as: how many elements does the list contain; what is the largest and what is the smallest element? Also, the volume is not limited, as in BASIC, to the computer-friendly power of two, for example the renowned number 256.

"Thus it is very unique for B to be able to deal with collections," exclaims Geurts. "There is only one obscure language from the United States which can also do that, but it, SETL (for Set language) has been written especially for that purpose and cannot do much else."

Precisely because the new computer language is aimed at the beginner and, just like BASIC, should be learnable from a book, that what is described above is really only half of what is commonly understood under B at the CWI. Outside of the actual language, the B user has the B-programming environment available to him.

A programming environment is that which is available to the user to deal with the computer language itself. The /editor/ is an important part of it. In most computers that is just a simple type of text processor. The sentences typed into it then happen to be program lines.

The B editor also "knows" the language itself. When the programmer makes a grammatical mistake he is given a signal right away. If he types the letter P at the beginning of a sentence, the editor gambles that he probably means the frequently occurring command PUT. . .IN. . . and puts it in right away. A simple push of the "enter key" then is sufficient to set the entire command. And the editor's "knowing" B also applies to the version of B with which this particular user is working, including all the commands he has defined; those too will be put on the screen by the computer after only a few letters.

It all looks too good to be true. B thus is unique, easy to use, and even inexpensive. To the question of whether there is anything his language is absolutely not appropriate for, Geurts has to give some thought. "Games; for those it will in many instances be too slow, certainly in /real time/ games in which flying or driving takes place. But those of course are applications for which people usually buy the programs. Writing a game can easily cost you a year.

"Otherwise, when I want quick results, I always use B. Some very large-scale projects however, certainly in my area, information processing, might better be written in a different language."

Naturally that is true for B itself also.

For the devotees: B is written in C.

/The Center for Math and Information Processing publishes various publications on B, including the "B Newsletter" and the official B specification: "Draft Proposal for the B programming Language" (Lambert Meertens). At the end of May it published: Computer Programming for Beginners - Introducing the B Language - Part I, by Leo Geurts.-ed/

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## COMPUTERS

### BULL SIGNS AGREEMENT TO SUPPLY COMPUTERS TO RENAULT

Paris L'USINE NOUVELLE in French 22 May 84 p 50

[Article by Eric Walther: "Renault, Driving Bull"]

[Text] Renault is a large consumer of data-processing equipment. But until now, the proportion of French-made equipment it owned was much smaller than the average for public enterprises. It is a good thing for Bull that this is about to change.

"From now on, no one can accuse us any more of being bad French citizens-- which, by the way, was unjustified," Francois Rameil, organization and information systems manager at Renault, told L'USINE NOUVELLE. He was just delegated by his chief executive officer, Bernard Hanon, to sign a collaboration agreement with Bull for the procurement of data-processing equipment.

Whereas French-made computers represent on the average 30 percent of the computers owned by large public companies, that rate was much lower at Renault. The reason was said to be that, because of its rather monolithic structure, Renault is a major user of large computers. They represent half of its computer inventory, which is estimated at FF 1 billion. And in this range of machines, Bull is not very well represented, as its computers are not compatible with IBM's.

Thanks to this agreement, Bull should be the first to benefit from the data-processing investment policy of the Renault group. Within three years, the period of time mentioned in the draft agreement, Jacques Stern's group [Bull] should regain ground over IBM.

A regular gold mine, as Renault spends about FF 300 million per year on computers, which it purchases mostly through its financial subsidiary COGEFIMA [expansion unknown], which leases its computers to the various Renaults divisions. If all goes well, Bull should get 40 percent by value of the inventory increase, i.e. slightly more than IBM, the balance being shared among other manufacturers. Renault Industrial Vehicles and Renault subsidiaries should be the privileged field for this breakthrough of Bull, especially as far as minicomputers and their peripherals are concerned.

The success of this undertaking is subject to the quality of the relations which the two groups have agreed to develop. Thus, Renault will be kept informed of Bull's product strategy. As for Bull, it will receive advance information on investment programs considered at the Boulogne-Billancourt headquarters. Relations between the two companies could even involve the joint development of new products.

#### An Opportunity for Bull to Accelerate Certain Projects

This association presents Bull with a series of opportunities that it should not miss. Renault cannot afford to be easy-going in the least, especially today. Especially, as Francois Rameil pointed out, now that the data-processing policies of large industrial groups are changing rapidly: past strategic decisions are now giving way to decisions decidedly based on economics.

Computerized process-control and computer-aided design are also covered by the agreement. This will give Bull an opportunity to accelerate its projects in a field which it had not much explored until now. Yet, it does not have it made. As Francois Rameil pointed out, profitability rates for industrial data processing are easier to establish than for the traditional management data-processing. This will be a challenge for Bull. Renault wishes to reduce the ratio of its data-processing expenditures (depreciation and operating costs) to its sales (exclusive of taxes), which now exceeds 1 percent.

Was Renault given an ultimatum by the Ministry of Industry? People at Renault will admit that last April, when Renault outlined its operating plan for the next three years to the interministerial committee on data processing, the Ministry of Industry had laid its cards on the table. One month later, Jacques Stern and Bernard Hanon agreed to start the ball rolling. It seems that the spirit that prevailed during the whole negotiations made it possible to lay the foundations of an agreement that puts some past differences on the back burner. In other words, the two partners have found a way to prevent the ministry's firm "encouragement" from turning into coercion... and being doomed to failure.

At the end of its restructuring, the group is now playing its last trump cards. Its venture with Renault will be a tremendous learning experience as well as a full-scale test that Bull cannot afford to fail.

#### Bull's Accounts

The new Bull company (with SEMS [European Minicomputers and Systems Company] and Transac) ended its 1983 financial year with a deficit of FF 625 million... i.e. half its 1982 losses. A "recovery" which the management tandem Jacques Stern-Francis Lorentz see as an encouragement in reaching their objective, balancing the company accounts by 1986. Sales amounted to FF 11.64 billion (+ 21.3 percent). Export sales account for 37.5 percent of the total. Financial expenditures remained very high (6.4 percent of sales).

