

[pp 38-40: Article from DIE ZEIT, 30 November 1984, by Thomas von Randow]

Bildschirmtext: A Blow Against the System

A Computer Club Discovers Breaches of Security in the Bundespost's BTX Program

"Whoever hooks up to the BTX system in the next two to three years should be punished for stupidity." This withering assessment of the Bundespost's new service, Bildschirmtext, could be heard last week at the eighth conference of data protection specialists in Cologne--from an authoritative source. It was spoken by the chairman of the Association for Data Protection (GDD), the conference host, after he heard the comments of a computer enthusiast. With wit and a relaxed patter, Herwart ("Wau") Holland of Hamburg's "Chaos Computer Club" (CCC) explained how he and his 23-year-old fellow club member, Steffen Wernöry, had managed to take the Bildschirmtext service for a ride.

It is easier to get a winning six-digit combination in the lottery than to illegally acquire the password of a BTX subscriber, Bildschirmtext experts at the Bundespost had boasted. But that is exactly what the computer chaotics did straight away. An error, in professional circles called a bug, in the system's computer program made it as simple as child's play for the hackers. Many Bildschirmtext users had already noticed that there was something wrong with the program.

Suppliers compose full-screen images with information about what they have to offer--merchandise from the mail-order catalogue, vacations, account statements for bank customers, or simply letters to friends. These "pages" can then be called in by (authorized) BTX subscribers, and responses to the relevant questions--concerning a flight booking or a money transfer, for example--can be input at home on the keyboard of the BTX auxiliary unit.

However, space on a television screen is limited, and the BTX page can hold only 1,626 characters. So that the designer knows during editing how many characters he has left on the page, this number is indicated at the bottom edge of the screen. Until recently, however, this number was wrong--programmers are notoriously poor at mental arithmetic. The page was full before the number of available characters reached zero. For this reason, many suppliers experienced a chaotic overflow of characters, something that should not happen.

Suddenly, all sorts of words, numbers or incomprehensible letter sequences flit by on the screen. The reason for this character salad: The creators of the BTX program apparently forgot to take care of "trash disposal," i.e., to see to it that excess text be ignored by the program or somehow set aside. For that reason, the excess characters force parts of the program writer onto the screen, and they are, as the Hamburg hackers discovered, sometimes telling. Specifically, they sometimes reveal the very secret that a BTX subscriber must guard most closely, his identification code. This password is the key to access to the system. Although it cannot be used to plunder someone else's bank account, it is possible to cause a great deal of mischief. Merchandise can be ordered, vacations can be booked, magazine subscriptions can be entered. By agreement, the legal holder of the security code is liable for all damage thus incurred.

Steffen Wernöry and his colleagues--the club is a registered subscriber--caused masses of BTX pages to overflow and then studied the ghostly characters on the screen. In so doing, they discovered "usd 70000," the password for Hamburger Sparkasse (Haspa). Now they were able to carry out what they had been planning for some time: an impressive demonstration of the inadequacies of Bildschirmtext. They set up a "contribution page." Suppliers may charge a

type of protection fee or contribution for each call-in of their pages, although this fee cannot exceed DM 9.99. The account of the subscriber who calls in the page is automatically charged with the fee. With the Sparkasse password, the hackers now called in their own page--to the tune of DM 9.97.

The idea was for this to occur repeatedly, which is why a home computer was programmed to automatically call in the page over and over again. It did its job well, and while the club members worked on other activities, the cash register rang every three seconds. From Saturday at 6:00 p.m. until Sunday at 1:00 p.m., a total of DM 135,000 was credited to the club's account, money which they gladly returned to Haspa.

Long before computers were popular, American students dubbed a type of trick using technology a "hack." Legendary is the hack of Captain Crunch, a student who took his name from a brand of breakfast cereal. Inside the box of this type of cereal was a small plastic whistle, that was coincidentally tuned to exactly 2,600 hertz. In the American telephone system, as Captain Crunch discovered, this frequency, when whistled into the microphone of the telephone receiver, caused a breakdown in the fee meter.

Word of the trick with free long-distance calls soon spread; it made the cereal company rich and the telephone company poor. Or at any rate, it was in a difficult bind. A decision had to be made between accepting the loss, the amount of which was difficult to determine, and undertaking expensive technical changes in the continental network. Bell decided in favor of the second option.

This type of blow against a computer system represents a wonderful triumph that goes far beyond the financial advantage associated with it; it is a liberating blow, which frees us for a few moments from the dominance of technology. In the 1930s, small-plot gardeners in Hamburg illuminated their houses free of charge. The supplier of electricity was the nearby antenna of a strong radio broadcaster, from which energy was diverted using a simple trap circuit to the lamps. For years, this hack went undetected--and once it was finally blown open, it elicited a fundamental legal debate: Are radio waves movable property under the meaning of the law?

The trickster who thought up the hack with the first push-button pay phone by SEL just 10 years ago remained anonymous. For this, he used a piezoelectric lighter. Whoever wanted to make a free phone call simply went to a telephone booth with the SEL phone, inserted a five-mark piece and called his party. But before all the money was used up, the lighter had to be struck near the key pad. The spark from the lighter significantly disturbed the electronics and the phone was then forced to assume that the connection had not been made, and thus--in dubio pro comparticipate--the five-mark piece was returned. In all pay phones of that type, the logic boards had to be replaced.

For the victim, the hack is not only annoying, it is generally an educational experience as well, revealing technical design flaws. Naturally, as the degree of complexity of the system increases, so does the potential for damage that can be inflicted even with the first hack. Thus, it is a wonder that the games played by BTX hackers have thus far been harmless. After all, they revealed the wretchedness of the Bildschirmtext design with a degree of clarity that leaves nothing to be desired.

In BTX's country of origin, Great Britain, hackers made a game out of cracking Prince Philip's electronic mailbox. The BTX mailboxes are definitely oddly constructed. Bildschirmtext letters that have already been mailed can be rewritten later by the sender. Any mailbox can even be rendered fully

inoperative. In order to do so, all that is required--as the Hamburg Chaos hackers also discovered--is that the command to repeat the entire call-in be placed at the end of a page edit. The page drawn up in this way then appears repeatedly. It also does so in the mailbox to which it is sent, the result being that nothing else can be retrieved from it. Only the Bundespost knows how to break up this vicious cycle.

A microcomputer can also be connected to the Bildschirmtext system. But pity the poor soul who uses it to call in a crash program specialized for his type of machine. That will cause the computer to crash, destroying the programs loaded in its memory. The only thing that can be done then is to reboot. The destructive program is offered as a harmless Bildschirmtext page. Advanced hackers have even set them up as time bombs. It is only later, once the page--generally headed with silly sayings--is long forgotten that the machine breaks down, so that generally the cause can no longer be determined.

The Bundespost should have learned its lesson long ago, before its pride and joy, Bildschirmtext, was dealt a resounding blow last week by the Sparkasse trick. The piecemeal adjustments that they undertook in the past after every announced BTX hack were apparently inadequate. A program that needs so much clearing up is hopelessly contaminated.

Naturally, the Bundespost knows this, and it grieves them in particular because BTX had just overcome the last political hurdle on the path to being universally introduced. It also hurts since there is already a dearth of interest in the new medium of communication. According to predictions by the Ministry, BTX should have around 150,000 subscribers by now. In reality, that figure is only a scant 19,000, of which 3,000 are suppliers.

It is questionable whether the Bundespost will be able to compensate for its losses from IBM, who set up the system. "Big Blue" will scarcely be able to get out of supplying a new computer program. And that could take two to three years, which is the time that Reinhard Vossbein meant when he declared anyone who subscribes to Bildschirmtext during that period guilty of stupidity.

[p 40: Unattributed text]

MSG by GAST
20 November 1984, 5:10 a.m.

MICKI is thinking about the CCC's BTX gag (bravo, by the way...), and reaches the following conclusion:

The more securely a system is protected against unauthorized access, the more unauthorized the people who can uncover weaknesses must be. Ultimately, you have a system to which only the unauthorized have access...

In this regard: Keep on doing it!

[p 40: Unattributed text of computer program]

```
10 REM bankrob.ba
20 REM Version 1.00
30 REM (c) 1984 by Wau
40 MOTOR OFF: 'Relay for money key
100 CLS:PRINT"Bankrob.ba -Restart procedure"
110 INPUT "Prior money received: ";MONEY
120 IN=52:'Time value key on
130 OUT=169:'Time value key off
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150 CLS:PRINT#0,"DM ";MONEY,"in: ";IN;" out: ";OUT;
160 PRINT#90,"o<<<< out >>>> 0"
170 PRINT#130,"i<<<< in >>>> I"
180 PRINT#170,"Stop with x      "
190 PRINT#210,TIME$;:GOTO 1100
200 REM Rhomboid loop
210 MOTOR ON:PRINT#40,"IN":PRINT#40,TIME$:FOR I=1 TO IN:GOSUB 1000:NEXT I
220 MOTOR OFF:PRINT#40,"OUT":FOR I=1 TO IN:GOSUB 1000:NEXT I
230 MOTOR ON:PRINT#40,"IN":FOR I=1 TO IN:GOSUB 1000:NEXT I
240 MOTOR OFF:PRINT#40,"OUT":FOR I=1 TO OUT:GOSUB 1000:NEXT I
250 MONEY=MONEY+9.97:PRINT#0,"DM ";MONEY,"In: ";IN;" Out: ";OUT;
260 GOTO200
1000 REM Speed
1010 X$=INKEY$:IF X$="" THEN RETURN
1020 IF X$="o"THEN OUT=OUT-1:RETURN
1030 IF X$="O"THEN OUT=OUT+1:RETURN
1040 IF X$="i"THEN IN=IN-1:RETURN
1050 IF X$="I"THEN IN=IN+1:RETURN
1060 IF X$<>"x" THEN RETURN
1100 PRINT#170,"Continue with x      "
1110 MOTOR OFF:PRINT#40,"OUT"
1120 X$=INKEY$:IF X$="x" THEN 1150 ELSE 1120
1150 PRINT#170,"Stop with x      ";GOTO 200

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[pp 41-42: Article by "Wau," from TAZ, 22 November 1984]

How the Hamburger Sparkasse BTX Code Was Cracked

Bildschirmtext Tested for Weaknesses

Ever since the coup by the Chaos Computer Club in Hamburg, who used a bug in the Bildschirmtext system to charge fees of DM 135,000 to Hamburger Sparkasse, Bildschirmtext, or BTX, has been a topic of discussion, and the chaotics from the Chaos Club have made headlines.

Bildschirmtext is a big joke being played on consumers. For more than seven years, "field tests" were run in Berlin and Düsseldorf. From the very beginning, it was obvious that the system would be introduced following the field tests, regardless of the results of the "tests." The political objective made immense investments possible, thus making it simply impossible to abandon the system. After the "test," the test subscribers could throw away their equipment, since in the meantime it had become technically obsolete. The Bundespost paid for the technical conversion, giving all the subscribers a 1,000-mark credit, financed by the coins spent on pay telephone calls. Nevertheless, around one in six refused this attractive offer and terminated BTX service. The Bundespost predicted 150,000 subscribers by the end of 1984. It was actually a scant 20,000, which includes many who are not active subscribers. In the meantime, the Bundespost has stopped making its own predictions, instead spending a couple of million on programs that are supposed to provide better prognoses.

The Bundespost has invested more than DM 700 million in BTX. If you compare this to subsidies for opera houses, then the Bundespost has built a 35,000-mark box for each subscriber. The only problem is that the opera program is still rather monotonous.

IBM is the supplier of the computer and of the programs for the current system. They had high hopes about their deal, and wanted to sell their system to a number of countries. After all, approximately 100 people worked on programming

for around two years. If you spend DM 20,000 a month for one of these specialists, that makes DM 50 million. A succession of several executives was in charge of the project. There were only a few "minor details" to be improved in the program, and with programs the smaller the correction, the more time they take.

Chaos Team Becomes BTX Supplier

In the fall of 1984, after long debate, the Chaos Computer Club decided to subscribe to BTX. Naturally as a "supplier," since being a subscriber is not interesting. They started with the least expensive equipment, which was technically refurbished. Still, the first months were torturous. The prevailing mood with home computers is well-known: "Turn it on--it doesn't work." But with the Bundespost, everyone expects that everything will work fine. It is only rarely that you get mail from the Bundespost saying, "Because of work on the system, few telephone calls will be possible on the weekend." With Bildschirmtext, hardly anything worked. Even an accent on a letter in a person's name caused unexpected developments (and this in a "European" system). In terms of computerization, changing names with accepts is offered up as a subversive strategy. Moreover, the blocking and unblocking of pages did not work. Blocked pages were legible, unblocked ones were not. The Bundespost told people who complained that they were doing something wrong. Blocked pages are something like the closed doors in an Advent calendar. On the first of December, the first door is opened (in BTX: unblocked), on the second the second door, and so on. The Bundespost has a Christmas calendar game of chance in Bildschirmtext. Every day, new letters behind a door can be seen, and on 24 December, there is a complete sentence (Season's Greetings from the Bundespost). But without any coercion, all the doors flew open on the first of the month. Either someone at the Bundespost typed something wrong, or the system has yet another small bug. The Chaos Computer Club (CCC) first got wind of this on 12 December, and sent in the complete solution, the prize being telephone credits. It is interesting how many subscribers sent in the solution before the CCC. Does the Bundespost perhaps believe here as well that some chaotics sneaked into the Bundespost to find the solution?

However, a major problem with BTX is composing pages. The CCC does a type of electronic newspaper, which is published irregularly. Once a new article has been written and is supposed to be loaded into the system, all eyes focus on the lowest line, waiting for the message "ED007 EXECUTION NOT POSSIBLE AT PRESENT" or otherwise "Won't work right now."

In order to penetrate the BTX system, all you need is the connection code. Every subscriber has a different 12-digit number. This access authorization is generally sent by pressing one key. This is practical and reasonably safe. You can imagine it as a nine-digit padlock (the first three numbers are generally zero) on your bicycle shed. Secondly, there is a personal code word. This is comparable to a padlock on the bicycle itself. And you can also put your bicycle in a communal shed. In BTX, this is called a "free-access connection." In that case, anyone can go into the communal shed and, if he knows the number of a particular bicycle lock, he can move about in BTX and take a look at things. A lot of it is free of charge, but some information or offerings cost money. Springer-Verlag reports cost 1 pfennig, FRANKFURTER ALLGEMEINE ZEITUNG reports cost 2 pfennigs, and the owner of the bicycle pays for this, not the cyclist.

Test of BTX Weaknesses

At some point, discussion at CCC came back to BTX and the policy of the Bundespost to simply ignore or deny the risks of BTX. The question arose of

whether this was intentional or just stupid. A test was decided on. Who would be the guinea pig? The Bundespost Ministry in Bonn? A single quote suffices here: BTX is allegedly secure because it is difficult to tap into the telephone lines in this country, since they are all underground.

The BTX control facility in Ulm is not that interesting as a test object. It tries to keep the system running. And the Berlin office of BTX is responsible for calming down postal customers when something goes wrong. The Central Telecommunications Office (FTZ) in Darmstadt is the site where technical plans and standards are drawn up. There one might expect to find the practical technicians who worked out the security system. Those are the right people for a test of BTX weaknesses. Without giving it much more thought, the BTX connection of the FTZ was tested one day by the CCC: Do they or do they not have free access? In order to find out, their subscriber number had to first be entered: 06151 83. That is the telephone number for the FTZ. Then there is the prompt for the code word. At this point, you can type in anything and tell from the subsequent error message whether the FTZ has a free-access connection or not. The CCC typed something in, the same telephone number again. The FTZ was careless: There was free access. But even worse, the FTZ had chosen its own telephone number as its secret code word. That is clearly more careless than one would have expected, certainly from Bundespost specialists.

A record is kept by the Hamburg data protection commissioner of who worked on Bildschirmtext when. Since the BTX reports when someone was last "on," an "outside use" can often be detected in this way. But scarcely anyone keeps a record of it; it is too tedious. At any rate, the FTZ did not notice the "outside use" by the CCC. This cleared up the question: The Bundespost was not withholding and/or providing false information about BTX out of stupidity.

The CCC considered what it should do now. The most obvious thing was of course to get money from the Bundespost. In order to do so, a page for which a fee is charged must be called in by another BTX subscriber. And that can be repeated any number of times. The highest price per page is currently DM 9.99. With 1-pfennig pages from Axel Springer, the CCC tested, at its own expense, how fast money can be collected using that method. In non-automatic operation, it worked out to around DM 10 an hour. For the CCC page, at DM 9.97, this would be DM 10,000 an hour. So you could really get something over night. These fees are charged on the telephone bill--in this case, the FTZ's telephone bill --and transferred to the suppliers a couple of weeks later. Right now, it is not working again, the Bundespost has another bug in the program, and it hopes to be able to pay the fees in February. In principle, however, the money is being recorded.

Getting the money would be phase one. What then? Should we sell this breach of security to the Bundespost? We could, as is normal in industry, "hack" DM 100,000 or more and then sell the Bundespost consultation on this problem for a certain percentage of the money. Or get free, lifetime telephone service for the CCC or something like that. The Bundespost had to pay for its gross negligence.

In both cases, however, the price would have been silence. Otherwise, the concentrated rage of the postal authorities would have been forthcoming. Consequently, perhaps half a dozen officials would have tried to do something to the CCC.

But the CCC wanted enlightenment about the risks of this new system. To this end, the finance transaction had to be made public. Fine, but who should push the starting button for the money transfer? After all, it is an infringement

like a parking ticket, although more expensive: a DM 50,000 fine. Will the data protection commissioner do it? He probably would have taken advantage of the opportunity and attempted to achieve an improvement by official means.

A politician? Perhaps. But what if he leaks the story? There remained only one option: Do it ourselves, and abrogate our criminal liability by going public with it. A week later, the attempt failed, since the FTZ had in the meantime closed off free access to its connection.

Hackers as Data Protection Specialists

Several weeks later, Wau gave a presentation at a conference of data protection specialists in Cologne: BTX--El Dorado for Hackers. Cologne was a sea of pin-stripes, and Wau looked like a parrot in the midst of it all. Despite their initial distance, the audience was impressed by his presentation. Only the representative of the Bundespost felt that he was hitting below the belt, and that he did not intend to address those issues. That was dismissed with laughter, since the presentation depicted a series of program bugs drastically and in three dimensions. There is a bug in the sending of electronic mail. The sender can still change the contents after the letter has arrived. You can send a business partner a bid for, say, DM 2,300 and then later change the price, either raising it or lowering it. Another bug means that under certain circumstances the BTX system spits out internal system information. With a little luck, connection code words and secret passwords can be detected in this way. "Nonsense," said the Bundespost representative. And to the offer of cooperation came only the response, "First you have to get serious." It is unclear whether the CCC succeeded in doing so. At the very least, the BTX system finally spit out the connection code word and secret password of the Hamburger Sparkasse after a number of tries with the well-known system bug. Thus, it became possible to carry out the presentation planned for the FTZ with the Sparkasse instead.

Almost everything went as planned. Over night, in 12 hours and 59 minutes, a good DM 134,000 was raised. With a portable computer, a meeting of two dozen people from all over West Germany then took place in Berlin. We then decided to keep in touch and exchange experiences. The idea was simply to put together a magazine, but at that point it was all too vague, and it didn't come off. Next, contacts with the United States were established, with Cheshire Catalyst (the "king" of U.S. hackers, Ed.) and with his magazine TAP, which a bunch of people here in West Germany already knew about and subscribed to. At the Telecom in the fall of 1983, I met him personally and wrote a two-page article about him in a daily newspaper. And this two-page article elicited a great deal of response. By the end of the year, things had progressed far enough to set up a magazine. Previously, the idea was to exchange all information by floppy disk, but everything was incompatible, and it had no purpose. The magazine was announced around the beginning of the year, and we received 100 replies within one week. And so to us in Hamburg, it was obvious: If 100 people want it, then it has to be done. In March, the first issue was finally finished. Once the first and second issues were out, there was a veritable flood of letters. The amount of mail was equivalent to placing both my hands on end.