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CSO: 3698/500

## COMPUTERS

### NETHERLANDS TO SUBSIDIZE FIRMS DEVELOPING SOFTWARE

Rotterdam NRC HANDELSBLAD in Dutch 23 Mar 84 p 11

[Article "Software to Receive a 20 Million Guilder Boost"]

[Text] 's-Hertogenbosch, 23 March. The Nederlandse Herstructurerings-Maatschappij (Nehem) [Netherlands Restructuring Corporation] will stimulate the Dutch computer service industry this year in the amount of 20 million guilders.

The Nehem says that it intends to concentrate more and more on building up relatively strong branches of Dutch industry. According to the Nehem, the computer service industry is a good example of such strength.

The Nehem has drafted a 1984-85 plan of action for computer services (ACSI '85). With this plan the Nehem intends to improve the "climate" and structure of the computer service industry.

"It turned out that computer system users did not have such a good impression of the Dutch software industry," a Nehem spokesman stated. "They believed that it worked on a much too basic level. For more advanced programs, firms had to rely on foreign suppliers."

The Nehem now hopes to improve relations between the Dutch software and service industries on the one hand and government and industry on the other by establishing contacts and acting as an intermediary.

In addition, the Nehem plans to increase cooperation among suppliers in order to form a few relatively large firms and a Dutch Software Center. The Nehem will also set up management training courses, expand the labor market by retraining, and try to increase the firms' productivity.

Firms in the software and service industry can apply to the Nehem for reimbursement of 40 percent of costs incurred in strategic research, improvement of knowledge and development of new combinations of products and markets. The maximum subsidy per firm per year for strategic research and improvement of knowledge will be 150,000 Dutch guilders.

The Nehem guarantees action on applications within three months. Several dozen applications have already been received by the Nehem.

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## COMPUTERS

### BRIEFS

PHILIP'S NEW COMPUTER FACTORY--Vienna--With a new manufacturing plant for data processing equipment, Philips wants to improve the operational infrastructure for expected development. Beginning in early 1985, construction will start on a new industrial plant at the Wienerberg site to replace the Flotzersteig plant, which can no longer be enlarged. The Flotzersteig plant cannot be further enlarged for future tasks, declared H. Wilhelm Haverkamp for the Austrian Philips Industry GmbH in Vienna. The employees at the old plant would be given jobs at the new plant, where nothing stands in the way of possible further expansion. /Excerpt/ /Munich COMPUTERWOCHE in German 19 Apr 84 p 49/ 9746

IBM-COMPATIBLE OLIVETTI MICROCOMPUTERS--London--The Italian Olivetti & Co is presenting two new microcomputers that are IBM-compatible. The two 16-bit computers are designated M21 (portable) and M24 (desk-top model). The new models represent a change in the company's market strategy, for the computers that they offered hertofore were incompatible with those of other manufacturers. Olivetti's market share in Europe was about 7 percent and only a very small number of computers could be sold in the United States. In December, the U.S. American Telephone and Telegraph (AT&T) acquired a 25-percent share of Olivetti. Both companies are planning mutual marketing of each other's products. It is supposed that AT&T will also offer the two new computers in the United States but there has not as yet been an announcement to that effect. Branch circles believe that AT&T itself is working on the development of additional desk-top computers that are less expensive than the AT&T models just brought out. Olivetti's U.S. subsidiary, Docutel/Olivetti Corp, has heretofore been marketing the Olivetti-PC's in the United States and will also offer the new ones there. The new models are to be introduced in the United States later this year as soon as the marketing questions have been clarified with AT&T. Olivetti hopes to be able to increase its European market share for microcomputers to 20 percent by 1985. As Vittorio Cassoni, marketing director for Olivetti, elaborated, he is counting on other companies dropped out of this business. With the widespread tendency to cut prices, only those companies will be able to survive that can produce cheaply and in large volume. According to its own information, the company wants to spend

about \$25 million in Europe to advertise the microcomputers, which also include the portable M10 and the M20 desk-top model. The 1-year-old M20, which costs exactly the same as the M24, is to be produced as long as there is demand for it. [Text] [Munich COMPUTERWOCHE in German  
13 Apr 84 p 22] 9746

ICL-FUJITSU AGREEMENTS EXTENDED--On 4 June in Tokyo, the Japanese and British computer manufacturers, Fujitsu and International Computers Ltd (ICL), signed a three-year extension agreement to continue their collaboration in manufacturing large computers until the end of 1991, and to extend this technical collaboration to other sectors, it was announced by ICL. Under the existing agreement, signed in 1981, ICL is given access to Fujitsu's advanced technology to develop a new generation of large computers which the British firm is planning to introduce within the next 1-1/2 years. This agreement was due to expire at the end of 1988. The two companies have now agreed to continue their collaboration for another three years and to extend it to products resulting from the new equipment thus developed. In particular, the agreement provides that certain hardware components will be supplied by Fujitsu. The two companies will also consider extending their reciprocal collaboration in sectors which, for marketing reasons, they declined to identify. The communique added that the two companies will derive considerable benefits from these new ties. Sir Michael Edwardes, ICL chief executive officer, stated that "the new agreement will put ICL in a very strong position to meet the rapid expansion of its customers' data processing requirements." [Text] [Paris AFP SCIENCES in French  
7 Jun 84 p 33] 9294

CSO: 3698/500

## FACTORY AUTOMATION

### JAPANESE AIM FOR FRG MARKETS THROUGH COOPERATIVE AGREEMENTS

Duesseldorf WIRTSCHAFTSWOCHE in German 3 Feb 84 pp 115-116

[Text] The Japanese manufacturers of industrial robots in the FRG are still contenting themselves with modest market shares. But the growing number of cooperative agreements with German marketing partners points to a new exporting offensive.

Showing its true colors is not necessarily the strength of the blue-painted welding robot "Eurobot 10" of Messer Griesheim GmbH. Whereas the German firm name and the seemingly European model designation are displayed in conspicuously large print, a glance at the motor housing reveals the manufacturer as Yaskawa and shows the Japanese origin of this programmable automaton. And as for the "Daros" of the Esslingen company C. Stiefelmayer KG, at most only experts can tell that this robot comes from the assembly-line production of Dainichi Kiko. On the other hand, Zeppelin Metallwerke GmbH in Achim near Bremen nails its colors to the mast and clearly emphasizes on the robot the name of its cooperation partner Hitachi.