[Question] How many subscriptions does the magazine have?

[Answer] We took the course that whoever writes should get information, regardless of whether they send money in. The number of subscriptions fluctuates somewhere over 200.

[Question] How do your finances look right now?

[Answer] Terrible! The production costs are around 10 pfennigs per copy, for both sides of a DIN A3 page. On the other hand, the most expensive thing is postage, 50 pfennigs a piece. For each copy there are three copies that are not paid for, that we simply send out, as a sample or in response to a request with no money enclosed. It is in fact financed by the skin of our teeth, but we do hope that a number of people are willing to pay for it. If money comes in, then we can continue.

[Question] And of the 200 subscriptions has each one paid around DM 30?

[Answer] More or less. They came in with the full amount, a couple sent more than that, but unfortunately it was fewer than we had hoped. It costs about DM 1000 to produce one issue of DATENSCHLEUDER.

[Question] How long will people receive DATENSCHLEUDER for their DM 30?

[Answer] One Chaos year. That is effectively around one year, with around 10 issues. You definitely have to give our address, or they'll come beating your door down for that.

[Question] How many regular members do you have now?

[Answer] About the membership structure--it's rather open and free. Everyone who has information for us simply contributes it, whether he has a subscription or simply receives DATENSCHLEUDER, or even if he knows nothing about DATENSCHLEUDER. There are people who are working on the modem layout, and we are producing and marketing motherboards, for example. And then we do DATENSCHLEUDER, and also do communication via computer. It is simply an open structure, where anyone who feels like it can join in and leave at any time. But we are thinking about whether we should impose organizational structures on the whole thing. There are a couple of external areas where we are simply encountering problems. But on the other hand, we basically like this open structure. It's a dilemma.

[Question] But surely you can provide an approximate number?

[Answer] If we approach it in terms of subscriptions, we come up with more than 200, of which around 30 are in Hamburg. But that's very fluid. Should I count a graphic artist who does a couple of pictures for DATENSCHLEUDER as a member? We don't look at it that narrowly. Somebody comes along, finds it interesting, and joins in. That's also how it is at our meetings, which we hold once a week at a bar here in Hamburg. We always get different people there, it's just a regular meeting base. On the other hand, we generally meet once a month to exchange information.

[Question] What kind of people are involved?

[Answer] It ranges from pilots to a metalworker, people who run their own shops to unemployed people and students. They are between 16 and 35. No one is older than that.

[Question] What is your assessment of the legal status of your activities?

[Answer] We just don't like being forced into any corner. Now people are saying that it's all criminal, breaking into data bases and getting into

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Postreklame Hamburg, Eiffestr. 16, 2000 Hamburg 26

Mr Phan ba Qu
2000 Hamburg

Winner, happy ending

Dear Mr ba Qu!

The "BTX Hamburg Week 85" from 1-8 June dealt with BTX.

Information, joining in, winning--this was what was going on during this fantastic action week.

And you won! Congratulations!

From the happy ending conclusion of our big BTX competition, you will receive as a prize your choice of

1 year subscription to DATENSCHLEUDER or
1 gift certificate for DM 25.

We look forward to giving you your prize; please call about details.

CCC Chaos Computer Club.

Sincerely,

[signature]

[p 44: Boxed item]

June 1985

10 Previous month

Again, no revision in the month of June.

The CCC is currently working on the "Hacker Bible." This work of approx. 254 pages will be published in the fall.

More on this after printing in the current section.

Have a sunny vacation!

Chaos Team

90 Next month

[p 44: Boxed item]

Advertisement in BILD-HAMBURG paid for by the Bundespost

BTX Hamburg Week 85, 1-8 June

Information, join in, win

Here You Will See BTX "Live"

ABC-Datensysteme
Segeberger Chaussee 36, Norderstedt

A+L Infocenter
Isestr. 115, Hamburg 13

BTX Partner
Koopstr. 20-22, Hamburg 13

Chaos Computer Club International
[address redacted], Hamburg 20

Deutsche Bank
Spitalerstr. 16, Hamburg 1

Hamburg-Information
Pavillon, Gerhart-Hauptmann-Platz, Hamburg 1

HEW
Spitalerstrasse 22, Hamburg 1
Osterstrasse 133, Hamburg 20
Gr. Bergstrasse 223-225, Hamburg 50
Fuhlsbüttler Strasse 229, Hamburg 60
Bergedorfer Strasse 133, Hamburg 80
Schlossmühlendamm 12, Hamburg 90

Philips
Mönckebergstr. 7, Hamburg 1
In the foyer

Vereins- und Westbank
Alter Wall 22, Hamburg 11

[p 45: Cartoon] Left bubble: This is the horrible story of where
overmechanization and the associated shortening of the work week will lead if
we are not sensible about it.

Right bubble: O Duckberg, you noble, you industrious city! How much energy is
wasted within your walls because the citizens have not noticed that the future
is already upon us?

[p 45: Caption, upper right corner] The Chaos Computer Club thinks that love
on an empty stomach is no fun.

[pp 45-46: Unattributed article]

Progress Into Chaos

Oh, Daniel, you quack. So we're living in the beginning of the future. In the
middle of chaos. Terrible, terrible! But that's no reason to go decadent and
engage in rampant consumerism. There has always been chaos. First violent and
ribald, then in the hammock. Chin up! Hope is the feeling that can achieve
what you long for. And as long as THE bomb has not fallen, there is naturally
hope.

Where is chaos? This was the 64-thousand-dollar question posed by the Black &
White Group to the CCC (TAZ of 22 February). So let's see...

On Criticism of the CCC

... the result of these free tests has always been that the Bundespost has filled in the gaps even tighter, and the system has become tangibly "more secure..."

It is also true that the police learns something from each demonstration. "In contrast to the CCC, we (Black & White) are not interested in seeing Bildschirmtext become more secure or in guaranteeing optimal 'data protection.' We are fundamentally opposed to BTX and to the computerization of all areas of life."

Something that I somehow suspected all along, but did not dare ask: security in quotation marks. Clearly ambiguous.

Precisely the synonym for all manifestations of "security." With absolute security (thanks to Albert), it is clear that the speed of light is the same absolutely ALWAYS. And otherwise not at all! [Footnote: "Relative Interest? Bertrand Russell, "The ABCs of Relativity Theory," 1972, rororo 6787, DM 4.80]

Anyone who knows only a little about machines will not dare deny the following: The simpler the design of a machine and the fewer parts it has, the less susceptible to disruption it is. Thus, relatively simple machinery is more flexible and can be adapted more easily to changing needs. In contrast, our technological society has specialized its functions to such a degree that the entire system threatens to break down if only one part of the machinery fails...

Overspecialization, biologists say, is one of the main factors that cause a species to become extinct.

So how do things look in the computer industry?

Software. The programs. Experts think that for every legally sold diskette there are up to ten pirated ones. Of course, we know that there are more than this. The dimensions: Millions of copies of the successful word-processing program Wordstar have been sold. DM 1,200 per diskette. That comes to... But please consider the price-depressing factor of software piracy. Eighty million diskettes are sold worldwide each year.

The professional marketers of software have a bad hand, because their cards are marked by their own operational structures. Professional institutions need their time for planning, organization, marketing, etc.

Most programs come from the United States. Software piracy is hooked up in networks. "Security" again takes a back seat. Quickly pirated, copies come here to Germany by telecommunication. Before the pros assert their professional needs, the alternative need has spread: Once the program has been written, it can be copied by anyone in seconds.

Software can also be changed. What's plagiarism?

A typical career: A programmer writes a program. Before completion, he is fired. He sets up his own company and sells the program himself. How many word-processing companies haven't come into being this way?

The legal opinion on this: "A computer program constitutes unacceptable plagiarism if it is on the average 70 percent identical to another program system in its problem-solving section" (Kassel State Court ruling of 21 May 1981).

About hardware. There are these wonderful Apple II computers. They are so wonderful that the yellow pirates from Taiwan can't help copying them for half the price. The Apple copyright applies only to the EPROMs (electrically programmable read-only memory). I buy that computer. The dealer becomes hard of hearing when I ask about these EPROMs. Why all these questions? It's obvious that these are copies. Everything's copied. Legal? Illegal? It's all the same!

And these are not isolated "chaotic" incidents.

Future Music

Creating a community that can be active in many different places and nevertheless can be part of a joint, creative process.

Permitting electronic conferences by computer, making a single input or message instantaneously available to all other terminals. The distance between the participants plays no role here. In financial terms it does. This is another major field to be cultivated for data telecommunications. Fantasies in the making.

Hacking should not be viewed as being solely linked to computers. Wood too is hackable. It is a description of a different manner of approaching technology. A different use is tested experimentally. In this area, children are by nature capable of colossal flights of fancy. The "grown-up" world reacts with incomprehension. Childish creativity is rejected as being "crazy." If only people would let it be! Learning by doing. The knowledge developed in this way has a completely different quality than knowledge, for example, because it has emerged from practice.

Model-building division: There is a model helicopter by the Graupner company. Bell 212 twin jet, two meters long, weighs four and a half kilograms. Holds a load of two and a half kilograms. Remote-control, for DM 2,500. A legal note: "If the 5 kg limit for model airplanes is exceeded, permission from the competent aviation authorities must be obtained for takeoffs and landings."

What can be done? "The Flying Robert is a model helicopter... from which a computer hangs. The computer, which is being developed by the Bazoobis, has a sensor and--most importantly--a 'calculator with print-out capability.' It has a roll of paper on which the measured value is noted every second. The thing can be calibrated and sealed... The Flying Robert is sent by remote-control over a smokestack, where it hovers for an hour. The same thing can be done for radiation levels at nuclear power plants or noise levels near airports. Citizens' initiative groups would finally have verifiable data." [Footnote: Mattias Horx, "Chip Generation," *rororo* 8118, 1984, DM 12.80, pp 125f]

Other ideas from various readily available publications:

You could fiddle with the computer and use it to disrupt various undertakings. Startbahn West [disputed new runway at Frankfurt/Main Airport]? Equip it with small cameras and use it for reconnaissance. Equip it with squirt guns and use it for agitation. The Telemichel has a lot of room! As a resupply craft while occupying industrial facilities. Or use it to seal up smokestacks? Tip over construction cranes, after outfitting it with the necessary equipment. Use teamwork to short-circuit high-tension wires. Demolish/demodulate radio antennas, or a flying radio transmitter, jamming transmitter, loudspeaker. The air knows no limits.

Normal airplane models are cheaper. Electric engine. Solar cells. Sun. Flying time? Fantasy in the making.

Protect the forests? Long nails inserted crossways in trees are not exactly the best thing for them, but they do keep chain saws from cutting them down.

Test alarm systems? Set off the broken-glass alarm? At C&A [department store], all you need is to design a lucky charm, and the gong at the entrance sounds. Practical, chic and it can be worn.

The subject is not the big revolution, but rather the small, embarrassing scandals that create confusion and ulcers and spoil the desire to exercise power. Anyone who knows any tricks should write to the "Lexicon of Subversive Fantasy," c/o Eichborn Verlag, Sachsenhäuser Landwehrweg 293, 6000 Frankfurt 70. Copy to the CCC.

Rationalization

Black & White criticism:

"We reject these new techniques for increasing efficiency, because they lead to further unemployment, and we are dependent on 'income from non-self-employed work' to make a living."

How much work does a human being need in order to live? Or does he live to work? What is work?