Whether a game of hide-and-peek or not--for Ulrich Steger, chairman of the SPD Bundestag Committee for Research and Technology, the pattern of a "laser-like exporting offensive" by Japanese robot manufacturers on the German market is already looming. And as was done already in the entertainment electronics branch, the SPD parliamentarian is demanding "temporary protection" for the FRG's machine builders, extending from self-limitation agreements up to special tariffs. This call for a seal-off is coming rather early. Of the 4,800 industrial robots which were installed at the end of 1983 in the FRG's workshops, no more than 8 percent came from Japan. Thus the Asians are far in the rear behind the strong Scandinavian companies Asea AB (Sweden) and Trallfa Nils Underhang A/S (Norway), which together with American robot manufacturers are managing to keep a market share of 32 percent. To be sure, these relations could shift quite soon--in favor of the Japanese. Despite their dynamic domestic market, which last year alone absorbed 5,000 more industrial robots and which by now has reached a total inventory of about 17,000 units, the Japanese robot producers are seeking, via the export outlet, to make full use of their excess capacities. Even newcomers in the robot market are systematically utilizing the advantages of large-scale production.

Compared to the giants in the Far East, the just under 30 German robot manufacturers look rather dwarfish. Inclusive of control systems and more specialized peripheral equipment, last year they produced about 2,000 units valued at DM 350 million. "But the worrying is gradually beginning," says Harald Goetze, manager of the Berlin advisory firm of Procam Automation Technology GmbH, with a glance at the increased export activities of the Japanese. In a study on the robots, Goetze has elucidated in more detail the marketing strategies of Japanese and American businesses in the FRG. Upshot: Whereas American manufacturers prefer their own branch offices and planning departments, the Japanese like to cooperate with German businesses which are firmly established in the market. In order to achieve a "multiplier effect," the Asians have been striving for a decentralized marketing with a number of cooperation partners.

However, this reckoning does not always tally--at least so far. For example, Hitachi wanted to first gain a foothold immediately in the German market with four sales centers, but it finally had to give in to the wish of Zeppelin Metallwerke GmbH for an exclusive contract. "After many Japanese firms had been pounding at our door," says Volker Schaefer, sales head for the robotics division at Zeppelin, "we wanted Hitachi to ourselves or not at all." The decision in favor of Zeppelin came easy for the Japanese. This traditional company with 2,000 employees and annual sales of about DM 650 million at last count has handled the German marketing for the United States construction machinery producer Caterpillar Tractor Company for the last 30 years, and it has at its disposal a dense network of 23 branch offices and valuable sales experience.

Since getting into the robot business at the beginning of 1982 Zeppelin has sold 70 systems, and last year with this young business division it achieved a sales volume of more than DM 5 million. "For us, the robot is only the first constituent in the direction of automation technology," Schaefer intimates. High initial losses due to preliminary work in the planning or the engineering of robot systems together with accompanying peripheral equipment have been deliberately figured in here. To be sure, Schaefer is firmly convinced that the promissory note drawn on the future will not bounce. "We are getting involved only with customers who have a capacity for making further installations."

In this connection, the Zeppelin technicians are hoping to be able some day to display the entire extent of their Hitachi robot product line. That is, whereas many of its competitors as systems developers are limiting themselves to specific areas such as, for example, welding engineering or surface treatment, the markets which Schaefer has trained his sights on also include the fields of handling, adhesive joining, machine-tool loading, and assembling.

However, the liaison of Hitachi and Zeppelin is only one example out of many which show that the Japanese are obviously concentrating on marketing firms which do not have robot experience. Procam manager Goetze thinks he knows for sure the reason for this: Such firms are "more ready to be enthusiastic about the new technology" than companies which have labored for a relatively long time already in the robot business.

Firms such as the Esslingen company C. Stiefelmayer KG, which has been the German marketing partner of Dainichi Kiko since mid-1982, are spending a great deal of money on their ambition for robots. This manufacturer of measuring machinery for the automobile industry and military technology has invested about DM 7 million in a new shop, showpiece equipment, and training rooms. However, according to the calculation of Hans Klingler, managing partner of Stiefelmayer, the robot business does not become profitable until a sales volume is reached of DM 22 million--that is, almost half of the sales figure which the 240-man company achieves with its traditional range of products.

Klingler thinks he will be able to come a long ways closer to this magic threshold even in the current year. In 1984 about 50 units are to be sold of Dainichi Kiko's robot family, which includes 17 models. This figure is more than three times as large as the modest 15 units of the previous year. "We make no money on the robot itself," says Klingler, "so it is the peripheral equipment and the engineering which must bring in the income."

Klingler has a quick explanation ready for why the Swabians went into an association with the Japanese and refrained from their own robot development: "Why should we reinvent the wheel? We ourselves would not have gotten back the high developmental costs within the next 10 years." On the other hand Ulrich Dilthey, technical head of the department of arc welding and cutting robots of the Frankfurt company Messer Griesheim GmbH certainly does not want to rule out the possibility that in addition to the units of its Japanese cooperation partner Yaskawa, someday robots could also come from his company's own developmental work. The Hessians have protected themselves in case, for example, customs barriers or very high prices might hamper imports: In such an event a licensing agreement permits robot production in its own shops. However, whether things will ever come to that seems doubtful. Since 1978 Messer-Griesheim has been able to sell no more than 120 robot systems, and last year it achieved sales of about DM 8 million in this field. An expansion of robot activities beyond its own special sectors of welding and cutting technology is not planned. Dilthey: "There is not much business to be done with the automobile industry or research establishments in selling Japanese units."