Work is force times distance (old mechanics' saying). What is force? Kinetic energy and intellectual energy. What is distance? Movement. Activity. Dynamics. And: entropy. [Footnote: Jeremy Rifkin, "Entropy," 1982, Hoffmann & Campe, DM 30]

Entropy says that where there is activity, energy is irretrievably consumed, rendering it no longer available for human use. Our solar system will freeze to death. What is true of our solar system also applies to the relatively closed system of Earth. We should deal with energy sparingly. Adapted to natural cycles, with optimally low-entropy structures. Alienation thus becomes a central theme. Labor is increasingly alienated the greater the distance--in terms of space, place and time--there is between the production and consumption of a product. In order to consume little energy, it is advisable that the be located close to the residential areas. Rush hour is a nerve-wracking, energy-consuming and accident-prone product of our sharply alienated "work world."

And so the masses shouldn't go to work at the same time on the same days.

Individual working hours are called for even more than ever. And why not work at home? Will people miss the human contact with co-workers? How human is contact on the assembly line, in piecework, etc.? Is it even capable of being human? There are jobs that really should not exist. And if we economize these job possibilities away, then it would be best if they simply disappear.

"For some time now it has begun to look as if we are no longer working in order to live, but rather having to structure our lives in such a way that we have enough work." (Hans A. Pestalozzi)

Counter-Realization

Black & White criticism: "The hackers have simply accepted that everything that is coming is inevitable, and they are trying to find a comfortable niche

in it."

Nothing is inevitable. No input, no output. I am content with the fact that I react. A passive role. Supplemented with Sysiphos work.

"... in every society, those asking questions have the key to power, not those with the answers. True power is with those who set up the structure that the others must contemplate, because they define what is available and what is not, what is recorded and what is forgotten." [Footnote: Jaques Vallee, "Computer Networks," 1984, rororo 8101, DM 12.80, p 115]

Why are there no alternative software producers? Are niches so abhorrent?

Let me make it perfectly clear: I am for the computerization of our planet. The problems we are facing concern the earth as a whole. Global, alternative networking must be massively advanced. A present-day computer has a memory capacity of 64 kilos of bytes. Multiplied by x-number of users worldwide, and you have an unbeatable potential for creativity. The melting pot of alternative, green, lavender, checkered, etc. itself offers elbow room where innovative ideas are developing en masse. The only question is: Where is the application in practice?

The computer is an extremely universal tool. I can make it do many boring, monotonous administrative functions. Word processing alone offers completely new possibilities for dealing with words. Everything can be combined with graphics and music. Data telecommunications. Things are copied, simulated and stored. Everything can be printed out once or umpteen times. Color. Games. Control. Manipulation. Very small computer-controlled work stations can be set up. Here, the ideas can be (self-) realized. Sales and marketing can be done through further expanded telecommunications networks.

Why not try to take away the professionals' livelihood? Niches can be very flexible. There are so many awful programs, and rarely good advice. And projects lack the money before and after.

"Blue Bazoobi": The project builds computers. Small portable terminals to control air pressure valves. DM 20,000 a piece. Sold to Singapore, Brazil and China. The market niche is an area of application that is not feasible for the pros, due to a lack of large volume. There are fifty copies right now. The "Flying Robert" project will be financed with the money earned. So things are coming along. A broad field of activity is opening up.

Effective immediately, the CCC is offering advice in all situations for the Apple II computer. Address for complements and the like: TAZ Hamburg, Apfelmus Department, Nernstweg 32, 2000 Hamburg 50, Wolfgang CCC, Kraut & Röhren Department.

[p 45: Article by "Wau"]

Practical Note

Data processing is slowly but surely entering our everyday life. It is difficult to resist it. A couple of practical notes: Never release data if it does not immediately seem reasonable to you. Even then, be careful. Asking questions is free, but there must be time for it. Make it clear that your data is very personal, and ask how the people who are requesting your data handle data protection. Cancel your direct-debit order. Think about what one programmer at the electricity company could do with a couple million automatic debit orders. Don't get cable. Keep your own data in order and do not let

someone else do it, even if it is more comfortable that way.

[p 46: Article from GELSENKIRCHENER STADTZEITUNG]

Burglar Alarm

There were several questions about the burglar alarm, so here is the sketch again.

The original dimensions of 60 x 80 mm should be adhered to rather closely. The copper wire (naturally insulated, otherwise it would be no good) can be found in any electronics store, as can the capacitor. With the copper wire arranged as above, 30-40 picofarads cause a so-called field deviation within the electronic fields between the bows, which is registered via the electronic circuits. The alarm is then triggered by way of a relay, and the detective is there. So far, so good.

The copper wire is soldered to the ends of the contacts. While soldering, be careful not to destroy the capacitor. It would be great to have small-scale mass production of this or other subversive products.

[p 47: Article by "Wolfgang"]

The Future: Entropy and Yeast Dough

Yeast dough, a so-called raising agent. The dough must be handled carefully. A cool draft of air and it falls. The nice swelling action turns into the opposite. Chaos among the bacteria! (Yeast is a fungus, note from headquarters.)

Institutions: Objects that permanently grow. Rising agent: Money. The swelling process, shaken by crises, can drag on for decades. Until the self-sown storm is too powerful. The system TILT. Chaos among the bureaucrats!

Entropy says that the amount of energy in the universe is always constant. Nothing can be added, nothing used up. Energy changes its "manifestation." It transforms itself from a state available to man to one not available to him.

All of our environmental pollution is a manifestation of our high-entropy economy. "In the three summer months alone, the United States consumes more electricity for air conditioning than the population of the People's Republic of China uses for its overall needs for the entire year. And China has four times as many people." [Footnote: Jeremy Rifkin, "Entropy," Hoffmann & Campe 82, p 134]

Everywhere that there is activity, energy is being transformed. The available supplies are evaporating appreciably. Technology is going astray: nuclear technology, fusion technology, genetic engineering...

All systems where the energy input is greater than the output: pacemaker for cancer!

The oven is cold!

The dough has fallen. Only rock-hard bread is possible now. We have to make do with what we have. Or do we? A new dough? With a significantly different recipe?

Are complex systems capable of innovation?

Of course not. A ridiculous example: Our diligent scientists are promoting fusion technology as the solution to all our energy problems. The bare facts point to another conclusion. The deuterium-tritium reactor needs tritium molecules. Tritium is obtained from lithium, an element that is as rare as uranium. Thus, limitless economizing is not possible. Similarly necessary substances, such as niobium and vanadium, are becoming more scarce even today. To say nothing of copper.

And the culmination of innovation potential: The hydrogen-boron reactor, filled with sea water, has a reaction temperature of three billion degrees Celsius. Just let that number roll slowly off your tongue! There is no matter that could even come close to standing up to that temperature. The deuterium-tritium reactor needs only 100 million degrees Celsius. Nothing more practical is possible. "All applications of nuclear technology appear to him as if one were using a chain saw to cut butter." [Footnote: Rifken, p 129] Every change in complex systems will by necessity cause changes in other places and at different times.

The degree or the size of the complexity is critical in determining:

- the effect of only one change, or of many changes;
- the momentum of these changes, which, for example, are in turn the cause of further changes, etc...

Very interesting "autonomous," cumulative feedback processes can be set in motion here.

The gaps discovered by hackers are naturally stopped up. How? With knitting yarn. That is, hardware, software and human beings are transformed, and thus energy is used.

Since the earth is a relatively closed system (aside from solar energy, nothing significantly is added), the following applies in particular to our planet: "In a closed system, material entropy must ultimately achieve its maximum." [Footnote: Rifkin, p 50]

It is precisely the many changes in all institutions that are causing an increase in energy consumption. On payday, the co\$##t then? Should we sell this breach

of security to the Bundespost? We could, as is normal in industry, "hack" DM 100,000 or more and then sell the Bundespost consultation on this problem for a certain percentage of the money. Or get free, lifetime telephone service for the CCC or something like that. The Bundespost had to pay for its gross negligence.

In both cases, however, the price would have been silence. Otherwise, the concentrated rage of the postal authorities would have been forthcoming. Consequently, perhaps half a dozen officials would have tried to do something to the CCC.

But the CCC wanted enlightenment about the risks of this new system. To this end, the finance transaction had to be made public. Fine, but who should push the starting button for the money transfer? After all, it is an infringement like a parking ticket, although more expensive: a DM 50,000 fine. Will the data protection commissioner do it? He probably would have taken advantage of the opportunity and attempted to achieve an improvement by official means.

A politician? Perhaps. But what if he leaks the story? There remained only one option: Do it ourselves, and abrogate our criminal liability by going

public with it. A week later, the attempt failed, since the FTZ had in the meantime closed off free access to its connection.

Hackers as Data Protection Specialists

Several weeks later, Wau gave a presentation at a conference of data protection specialists in Cologne: BTX--El Dorado for Hackers. Cologne was a sea of pin-stripes, and Wau looked like a parrot in the midst of it all. Despite their initial distance, the audience was impressed by his presentation. Only the representative of the Bundespost felt that he was hitting below the belt, and that he did not intend to address those issues. That was dismissed with laughter, since the presentation depicted a series of program bugs drastically and in three dimensions. There is a bug in the sending of electronic mail.

The sendllled this

because the people who flashed on it are coincidentally named Rivest-Shamir-Adleman. Clever as mathematicians are, it occurred to them that you could take a text like DAS IST JA ZUM KOTZEN [THAT'S DISGUSTING] and break it down into ASCII characters, and thus end up with what mathematicians like best: numbers! (n e N, 0"n" = 255) 68 65 83 32 73 83 84 32 74 65 32 90 85 77 32 79 84 90 69 78

These were then combined into groups of 6 characters: 686583 327383 843274 653290 857732 798490 697800.

The key to encoding the message, called n, is generally making it more difficult to find the product of two primary numbers. If you take 98415109 (which is a primary number) as a key, then you can start encoding the above block:

$(686583 * 686583 * 686583) \bmod 98415109 = \text{encoded cryptoblock}.$

In order to decode this block, you need the corresponding key. It is called d, for decryption. Decoding as well involves major calculation:

For $n = 98415109$, $d = 63196467$.

$(\text{Encoded cryptoblock} ** 63196467) \bmod 98415109 = 686583.$

As even non-mathematicians recognize immediately, the trick of the matter is the two numbers n and d.

They are related as follows:

n is the product of two large primary numbers p and q ($n = p * q$);

d is determined from p and q: $d = (2 * (p-1) * (q-1) + 1)/3$

Although n is known, p and q remain secret. If n is big enough (around 200 digits), it is more or less impossible to determine p and q. With a value for n that is 300 digits long, it would theoretically take the NASA computer 600 years to figure out what p and q are.

In the example above, $p = 7151$ and $q = 13259$. These primary numbers are subject to further restrictions that must be taken into account if the RSA nonsense is to run:

1. Neither $p-1$ nor $q-1$ may be evenly divisible by 3.
2. Either $p-1$ or $q-1$ must be a large primary number factor.
3. Dividing p by q must yield a complex fraction, thus not $2/3$, $3/4$, etc.

Taking points 2 and 3 into account means finding a qualitatively high-value n that is difficult to decode.

Now to the programs:

Program 1: Encoding messages

Program 2: Decoding messages