This also may well be the reason why German robot manufacturers appear to be entirely unperturbed about the Japanese challenge. "Today we are strong enough to be able to remain independent," it is said for example by Burkhard Wollschlaeger, chairman of the managing board of the Augsburg company Kuka Welding Equipment and Robots GmbH. In 1982 Kuka canceled a long-standing agreement with Nachi-Fujikoshi, because its own robot production was establishing itself more and more successfully on the market and Nachi, according to Wollschlaeger, "was not ready to import German units to Japan." However, Nachi has found a new representative with the Wuppertal firm of painting specialists Richard C. Walther GmbH & Co. KG. But because of Nachi's broad line of robots for various areas of application, trade experts are convinced that it will not remain satisfied with Walther alone as the marketing partner. Moreover: The multiplier effect desired by the Japanese is also provided by the German exclusive partners. In the sector of surface treatment, for example, Hitachi

representative Zeppelin is cooperating with Ransburg GmbH, and in welding technology a cooperative agreement with the Uniweld Group is supposed to expedite the selling of Hitachi robots.

Despite its exclusive agreement with Hirata, quite recently the Wiesbaden machine-building company of Stenzel Co. CNC Technik GmbH has been carrying also in its product mix the assembly robots of the partner of Messer-Griesheim, Yaskawa. Whereas National Panasonic is still seeking still a "suitable partner from toolmaking or machine building" for the delivering of turnkey systems.

Manfred Schweizer, head of the main department of process development at Stuttgart's Fraunhofer Institute for Production Technology and Automation (Ipa), is convinced that additional Japanese robot manufacturers are getting ready to jump into the German market and might make the most of their price advantages.

To be sure, this has not prevented the Fuerth subsidiary of Siemens, Mantic Association for Automation and Handling Systems mbH-- despite its marketing marriage to the Japanese robot giant Fujitsu-Fanuc--from developing its own unit. Insiders are already anticipating that problems similar to those with Kuka-Nachi could develop, "because the Siemens people prefer to sell their own robots." Because Kuka chief Wollschlaeger predicts that not much good will come of many of the robot cooperation agreements: "Once the Japanese are quite solidly in the market, they will then make themselves independent."

#### Intermediate-sized Businesses Are Dominant

German cooperation partners and branch offices of Japanese robot manufacturers in the FRG, 1984

#### Japanese Companies

Ikegai

Nachi-Fujikoshi

Dainichi Kiko

Mitsubishi Electric

Yaskawa

#### German partners

Adolf Unverzagt GmbH & Co. KG, Stuttgart

Fritz Kuke KG, Berlin  
Richard C. Walther GmbH & Co. KG,  
Wuppertal

C. Stiefelmayer KG, Esslingen

Voeest-Alpine GmbH, Duesseldorf

SE Special Electronic Wuttke KG, its own  
branch office

Messer Griesheim GmbH, Frankfurt/Main

Stenzel Co. CNC-Technik GmbH, Wiesbaden

[continued on next page]

Japanese Companies

Sankyo Seiki

Tokico

Osaka Transformer

Fanuc

Hirata

Hitachi

National Panasonic

Source: Procam

German Partners

IBM Germany GmbH, Stuttgart

Kopperschmidt-Mueller GmbH & Co. KG,  
Winnenden

Deuzer Maschinenfabrik GmbH, Neiphen

Mantec Association for Automation and  
Handling Systems GmbH, Fuerth

Stenzel & Co. CNC-Technik GmbH,  
Wiesbaden

Zeppelin-Metallwerke GmbH, Achim

Its own branch office

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## FACTORY AUTOMATION

### BRIEFS

UK ROBOTICS RESEARCH CENTER--To promote advanced production technologies; PERA, Great Britain's Production Engineering Research Association, has opened a new robotics center in Melton Mowbray. Research and training in the robotics field are to be carried on there. The center, covering about 556 square meters, is equipped with various robots, pick-and-place equipment and flexible production systems. Among other things, they have developed a flexible feeder arrangement there, in which robots work with optical recognition devices and traditional charging equipment. This center has set for itself the goal of increasing the interest of British industry in the use of robots, in that consultative research projects and information seminars lasting several days are subsidized by the state. Courses dealing with the supervision of robots and their integration into an overall production system are to promote the readiness to accept robot technology at the workplace. The utility of programmable controls along with robots is being handled in various training courses. Such organized events are important to familiarize engineers with the problems of robots and the work environment. /Text/  
/Wuerzburg ELEKTROTECHNIK in German 19 Mar 84 p 16/ 9746

VW DISCONTINUING ROBOTS PRODUCTION--As can be concluded from the latest reports, the Volkswagen Works wants to discontinue the development and production of robots at its own plant. VW production chief Guenter Harwich justified this by saying that the developmental capacity in this area should now be used more for technologies that are not yet available in the market. VW is obviously already in contact with suitable partners for cooperation in robot activities. VW's licensing agreement with General Electric in the United States will not be affected by these considerations. For about 2 years now, GE has been building and marketing VW robots under license for the U.S. market. /Text/ /Landsberg ROBOTER in German Mar 84 p 8/ 9746

CSO: 3698/475

## MICROELECTRONICS

### NETHERLANDS RELEASES REPORT ON STATE OF ELECTRONICS INDUSTRY

Rotterdam NRC HANDELSBLAD in Dutch 21 March 84 p 13

[Article "Electronics Industry Growing Fast"]

[Text] Rotterdam, 21 March. In the Netherlands, the microelectronics industry is growing very fast. In the last two years, one out of six firms has doubled its volume and a third of the microelectronics firms have increased their business by at least half.

These facts were presented in the report "Future of Applied Technology" presented this afternoon by the National Investment Bank (NIB).

Together with the centers for microelectronics in Eindhoven and Enschede, the Center for Integral Policy in Rotterdam and East-South Partners, Inc., an investment company owned by the textile firm Gamma Holding, the NIB commissioned an inventory of the Dutch microelectronics industry by SKIM industrial market research firm.

It was important for the NIB to gain a better understanding of the position, importance and development of this industry since it recently set up a separate branch to finance the microelectronics industry.

The study considered as part of the microelectronics industry all firms which either manufacture or use in their products chips (integrated circuits), modules, components or other products related to microelectronics.