```

Program 3: Determining n and d
10 DEFDBL C,M,N:DIM M(100):CHARACTER PROBLOCK=3
20 LINE INPUT"Name of the crypto output file:";OUT#
25 OPEN"O",1,OUT#
30 INPUT"Public key of the receiver (Test condition at "RETURN<=94815109";N
40 IF N=0 THEN N=94815109
60 PRINT"Input message text or NNNN at beginning of line to end"
70 W=W+1:PRINT USING """;W;:LINE INPUT"..";M#
71 IF LEFT#(M#,4)="NNNN" OR LEFT#(M#,4)="nnnn" THEN CLOSE:PRINT:PRINT
"Cryptogram under file: "OUT#;" stored.":PRINT:PRINT:END
80 M#=M#+CHR$(13):L=LEN(M#):Q=INT(L/CHARACTER PROBLOCK)
90 R=L-Q*CHARACTER PROBLOCK
100 IF R<0 THEN M#=M#+CHR$(0):GOTO 80
110 FOR I=0 TO Q-1
120 M(I)=0
130 FOR J=1 TO CHARACTER PROBLOCK
140 A=ASC(MID$(M#,3*I+J,1))
150 M(I)=M(I)*100
160 M(I)=M(I)+A
170 NEXT J
180 NEXT I
185 PRINT:PRINT"Cryptogram:"PRINT
190 FOR I=0 TO Q-1
200 M = M(I)
210 C=M*M:C=C-INT(C/N)*N:C=C*M:C=C-INT(C/N)*N
220 PRINT'1,USING """;C
225 PRINT USING """;C
230 NEXT I
235 PRINT:PRINT
240 GOTO 70

10 DEFDBL C,D,M,N
11 CHARACTER PROBLOCK=3
20 INPUT"Own Public Key (Test = 0+CR = 94815109) : ";N
30 IF N=0 THEN N=94815109
40 INPUT"Own Public Key (Test = 0+CR = 63196467) : ";D
50 IF D=0 THEN D=63196467
51 LINE INPUT"File name for decoded text : ";OUT#
52 OPEN"O",2,OUT#
60 LINE INPUT"Cryptogram from F<ile or M<annual : ";QUER#
70 IF QUER#="M" OR QUER#="m" THEN MANUAL=-1:GOTO 90 ELSE MANUAL=0
80 LINE INPUT"File name for crypto file " ";FILE#: OPEN"I",1,FILE#
81 IF NOT (MANUAL) THEN PRINT:PRINT"Decoded text:"PRINT:PRINT
90 IF MANUAL THEN INPUT"Cryptoblock : ";C ELSE IF EOF(1) THEN CLOSE:PRINT"Text
end.":PRINT:PRINT:END ELSE INPUT'1,C
100 D1=D:M=1
110 IF D1/2 = INT(D1/2) THEN 130
120 M=M*C:M=M-INT(M/N)*N
130 C=C*C:C=C-INT(C/N)*N
140 D1=INT(D1/2):IF D1 < 0 THEN 110
150 M#=STR$(M):M#=RIGHT$(M#,LEN(M#)-1):'blank start with own interpr.
160 LX=LEN(M#):IF (LX/2)<INT(LX/2) THEN M#="0"+M#:GOTO 160
170 FOR T=1 TO CHARACTER PROBLOCK
180 CHARACTER#=MID$(M#,1+(T1)*2,2):CHARACTER#=
CHR$(VAL(CHARACTER#))
190 PRINT CHARACTER#;
200 PRINT'2,CHARACTER#;
210 NEXT T
220 GOTO 90

```

```

5 RANDOMIZE
10 PRINT"Program for determining public and secret keys"
PRINT"=====
30 PRINT"To determine the secret key you need 2 (known only to you)"
40 PRINT"primary numbers p and q. The following program consists of 2 parts:"
50 PRINT"Part 1 searches in the range of a randomly chosen number for the next"
60 PRINT"primary number that is suitable for p and q."
70 PRINT"Part 2 determines from the p and q located in the this way the secret
and public"
80 PRINT"keys."
90 PRINT
100 PRINT"Start Part 1":PRINT
110 DEFDBL N,P,Q,R,S,X,Y:K=10
120 INPUT"Number to be analyzed (0 for transition to program part 2) : ";N
130 IF N=0 THEN 280
140 IF N<999999999 THEN PRINT"Please select a smaller value":GOTO 120
150 IF N/2=INT(N/2) THEN N=N-1
160 FOR I=1 TO K
170 X=2+INT((N-2)*RND(0))
180 Y=1:P=N-1
190 IF P/2=INT(P/2) THEN 210
200 Y=Y*X:Y=Y-INT(Y/N)*N
210 X=X*X:X=X-INT(X/N)*N
220 P=INT(P/2):IF P<0 THEN 190
230 IF Y"<1 THEN 250
240 NEXT I
250 IF Y=1 THEN PRINT N;"is suitable as primary number for p or q":GOTO 120
260 PRINT"No suitable number found. Test number now";N:N=N-2:GOTO 160
270 '
280 PRINT"Start Part 2":PRINT
290 INPUT"What value had you determined for p : ";P
300 INPUT"What value had you determined for q : ";Q
310 PRINT
320 PRINT"Your public key is : ";P*Q
330 PRINT"Your secret key is : ";(2*(P-1)*(Q-1)+1)/3
Ralf translates for MS-DOS from BYTE.