Overall, the microelectronics industry as defined here includes a good 350 firms, of which many are subsidiaries of foreign firms, with an estimated total sales last year of 3.2 billion Dutch guilders and with about 15,200 employees. Only hardware firms were included in the study; software, engineering and information services were excluded.

According to the NIB report, the nucleus of the Dutch microelectronics industry is formed by 250 firms with fewer than 200 employees. In 1983, their sales volume amounted to over 1.2 billion Dutch guilders and they employed about 6000 persons.

#### New Jobs

In the last two years, these 250 microelectronics firms created 1243 new jobs. While the actual numbers are low, that was a huge increase proportionately, the report says. The number of jobs increased by about a fourth.

About a fourth of those new jobs are accounted for by new microelectronics firms. Overall, two out of three firms saw an increase in the number of employees.

According to the report, the idea that research and development is limited to firms with more than 200 employees is completely erroneous. In the 250 firms studied, 168,000 days were spent in research and development in 1983, corresponding to 750 man-years or 1.2% of the available employees.

Research at such firms is usually application oriented; almost half of it is conducted by persons with HTS [secondary-level technical school] training and only a fourth is done by persons with university-level studies.

Most microelectronics firms are started by graduates of the technical universities. Within a radius of 15 kilometers of the technical universities of Delft, Eindhoven and Enschede, the concentration of microelectronics firms is greater than elsewhere. Still, there is no real clustering of companies like that of the Silicon Valley in California.

#### Support

The clustering of firms around the technical universities is partially a result of the need for support. One out of three firms requires such support, particularly in technical, commercial and financial regards. Small (fewer than nine employees) and new firms especially want technical support, but also need financial support, either in setting up their financial administration and policy or in attracting venture capital and outside investors.

In design and production, extensive use is made of sophisticated equipment; for example, 41% use computer aided design equipment, 19% use computer aided management equipment, 39% use photolithographic machinery, 38% use logic analyzers and 67% use microprocessor development systems.

#### Market Orientation

The majority of the firms produce directly for the end user; only 10% of the firms reported making parts or partial assemblies. The industry is particularly oriented toward industrial measurement and control devices, since the microelectronics firms concentrate principally on the Dutch end user.

Other important applications are agriculture, medicine and security. The newest microelectronics firms are concentrating more on consumer products and flexible automation and robots.

The report warns, however, that most of these firms will have no future unless the Dutch microelectronics industry concentrates its efforts on a few specific and clearly defined applications and builds up a strong position in the market for these applications. They should not regard just the Netherlands as their home market, but all of Europe, or even the entire world.

Table 1

Number of Microelectronics Firms per 100 Industrial Firms	
Eindhoven and surroundings	1.4
Agglomeration of Twente	1.4
Delft and surroundings	2.4
Netherlands	1.0
Silicon Valley	7.7

Table 2

Several Important Characteristics of the Core of the Dutch Microelectronics Industry Compared to Dutch Industry Overall

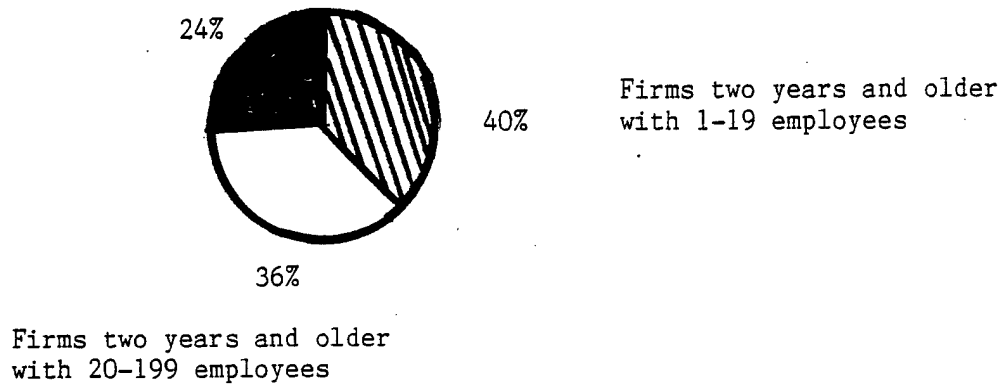
	Core of Dutch microelectronics industry	all industrial firms with fewer than 200 employees
a. Number of firms	250	25,300
b. Sales volume (in billions of guilders)	1.2	87.6
c. Number of employees	6,136	463,000
d. Sales per employee (in guilders)	195,000	189,200
e. Percent of firms less than 2 years old	20%	9.7%

Graph

New Jobs

The Core of the Dutch Microelectronics Industry  
Created 1243 Jobs in Two Years

New Firms



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## MICROELECTRONICS

### NETHERLANDS SIEMENS DIRECTOR ON 1982-83 PROFITS

Rijswijk PT AKTUEEL in Dutch 8 February 84 p 12

[Article "Higher Profits for Siemens Nederland"]

[Text] In the past year (fiscal year of the report October 1982-September 1983), Siemens Nederland achieved a somewhat higher net profit (5.8 million Dutch guilders vs. 4.4 million in the previous fiscal year) despite a slight decrease in sales (510.5 million Dutch guilders vs. 518.6 million). This was accompanied by a decrease in the number of employees; currently the firm still employs over 1800 people, 103 fewer than in 1982. General Director Henny appears optimistic for the coming year: he believes that Siemens Nederland will be affected by the economic recovery in the Netherlands and West Germany; an increase in sales to at least 550 million Dutch guilders should be possible, according to Henny.

The good prospects are to a great extent due to expectations that the energy market will expand. Henny was pleased to note that energy consumption in the Netherlands had increased in the past year. That is a boon to Siemens; among other things, the firm is active in the market for energy plants. By 1990 a number of plants will be due for replacement; Henny expects that several (three) nuclear plants will be built as replacements, since they would have a positive effect on electric rates and thus would strengthen the competitiveness of Dutch industry. In the coming year the firm expects to be able to cull an extra 25 million guilders in orders in the field of energy. In the field of medical technology, things are more difficult for Siemens; cutbacks and large-scale introduction of budget systems in hospital management have resulted in a tight market.