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[pp 54-55: Article by Maxin Holz]

Let Them Do Our Dirty Work

The headline was "joint production," a stylish description of the flight of industry to countries with low wages and a peaceful workforce, and of disregard for the environment. Now that the office of the future is upon us, the U.S. companies want others to have a part in it as well. Encouraged by promises of drastic reductions in cost through the remote transmission of information in the course of mere seconds, industry analysts and foreign political figures are formulating the idea of a new marriage of convenience between American business and poor nations. Although the "joint office" is not entirely new, industry observers are now predicting the expansion of data input centers to poor countries within a few years.

Before the new satellite technology was available, overseas branches could profitably process only low-priority information that did not have to be turned over quickly, such as order and shipping lists. The best-known example of the new trend is the American Airlines data processing center in Barbados. Every morning, American Airlines flies a planeload full of its ticket carbons to Barbados, where data input workers input information at wages of \$1.50 to \$3.00

an hour. The information is then returned electronically to the American Airlines computer in the United States.

The U.S. companies were drawn by low wages, cheap office space and extremely low taxes and surcharges, for which they were invited by the governments in places such as Singapore, the Philippines and the Caribbean. The preferred goals for overseas offices are English-speaking countries like Barbados, in addition to China, another country that is competing for jobs in information processing using satellite communications, and as a special enticement can offer its disciplined workforce, which earns the equivalent of \$7 a week at a precision rate of 99.5%

When explaining the advantages accrued to the receiving countries from overseas investment, the chauvinistic presumptuousness of the economic press is exceeded only by the self-serving optimism and short-sightedness of the governments that are competing with one another for American investments. Thus, NEWSWEEK declared that since the products of the companies investing in the Caribbean are prohibitively expensive for the people there, they "would do best to produce goods for sale in the United States." Now the inhabitants of Barbados may also perform services that are meaningless to their own living situation. (What generosity by U.S. companies, which are giving the people of Barbados data processing so that Americans can take airplane trips.) The same article explains that there is no longer a significant reservoir of unskilled laborers in the United States (what about the unemployment rate of 40% among young blacks?), while "in many underdeveloped countries there are enormous surpluses of unskilled labor." This theory of "give them our dirty work" attempts to identify reasonable grounds for the distribution of labor that permits the citizens of the United States to live much better than the vast majority of the rest of the world.

In competing for investments, foreign governments and chambers of commerce are shameless in their claims made to the American business community concerning the paltry demands and high productivity of their population. Government heads justify tax exemptions by saying that they need foreign currency and the jobs offered by the multinationals in order to raise the living standards in their countries. Moreover, the argument goes, the expanding technology accompanying the overseas offices helps familiarize the local workforce with the computer, thus closing the technological gap between industrial countries and developing countries.

The possibility that such rose-colored projections will be fulfilled by satellite-based data processing is extremely small, and that is even in the unlikely event that unemployment will decrease for a time. The so-called "surplus" of unskilled workers in poor countries has resulted primarily from past efforts resulting from investment policy, which were justified with the same faulty logic. From the foreign investments that were poured into the "underdeveloped" countries after the Second World War, it was assumed that they would lead to an international distribution of labor that would be beneficial to all. Farmers were driven off the land in order to make room for the modern forms of exploitation preferred by multinational companies and local governments. While the multinationals blossomed, countries that had at one time been agriculturally self-sufficient became dependent on developed countries for food, and found themselves subject to a world market on which they could exercise no influence. Far from promoting regional industry and agriculture, the foreign investments resulted in dependency on the multinationals and on the markets dominated by them. This in turn led to a gigantic growth in debt owed to multinational banks and international credit institutions controlled by the United States and its allies. With the help of these institutions, the developed countries tyrannically exert their influence

on the economic policy of the receiving countries.

The overseas office can only reinforce this phenomenon. Data input centers in Barbados cannot bridge any technological gaps. The exported office jobs primarily involve the most primitive and strenuous computer work, and their elimination by automation will only be a question of time. A country like Barbados can never gain an independent place in a market dominated by multinational giants. Even under the best of conditions, a practical application of computer technology to local problems would be extremely expensive, and it would represent a disastrous waste of resources.

The cultural consequences of foreign investments could be at least as painful as the directly economic ones. The office environment (furnishings, clothing, architecture) promotes a culture with an emphasis on material values, on a maximum awareness of time, and on neutral, sterile modernity. Regardless of how finance centers present themselves throughout the world, they generate the unifying effect of office culture. An ever-smaller elite would actually be able to work its way up to the comforts of merchandise heaven as glorified by office culture. Many more people, however, will fall victim to the plundering of the country and the devaluation of their traditions in the hands of multinational capital.

[pp 55-56: Unattributed article]

Down in the Valley

Mail Wars

After the top management of "Tandem" announced the hiring and wage freeze in November 1982, I arrived at my job the next day to find an electronically transmitted message that had been sent by a courageous technician who worked for a distant branch of the company. The message protested the wage and hiring freeze--such measures were disgraceful and unjust. The electronic letter--and the mail network--allows direct connections between most employees, even if they are separated by thousands of H###what is not, what is recorded and what is forgotten." [Footnote: Jaques Vallee, "Computer Networks," 1984, rororo 8101, DM 12.80, p 115]

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All systems where the energy input is greater than the output: pacemaker for cancer!

The oven is cold!

The dough has fallen. Only rock-hard bread is possible now. We have to make do with what we have. Or do we? A new dough? With a significantly different recipe?

Are complex systems capable of innovation?

Of course not. A ridiculous example: Our diligent scientists are promoting fusion technology as the solution to all our energy problems. The bare facts point to another conclusion. The deuterium-tritium reactor needs tritium molecules. Tritium is obtained from lithium, an element that is as rare as uranium. Thus, limitless economizing is not possible. Similarly necessary substances, such as niobium and vanadium, are becoming more scarce even today. To say nothing of copper.

And the culmination of innovation potential: The hydrogen-boron reactor, filled with sea water, has a reaction temperature of three billion degrees Celsius. Just let that number roll slowly off your tongue! There is no matter that could even come close to standing up to that temperature. The deuterium-tritium reactor needs only 100 million degrees Celsius. Nothing more practical is possible. "All applications of nuclear technology appear to him as if one were using a chain saw to cut butter." [Footnote: Rifken, p 129] Every change in complex systems will by necessity cause changes in other places and at different times.

The degree or the size of the complexity is critical in determining:

- the effect of only one change, or of many changes;
- the momentum of these changes, which, for example, are in turn the cause of further changes, etc...

Very interesting "autonomous," cumulative feedback processes can be set in motion here.

The gaps discovered by hackers are naturally stopped up. How? With knitting yarn. That is, hardware, software and human beings are transformed, and thus energy is used.

Since the earth is a relatively closed system (aside from solar energy, nothing

significantly is added), the following applies in particular to our planet:
"In a closed system, material entropy must ultimately achieve its maximum."
[Footnote: Rifkin, p 50]

It is precisely the many changes in all institutions that are causing an increase in energy consumption. On payday, the co\$##t then? Should we sell this breach

of security to the Bundespost? We could, as is normal in industry, "hack" DM 100,000 or more and then sell the Bundespost consultation on this problem for a certain percentage of the money. Or get free, lifetime telephone service for the CCC or something like that. The Bundespost had to pay for its gross negligence.

In both cases, however, the price would have been silence. Otherwise, the concentrated rage of the postal authorities would have been forthcoming. Consequently, perhaps half a dozen officials would have tried to do something to the CCC.

But the CCC wanted enlightenment about the risks of this new system. To this end, the finance transaction had to be made public. Fine, but who should push the starting button for the money transfer? After all, it is an infringement like a parking ticket, although more expensive: a DM 50,000 fine. Will the data protection commissioner do it? He probably would have taken advantage of the opportunity and attempted to achieve an improvement by official means.

A politician? Perhaps. But what if he leaks the story? There remained only one option: Do it ourselves, and abrogate our criminal liability by going public with it. A week later, the attempt failed, since the FTZ had in the meantime closed off free access to its connection.

Hackers as Data Protection Specialists

Several weeks later, Wau gave a presentation at a conference of data protection specialists in Cologne: BTX--El Dorado for Hackers. Cologne was a sea of pin-stripes, and Wau looked like a parrot in the midst of it all. Despite their initial distance, the audience was impressed by his presentation. Only the representative of the Bundespost felt that he was hitting below the belt, and that he did not intend to address those issues. That was dismissed with laughter, since the presentation depicted a series of program bugs drastically and in three dimensions. There is a bug in the sending of electronic mail. The sendlled this

because the people who flashed on it are coincidentally named Rivest-Shamir-Adleman. Clever as mathematicians are, it occurred to them that you could take a text like DAS IST JA ZUM KOTZEN [THAT'S DISGUSTING] and break it down into TX system spits out internal system information. With a little luck, connection code words and secret passwords can be detected in this way. "Nonsense," said the Bundespost representative. And to the offer of cooperation came only the response, "First you have to get serious." It is unclear whether the CCC succeeded in doing so. At the very least, the BTX system finally spit out the connection code word and secret password of the Hamburger Sparkasse after a number of tries with the well-known system bug. Thus, it became possible to carry out the presentation planned for the FTZ with the Sparkasse instead.

Almost everything went as planned. Over night, in 12 hours and 59 minutes, a good DM 134,000 was raised. With a portabf#0 #000@%00saw000000en run in a daily newspaper, and a meeting of two dozen people from all over West Germany then took place in Berlin. We then decided to keep in touch and exchange experiences. The idea was simply to put together a magazine, but at that point

it was all too vague, and it didn't come off. Next, contacts with the United States were established, with Cheshire Catalyst (the "king" of U.S. hackers, Ed.) and with his magazine TAP, which a bunch of people here in West Germany already knew about and subscribed to. At the Telecom in the fall of 1983, I met him personally and wrote a two-page article about him in a daily newspaper. And this two-page article elicited a great deal of response. By the end of the year, things had progressed far enough to set up a magazine. Previously, the idea was to exchange all information by floppy disk, but everything was incompatible, and it had no purpose. The magazine was announced around the beginning of the year, and we received 100 replies within one week. And so to us in Hamburg, it was obvious: If 100 people want it, then it has to be done. In March, the first issue was finally finished. Once the first and second issues were out, there was a veritable flood of letters. The amount of mail was equivalent to placing both my hands on end.

[Question] How many subscriptions does the magazine have?

[Answer] We took the course that whoever writes should get information, regardless of whether they send money in. The number of subscriptions fluctuates somewhere over 200.

[Question] How do your finances look right now?

[Answer] Terrible! The production costs are around 10 pfennigs per copy, for both sides of a DIN A3 page. On the other hand, the most expensive thing is postage, 50 pfennigs a piece. For each copy there are three copies that are not paid for, that we simply send out, as a sample or in response to a request with no money enclosed. It is in fact financed by the skin of our teeth, but we do hope that a number of people are willing to pay for it. If money comes in, then we can continue.

[Question] And of the 200 subscriptions has each one paid around DM 30?

[Answer] More or less. They came in with the full amount, a couple sent more than that, but unfortunately it was fewer than we had hoped. It costs about DM 1000 to produce one issue of DATENSCHLEUDER.

[Question] How long will people receive DATENSCHLEUDER for their DM 30?

[Answer] One Chaos year. That is effectively around one year, with around 10 issues. You definitely have to give our address, or they'll come beating your door down for that.

[Question] How many regular members do you have now?

[Answer] About the membership structure--it's rather open and free. Everyone who has information for us simply contributes it, whether he has a subscription or simply receives DATENSCHLEUDER, or even if he knows nothing about DATENSCHLEUDER. There are people who are working on the modem layout, and we are producing and marketing motherboards, for example. And then we do DATENSCHLEUDER, and also do communication via computer. It is simply an open structure, where anyone who feels like it can join in and leave at any time. But we are thinking about whether we should impose organizational structures on the whole thing. There are a couple of external areas where we are simply encountering problems. But on the other hand, we basically like this open structure. It's a dilemma.

[Question] But surely you can provide an approximate number?

[Answer] If we approach it in terms of subscriptions, we come up with more than 200, of which around 30 are in Hamburg. But that's very fluid. Should I count a graphic artist who does a couple of pictures for DATENSCHLEUDER as a member? We don't look at it that narrowly. Somebody comes along, finds it interesting, and joins in. That's also how it is at our meetings, which we hold once a week at a bar here in Hamburg. We always get different people there, it's just a regular meeting base. On the other hand, we generally meet once a month to exchange information.

[Question] What kind of people are involved?

[Answer] It ranges from pilots to a metalworker, people who run their own shops to unemployed people and students. They are between 16 and 35. No one is older than that.

[Question] What is your assessment of the legal status of your activities?

[Answer] We just don't like being forced into any corner. Now people are saying that it's all criminal, breaking into data base together with the other supervisors. However, Al's fate was left hanging. As we left the meeting, one of my colleagues commented, "I'm not satisfied with the number of corpses."

Al and the production head were soon thereafter demoted and privately urged to seek employment elsewhere. They were gone within a couple of months. Several days after the meeting, several computer programs that are used in manual production were sabotaged. It appeared that the supervisors who were fired had computers at home, and thus still had access to the computer through the telephone lines.

At the end of the meetings with the honchos, the head of our company grumbled about the "animosity" that had developed in our department. As if capitalism is not based on "animosity"!

While "soft management" can be used by employees to their own benefit in situations like the one above, we should keep in mind that it is not simply a "gift" from our superiors. The less authoritarian style of leadership exists because many companies regard it as a more effective method for gaining the cooperation of the workers in order to thus achieve management goals. But it is regarded as effective only in terms of the opposition, both passive and active, by workers to openly authoritarian methods of management. Soft management does not--cannot--eliminate the very real conflict of interest between workers and employers. The fact remains that workers neither manage the operation nor have control over the capital. This makes conflict unavoidable.

[pp 59-60: Article from PARANOIA CITY LADEN]

Bolo'Bolo

Departure

Seven-thirty in the morning, 25 March 1983, on the number 32 bus. It is raining and it is cold, later it will snow. There are empty seats, and so I sit down. I feel the wetness through my shoes and pants. I see the calm, composed faces. A young woman suppresses a yawn, draws the corners of her mouth down. "Nordstrasse." Several passengers get off and move away briskly. Once again, I am struck with this feeling of alienation. "What's it all about?" "Why I am going along with it?" "How much longer?" Revulsion is

building up in my chest. The everyday machine once again has me in its grip. I am moved inexorably towards my job. Scarcely wrenched from a sound sleep, I am again helplessly sitting in the workforce transport machine.

I imagine taking the bus to the terminus and then beyond: through Austria, Yugoslavia, Turkey, Syria, Iran... to India, Malaya. During the trip, the bus changes little by little; it is repainted, repaired, converted, equipped with beds. The passengers are transformed into a close-knit community. They work as we go in order to get fuel, the replacement parts and food. They tell their stories. They act against the everyday machine using diverse means: refusing to produce, sabotage, intentional sloppiness, stealing, indiscretions, sick-leave abuses, arson, solidarity campaigns. The brutality of the machine can be explained by the resistance to it. Five years later, the bus returns. It is colorful, has curtains, additions, inscriptions in unknown alphabets. No one recognizes it, and the returnees are strangers...

Bus stop. The dream is over. Weekends, holidays, illusions always come to an end, and we are once again sitting obediently in the bus or streetcar. The everyday machine triumphs over us. We are part of it. It dismembers our life into portions of time, soaks up our energy, plows our desires under. We are reliable, punctual, disciplined cogs. Why do we function?

Deal

The everyday machine does grind us down, although at the same time it immunizes us against revulsion, hate and despair. We feel these things only for brief moments, when we have nothing to do and at the same time cannot consume anything. In the morning we look forward to the evening, on Monday we look forward to Friday, at the end of vacation we look forward to the next vacation. We give the machine our time and energy, but at the same time it provides us with (depending on salary) a number of pleasures: steaks, stereos, Mykonos, wind surfing, Aikido, video, Chivas Regal, arts synthesis, Laurie Anderson... This is our deal with the machine. This is our balance of life and work. And it has been in the red for some time now.

Even though real wages have fallen and the rat race has intensified, this is not the main reason for our life deficit. The "pleasures" that the machine has to offer us are essentially polluted, and we ourselves are less and less capable of truly enjoying them. On the one hand, we get mass products that spoil us faster and faster, and on the other hand our work dulls our senses so much that we become passive, isolated, unimaginative, lethargic and narrow-minded. As satisfaction decreases, our craving for pleasure increases. The large hole that the machine has carved in us simply cannot be filled. We can cram our apartments full of electronics, travel far away, do gymnastics, psychology courses, creativity and meditation, illegal and legal drugs: But we cannot get away from ourselves.

The deal is rotten, because the "good things" are destroyed by the machine: we ourselves, time, relationships, nature, traditions. Although we can travel ever-faster and ever-farther, our freedom of movement in everyday life is decreasing. Economization, renovation, redevelopment and standardization track down every "free" second and every unused square meter. Time and space are money. The machine uses money to implement its logic. We are locked in, budgeted, clean and orderly and unhappy, although we don't really have any "reason" to be.

Security

We are gagging on aversion. We have sensed for some time now that the old deal

has gone bad, and always was bad. The illusions of consumption, of technology, of the "modern" industrial society in general, are crumbling. Why don't we get out? Has the machine swallowed us up for good?

Fear of the unknown is stronger than revulsion for the everyday. The machine appears to be the only possible reality. Habit. Security. Reason. Normalcy. Power. Who guarantees our survival if we leave or destroy the machine? Where is the medical care, the retirement and survivors' benefits, the insurance? We are alone, and the machine is our only security in life.

Thus, we try to suppress our feelings, our reason and our doubts so that we can function. We convince ourselves over and over again that this is how life is, and that no other way is possible. Thus, we need normalcy to protect ourselves from understanding our unhappiness. We are a conspiracy of unhappy people who together defend their unhappiness. Whoever draws attention to this unhappiness, assails it, is met with hate and envy. Whoever does not go along with it becomes a disrupter, a parasite, a weakling, a failure, a dreamer or a terrorist, depending on the degree of hate that is felt. Dropouts encounter the perverse solidarity of those people who have understood the seriousness of life, who have both feet on the ground, who can be proud of their deprivation and frustrations (also known as achievements)...

But how safe is the machine, anyway? Is solidarity with it worthwhile? What is the source of this strange nervousness of the defenders of normalcy? The truth today is that this imposing machine, industrial society, is inexorably pushing forward towards collapse. Not only is it sucking us dry, it is also destroying itself. Industrial wealth is based on labor, but labor is being superseded by automation and electronics, resulting in mass unemployment. The more complex the machine becomes, the more work that must be expended on repairs, administration and control. Maintenance of the machine requires more work than the value that it generates on its own. The harm to nature and to health that it inflicts is growing faster than production. The "health sector" is exploding because our sickness is the most important product of the machine. Industrial labor proves to be purely destructive work.

The current long-term economic crisis is the result of the internal contradiction of the machine. When there are upswings, they represent only small "recoveries" on the downward spiral. Each boom period leaves behind a larger stock of unemployed people.

If the economy is in crisis, then this is also true of the welfare state. A collapse of the monetary system could sweep away our retirement and survivors' benefits, our insurance and pensions, at any time. Our "guarantees" are only on paper--we have no recourse for getting what is owed us. Our faith in state security is only an expression of our actual powerlessness and isolation. A couple of good friends will be worth more than your retirement fund card or savings passbook.