Government and semi-government continue to be good customers for the firm. About 50% of the sales come from them. Siemens managers did not appear to be very upset about the exclusion of Siemens Nederland from the digitalization of the Dutch telephone network. The nominee for general director, Ir [doctor of engineering] Thierry said: "You have to be able to be a good loser." According to Henny, the reason that Siemens was passed up in this matter was not that Siemens technology was inadequate, but that Siemens equipment turned out to be too expensive for the PTT [Netherlands postal, telephone and telegraph service]. Incidentally, in the Federal Republic of Germany things are not happening as Siemens is accustomed either; instead of enjoying a monopoly, the parent firm now has to share the digitalization of the German telephone network with ITT. In contrast to digitalization, relations with the PTT regarding car telephones were more productive; the government firm has placed an order for supplying 2500 transceiver sets by the end of 1985, a consolation prize as it were.

## Reductions completed

Henny has great expectations from Siemens Data BV (computer systems), which is directly associated with the German parent company. Last year total sales of over 100 million Dutch guilders were reached for the first time; furthermore, the prospects are very encouraging in light of the parent firm's large five year investment program (30 billion German marks) announced last week.

The increased profits in times of stagnation are principally due to stringent control of costs, according to Henny; furthermore, 103 employees contributed indirectly to the improved results by early retirement or firing. In the first quarter of the current fiscal year, another 60 employees had to leave the firm prematurely, which reduced the total personnel to close to 1800. According to Henny, reductions are now complete; in fact, in some areas an increase in personnel is being considered. For instance, the firm could employ about 20 qualified electrical technicians and automation salesmen immediately, but, according to Henny, such people are almost impossible to find in our country.

At the presentation of the annual report, Doctor Henny introduced his successor to the press. On 1 October Engineer J. Thierry, currently a member of the board of directors and in charge of the energy sector, will take over from Henny. Thierry has worked for Siemens since 1970; before that he was employed by the American firm NCR, among others.

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CSO: 3698/343

## MICROELECTRONICS

### SWISS FOUND 'SILICON VALLEY' IN NEUCHATEL

Zuerich NEUE ZUERCHER ZEITUNG in German 15 Jun 84 p 25

/Article: "Neuchatel--Main Center for Research. The Founding of a Center for Electronics and Microcircuitry:" words or passages enclosed in slantlines printed in italics

/Text/ Neuchatel, May--Neuchatel has made a bold wager on the future: the canton is to become a "Swiss Silicon Valley" in the next few years. The authorities were led to adopt these goals both by present developments (see NEUE ZUERCHER ZEITUNG, No 125) and by their desire to play the available aces. Based on what is already there, they undertook to set up a large electronics center in Neuchatel. A first phase will be completed in June when the CSEM /Swiss Center for Electronics and Microcircuitry/ is officially inaugurated.

### No Evading the New Engineering

Because of its varied possible applications, electronics penetrates all areas of life--not only industrial production but all of our professional and everyday activities. Doubtless this triumphal march is due to the fact that microelectronics increases technical and intellectual /productivity/, with increased /dependability/ all the while. What is most remarkable in this technological revolution (and what gives one the most food for thought) is the speed of its progress. No limits appear to have been set so far to the capacity of microelectronics, as far as speed, dependability, and low space and energy requirements are concerned.

Thus, Switzerland is asking itself the vital question: "To be involved or not to be involved, with or without microelectronics?" Alfred Hartmann, president of CSEM, gives this unequivocal reply: "If our industry is to survive, and if Switzerland is to keep its economic rank, the question for us is merely how microelectronics can be integrated as rapidly as possible into our industry, our entire economy, and our schools." Actually, this is no longer the time to look for excuses. Like most European countries, Switzerland is lagging in research and development, as well as in application of the new technologies. Therefore, an appropriate effort should be made to reduce this increasing lag.

## Existing Potential

Thus was the idea born of creating a /scientific center for the new technologies/, for electronics and microcircuitry. Why in Neuchatel? Perhaps because the cantonal authorities staked bets on this possibility earlier than others and pushed the matter ahead: doubtless, because the tradition of precision technology goes back a long time in this canton which long was a synonym for the watchmaker's art; and surely for the reason that three important research institutes were already in existence and last year decided to combine their laboratories.

As early as 1924 the LSRH /Swiss Laboratory for Watchmaking Research/ was founded in Neuchatel. At first it served only the watch industry, but gradually its activity became more varied. Today, about 60 persons are working there in various areas such as surface treatment (with applications in since engineering), tribology (the solution of friction and lubrication problems), chemical and physical analysis, mechanics and microcircuitry. Furthermore, LSRH produces and sells a whole range of laboratory measuring instruments.

Since the first halting steps in electronics, the Swiss watch industry has been concerned with the broad possibilities which can be opened up by this new technology. This is proved by the fact that as early as 1962 CEH /Electronic Watchmaking Center/ was founded in Neuchatel. This grew rapidly and today has approximately 100 employees. "Those who have, will receive" is the saying. Is it for this reason that many Swiss believe that the /electronic quartz watch/ was invented by the Japanese? Or is it modesty or even ignorance? In fact and truth, the prototype of the electronic watch was developed and patent applied for by the CEH. What happened then--the cumulative delay in becoming aware of the significance of this invention and then the /marketing/ of the finished product--is written on another page, no longer that of CEH.

The third wing of this scientific triptych, FSRM /Swiss Foundation for Research in Microcircuitry/, is not the least important but is decidedly the youngest element. The foundation was created in 1978 at Neuchatel as the place of cooperative work in the electronic technologies--cooperative work between Federal Government, industry and universities. Among the first members are the Federal Government, 11 cantons, three cities, the PTT /Posts, Telegraph and Telephones/ several professional associations and two dozen private industrial enterprises.

## Synergy of the Three Institutes

Thanks to the fusion of research places and the combining of forces by LSRH, CEH and FSRM, the Swiss Center for Electronics and Microcircuitry will attain the "critical mass" of /150 employees/, which will allow it to do effective research work. Its activity will concentrate on four areas: microelectronics, electronic optics (application of light instead of electricity and glass fibers instead of metallic conductors),

micromechanics, and the interfacing (the switching positions for the transformation of physical quantities such as temperature, pressure, stress, speed, etc., into electronic signals).

#### Parliament Considers Federal Assistance

This ambitious program is not possible without the support of the Federal Government. CSEM will on the one hand do basic research and on the other hand be concerned with the application of results to industrial projects. The first task, supplemented by that of training, has to be done in close cooperation with the universities. We are dealing here with public activities, which for this reason are to be financed by the Federal Government. An initial loan of Fr 42.2 million for the years 1984 to 1987 was granted in May by the Upper Chamber of Parliament, as well as the sum of Fr 12.5 million for the purchase of the buildings in which CSEM is housed. The National Council will consider the business aspect during the June session. However, CSEM does not count only on public funds to carry on its various tasks satisfactorily. Even today, orders by private industry cover more than 50 percent of its budget--an encouraging sign of viability.

It is still too early to be able to say that Neuchatel will soon be the "Swiss Silicon Valley." What is to be stressed, nevertheless, is that everything has been done to attract new industrial enterprises--and particularly the fact that this is intended to be a reference center for advanced technologies. The starting positions are occupied; the game will be decisive for our country.

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## MICROELECTRONICS

### PHILIPS JOINS SIEMENS IN SUBMICRON DEVELOPMENT PROJECT

#### Project Outlined

Rotterdam NRC HANDELSBLAD in Dutch 20 Jun 84 pp 1, 11

[Report by Dick Wittenberg and Paul Friese: "Philips and Siemens Together Develop New Generation of Chips"]

[Text] Eindhoven, 20 Jun--Philips and the German Siemens have advanced plans for cooperation in the area of sub-micron chip technology. It involves the development of a new generation of memories.

Philips and Siemens have asked the governments of the Netherlands and the Federal Republic of Germany for financial support. According to a spokesman of the German Department for Research and Technology, the cooperation--which will be spread over a number of years-- will require an amount of approximately 700 million German marks, almost 800 million guilders.

That money will be used for expansion of the development facilities in Eindhoven and Munchen and for the recruiting of especially highly trained personnel. It has not been determined yet how the costs will be divided between the two countries, the spokesman of the German government said. Negotiations are still continuing on that. A definitive decision in Bonn depends on a preliminary study which, according to the spokesman, will be completed within a few months.

Drs H. Leliveld, general director of the industry, says that the Dutch government will free funds next year--over 100 million guilders--for the German-Dutch project. The draft memorandum on the 1985 budget states that the joint development program of Philips and Siemens "will have far-reaching consequences for the image of worldwide microelectronics and for Europe's role." It also refers to "the important dispersion effects." In an explanation, Leliveld calls the joining of forces "a good example of what is possible in Europe also."

Philips is not giving much comment on the possible cooperation as long as the preparation and financing have not been completed. An official statement only says that "Philips is studying the possibility of expanding its research

and development activities in the area of integrated circuits. In this framework, thought is being given to establishing in the complex of the physics laboratory in Eindhoven an advanced center for basic and applied research in the area of new IC-technologies, according to the communique.

A Philips spokesman acknowledges that discussions are taking place with Siemens. The spokesman of the German electronics firm is more communicative. He says that the two companies have already agreed on the distribution of work. Siemens will concentrate on dynamic memories and Philips is going to concentrate on static memories. The difference between the two kinds is in the electric behavior of the chips.

In Siemens' opinion, the most important argument in favor of joining forces is that "both companies will achieve their objectives faster and at lower costs in that manner." According to the German spokesman the project will gain "additional weight through the support of two national governments."

Administrator A. van der Veen of the Industrial Federation FNV [Netherlands Trade Unions Federation] calls the cooperation "of great importance for the Netherlands and Europe."

According to Van der Veen direct work opportunities will remain limited.

#### Backgrounds, Previous Activities

Rotterdam NRC HANDELSBLAD IN DUTCH 20 Jun 84 p 11

[Report by Dick Wittenberg: "Philips and Siemens Complement Each Other"]

[Text] Eindhoven, 20 Jun--Philips and Siemens have found each other in the development of a new generation of memories. For outsiders this is an almost obvious alliance. Philips is by far the largest producer of integrated circuits in Europe with annual sales of 1.9 billion guilders. Siemens, with sales of about 500 million German marks is unmistakably number two.

Both firms will benefit greatly by strengthening their positions in the area of microelectronics. It is, after all, a growth market. In the coming years the sales of chips will continue to increase on the average by at least 25 percent. What is much more important, however, is the strategic significance of the IC industry.

Engineer F. Rauwenhoff, chairman of the central board of directors of the Dutch Philips companies emphatically said last year at the opening of a new production hall for chips in Nijmegen: "Growing along with the rapid developments of the IC technology and especially being alert in exploiting opportunities, in particular through finding microelectronics applications, are aspects which these days are decisive for the competitive strength of very many branches of industry."

In other words: Electronic firms which can't keep up in the IC area will, because of that, perhaps also experience an unsurmountable lagging behind in other areas. Keeping up is a matter of survival.

Seen in that light, the share of the European industry in the world production of chips continues to be distressing. According to G Jeelof, a member of the board of directors of Philips, in a speech in London today, American companies take 63 percent of the total sales for their account. The Japanese seize 25 percent, European firms have to be satisfied with the remaining 12 percent.

Actually, Philips is the only European concern which still is able to play a prominent role in the struggle of the giants. Last year the Dutch multinational achieved seventh place in the top ten of IC manufacturers, next to companies such as Texas Instruments, Motorola, National Semiconductor, Intel and AMD, all established in the United States, and next to the Japanese competitors NEC, Hitachi, Fujitsu and Toshiba. Top Philips man Rauwenhoff stated already earlier that Philips can keep up with the race only if the rapidly increasing development costs can be decreased and if the concern succeeds in shortening the development period.

"We see cooperation with colleague manufacturers as an efficient and practical solution," Rauwenhoff said on that occasion. "Then you can supplement the products packet rapidly and, moreover, arrive at a form of standardization together."

Philips already has cooperation agreements with the American companies Intel, Motorola and RCA in the area of the so-called MOS-IC's. Those are especially advanced types of circuits which process more information and use less energy. With Intel and Motorola it is a matter of joining forces in the area of, respectively, 8-bit microcomputers and 16-bit microprocessors. With RCA, Philips is involved in developing a new series of very fast C-MOS building blocks.

#### Experiment

Philips and Siemens joined hands at the end of 1982 in the area of basic research, a matter of experimental cooperation on an extremely modest scale. A total of 50 researchers from the two companies are engaged in subjects such as: new semiconductor materials, computer aided design, speech recognition by computers, but also submicron technology.

In addition Philips and Siemens are discussing cooperation in the framework of the ESPRIT project, the development program of the European Community in the area of information technology.

Philips discerned the importance of integrated circuits only very late. It held on to the old, trusted transistor until far into the sixties. Afterward the Dutch concern, of necessity, started with a drastic catch-up operation which led, amongst other things, to the purchase of the American Signetics company. According to Dr. A. Pannenberg, former member of the board of directors and responsible for research and development, Philips succeeded only a few years ago in completely annihilating that gap.

Because the electronics industry in the United States is primarily aimed at the professional market, Philips has concentrated the technological knowledge of chips for industrial applications in that country. The development of integrated circuits for consumer electronics is primarily done in Europe. According to Philips, in that manner one can profit most from the interaction between research capacity and industries processing IC's.

The greatest part of the research for IC's is carried out in the physics laboratory of Philips in Eindhoven. In addition, the company has an annex in Silicon Valley. Of Philips' total production of chips, 40 percent comes from Europe; the largest IC factory in Europe is by far the Philips establishment in Nijmegen. About 2,200 people work there, and during the course of this year another 275 employees will be hired. Philips also makes integrated circuits in Hamburg, Southampton, Zurich and Caen.

In 1982 the Eindhoven concern spent over 200 million guilders on the area of IC's, about 7 percent of the total budget available to Philips for research and development. Siemens has chip factories in Munich and in the Austrian Villach. In addition it is establishing a new firm in Regensburg.

The two concerns are not too different with respect to size. Last year Philips booked a net profit of 775 million guilders with sales of over 46 billion. In the fiscal year 1982/83 Siemens could boast a net profit of 351 million German marks and sales 39.5 billion marks. Both companies annually spend over 3 billion guilders on research and development. Philips has about 343,000 employees; Siemens has 313,000.

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## SCIENTIFIC AND INDUSTRIAL POLICY

### PHILIPS OF NETHERLANDS TO EXPAND SCIENCE, INDUSTRY BRANCH

Rotterdam NRC HANDELSBLAD in Dutch 14 Jun 84 p 11

[Report: "Philips Expands Division With 200 People"]

[Text] Eindhoven, 14 Jun--Philips will expand its personnel complement in the Science & Industry (S&I) product division still this year by 200 people. At present this company division has about 2000 employees spread over establishments in Eindhoven, Enschede and Almelo.

S&I makes products and systems for scientific research and industrial applications. For the first time in many years, the Dutch personnel complement of Philips will not decrease in 1984. During the past years the number of employees annually decreased by an average of 3000 people. With its 70,000 employees, Philips continues to be the largest private employer in the Netherlands.

According to a Philips spokesman, the expansion at S&I is necessary because the volume of orders has greatly increased since the end of last year. That increasing demand is related to the economic revival as well as to the improved cost structure of the product division.

Therefore Philips' position with respect to its mayor competitors in the United States and Japan has greatly improved, according to the spokesman. S&I has gone through a number of difficult years during which there was great pressure for results.

During that period the number of employees was gradually cut back.

Happy

The trade unions are particularly happy with the personnel expansion. However, D.J. Koehoorn of the CNV [National Federation of Christian Workers in the Netherlands] Industry and Food Union finds it absurd that some product divisions are dismissing older employees while other divisions of industry are recruiting personnel instead.

According to the company spokesman that is a "matter of give and take."

"In certain groups of employers there is an excess while in other personnel categories there is a great shortage. Retraining is not always possible."

S&I has a great need for, amongst others, software specialists and marketing people. The Science & Industry product division is extremely active.

Last year Philips S&I and Advanced Semiconductor Materials International in Bilthoven announced that they would establish a joint venture in Eindhoven. This new enterprise would concentrate on the development, manufacture and sale of machinery for the production of chips.

Meanwhile several dozens of S&I employees have transferred to the new company. Ultimately the joint venture is to offer work to approximately 200 people. S&I is also in discussion with the Japanese company Akashi Seisakusho about cooperation in the area of electron microscopes. Furthermore, one is working on the joining together of the product divisions of S&I and Elal (TV studios and safety systems). That concentration of forces should lead to a more efficient market approach and optimum cooperation in the technological area.

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## SCIENTIFIC AND INDUSTRIAL POLICY

### BRIEFS

FRG RESEARCH REPORT--On 30 May the Federal Government issued "Federal Research Report VII," submitted by the Federal Minister for Research. Like its predecessors (the most recent one was dated 1979), it gives a broad view of research activities and institutes, and of their financing. The government underlines the essential features of its "new policy" as: Endorsement of freedom of research; state support of R & D in the economy, as a matter of principle; affirmation of technical progress; recognition of achievement and challenge to achieve first-rate performance. Evaluation of the consequences of technology is to facilitate engineering and reduce possible drawbacks. Priority in state support is to be given to information engineering, biotechnology, materials research, environmental research and engineering, meteorological research, coal research, as well as space research and engineering. Research support in the areas of nuclear energy and primary raw materials, as well as in parts of transportation technology, is to be reduced. Of the DM 47 billion of R & D expenditures in 1983, private enterprise came up with 56 percent. The growth rate of federal funds, at 2.4 percent annually, will be only half as much as in the last 5 years. For the first time the report includes a detailed presentation of the research and technology policy of the laender of the FRG.

/Text/ /Duesseldorf VDI NACHRICHTEN in German 1 Jun 84 p 1/ 5586

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