Realistic Politics

Perhaps the machine can still be changed and converted, so that it becomes safer and more humane? Why not eliminate unemployment by introducing the 20-hour work week, while at the same time applying leisure time to self-help and self-sufficiency in neighborhoods and in the social domain? In this way, everyone would have work, and the state could save on most welfare expenditures. Why not restrict private transportation, invest more in public transport, save energy (no atomic power plants, more insulation), recycle garbage, eat less meat, introduce strict laws on the environment, strengthen health care, delegate administration to the neighborhoods ("autonomous

sector"), abolish the armies? These reform proposals are reasonable, realistic and in fact feasible as well. Thus, they constitute the official or unofficial program of the "enlightened" alternative-social democratic-green-mixed [text missing] just as those who start a popular initiative for the 40-hour work week or set fire to a speculator's villa. Both know that the 40-hour week will scarcely change the machine and that speculation will nevertheless continue. Thus, this political reason actually conceals a lie: People act as if they will gain something from their action, while knowing that even if their route is the right one they will be long since dead once the "goal" is achieved. They will become a hero of history, and will soon feel cheated. Disappointment demands a "reward," and only the machine can provide that. And so yesterday's partisan becomes tomorrow's minister of police...

Thus, we cannot avoid first expressing our very "private" dreams, so that we do not deceive each other. Morale and realism are the machine's ideological weapons, and for that reason, we must dare to be both egotistical and ridiculous. Perhaps it will be obvious then that the "others" are not that "different," but that we are all more alike than we think. Perhaps the majority, the people, the masses, society, the voters, etc. are only a puppet of the machine. Counter to the "first reality" of the machine, we must develop our "second reality." It is our only change, because the first (including its possibilities for improvement) is definitively on a dead-end road.

The machine attempts to take hold of the "second reality" and to digest it as culture. Dreams are planned for and delimited as films, music, novels, vacation sites, etc. Mixing the first and second realities is carefully avoided. We must break through this channeling of our desires.

Today, the "realistic" attitude is one of "all or nothing." Either we achieve rather quickly the jump from the first to the second reality, or both are lost together. Apocalypse and the gospel. End of the world or utopia: These possibilities stand in sharp juxtaposition today. We must choose between a final, cynical pessimism and a "salto vitale" into an entirely different world. Either apocalyptic enthusiasm or total resignation. Today, a middle-of-the-road position such as "hope," "faith" or "patience" is merely self-deception or demagoguery.

The "nothing" is possible today, and it has also become a world view with which it is quite possible to live. We do not necessarily have to survive. "Life" as well as "nature" do not care whether they continue to exist. Making a "value" out of survival and nature brings with it only totalitarian risks (ecological fascism). The apocalypticists, nihilists and pessimists have good arguments for their decision. They have their lifestyle, their fashion, music and philosophy (Schopenhauer, Cioran, Buddhism). Perhaps the pessimists are even the ones who are truly "happy," and the impending atomic or ecological end of the world is the great deliverance from the torturous "life drive." But this is not what I am talking about.

The "nothing" is one possibility, the "all" is another. Thus, if I attempt to depict my phantasies about "all," then this is not to say anything against "nothing." In contrast to nothing, "all" today is relatively poorly defined, and appears to be less realistic. No one subjects himself to ridicule through pessimistic predictions. It is worth expanding the "all" somewhat, if for no other reason than to perhaps make "nothing" even more enticing...

Politic Real

During my reconnaissance missions into the second reality, I came across bolo'bolo. This is my provisional, personal dream of a world in which I would

like to live as a vagabond or in a certain bolo. To this extent, it is quite serious. On the other hand, it is only an idea shared by many people, a hypothesis that can be dreamed up and then forgotten, a disposable utopia. I would really like to see bolo'bolo become reality within five years, but I also know that it can only be a flip among many. Even if it is only an incentive and encouragement to others to let out their fantasies for the future as well, then bolo'bolo would serve its purpose...

I imagine that bolo'bolo or other dreams could entice those resigned to real politics out of their apathy, and that in this way a new "politic real" could emerge. A politics (i.e., contact with oneself and with others) that is based not only on preventing the "worst," but also on certain, wherever possible practical, but also comprehensive ideas, from whence it then attempts to project itself into the present. This could mean, for example, trying to establish tega-sadis (see below) even today, and demanding the proper buildings.

However, it is not really a question of assessing the feasibility of bolo'bolo, nor of its (modest) potential uses in present-day situations; rather, it is a question of itself. For this reason, I have gone to some (but not too much) effort to determine whether bolo'bolo could function, in purely technical terms, in an area like Switzerland (which would in that case not necessarily continue to exist), and how long it would take to implement it. The available data indicate that bolo'bolo could be essentially introduced within five years. I have taken the fears of many people in Switzerland (one of the most heavily insured countries in the world) into account and determined that no one would have to starve, freeze to death or die any earlier than today. Bolo'bolo guarantees a soft landing into the second reality.

Five years (only three, according to the delegate for economic war provisions) would be enough time to convert agriculture to self-sufficiency. Through improvisation, understanding and joy in chaos, the major confusion can be overcome. If the nimas are strong enough, the state machinery can be paralyzed and the factories are shut down, there will be enough time and energy for the big day of restraint X.

Still, bolo'bolo is a planetary arrangement and can only exist if it is at least dominant on a worldwide scale (about the same degree as the money economy today). Nevertheless, bolo'bolo as a beginning in a country--such as Switzerland, which is especially well-suited to it--is conceivable, since it is part of the worldwide process. Switzerland could move ahead, since it is compact, it would not cause any major political shifts, it has a certain model character in terms of level of industrialization, and it is also centrally positioned in Europe. The disruptions in the international banking system could also be overcome...

But things could turn out completely different.

[p 61: Unattributed article]

Secret Code Detected by Satellite?

United States Engrossed in Spectacular Data Theft

New Brunswick (DPA)--The U.S. media are currently engrossed in a new, spectacular case of "data burglary" reportedly involving seven young computer enthusiasts, known as "hackers." The young people, who live in New Jersey and whose names have not been disclosed because they are all under 18 years of age, are said to have tapped into data bases, penetrated the communication system of

the telephone company AT&T, and even cracked codes in the Department of Defense.

As the prosecutors reported, telephone services and data bases were supposedly hit for thousands of dollars. Some estimates of the damage even go into the millions. The young people, who are being charged with "conspiracy to theft," are said to have stored code numbers in their home computers with which the positions of communications satellites can be altered and transcontinental phone calls can be interrupted or placed.

On one of the hackers' electronic bulletin boards, coded telephone numbers were found that gave the teenagers access to a communications system in the U.S. Department of Defense, said district attorney Alan Rockoff. "We dialed one of the numbers," says Rockoff, "and got a lieutenant general at the Pentagon."

According to the daily USA TODAY, the hackers also called in information on U.S. Army tanks, and ordered stereos and radar detectors from mail-order houses using stolen credit card numbers. In order to assess the full range of the "data theft," the prosecutors must still examine six computers and mountains of floppy diskettes.

The seven accused hackers reportedly did not know each other personally, but rather exchanged information via their computers. In an interview with the NEW YORK TIMES, one of the teenagers said that he was innocent, and thus not particularly upset by the charges.

An AT&T spokesman said that there was no indication that the young people even attempted to alter the positions of satellites. And the Pentagon assured that its computer systems are hacker-safe. Based on previous experience with hackers, however, computer experts doubt this assertion.

[p 61: Unattributed article]

Engelhard Wants to Restrict Computer Crime

Targeted Prosecution and "Social Control"

Bonn, 16 July--Minister of Justice Engelhard wants to strengthen efforts to halt white-collar crime by creating criminal liability for "computer crimes." Besides improving judicial organization through white-collar crime divisions and using "targeted prosecution," rethinking in terms of "social control" is also necessary, the minister believes. Despite the large amount of damage that they inflict and their assault on the foundations of the economic system, these criminals continue to be secretly admired. "White-collar crimes must be subjected to the same level of ostracism in our society as other criminal misdeeds." He added that this is not the equivalent of skipping out on a bar tab, riding the streetcar without paying or sneaking a beer on the sly. Rather, public prosecutors estimate that white-collar crime inflicted damages totalling DM 6.9 billion in 1983.

Up to now, Engelhard said, it has been particularly difficult to uncover and punish criminal acts conducted with computers. The second law on combatting white-collar crime, which is currently under deliberation in the Bundestag justice committee and which he hopes to see passed this year, should close legal loopholes. In many cases, the current provisions have been inadequate. For example, if money is set aside for one's own benefit through a computer manipulation, then this cannot be considered embezzlement, since that crime presupposes a special role by the perpetrator in overseeing the money that he "burgled." Another example: Withdrawing a sum of money from an automatic

teller machine using a falsified ATM card is not necessarily robbery under the law, since the money is not acquired through breaking into someone else's safekeeping, and since the money in question is not a purloined object, but rather a claim by the account-holder from his bank. Engelhard provided a planned list of punishable computer crimes: computer manipulation, computer espionage, computer sabotage and unauthorized use of data processing. As an example of computer manipulation, he cited the example of an employee with a Bavarian employment office who had DM 250,000 credited to his family by improperly inputting child subsidy payments, including alleged child subsidy payments for his grandparents, who were over 80 years old. As "computer espionage," he noted the experiment by a Hamburg "Chaos Computer Club," which managed to acquire the password for the Hamburger Sparkasse, which enabled them to repeatedly call in BTX pages and perpetrate a fraud to the tune of DM 135,000. However, this took place under the supervision of the Hamburg data protection commissioner. As potential sabotage, the minister mentioned the insertion of a "logical time bomb" in a program. Someone had instructed a program to destroy itself two years after its release at three o'clock in the afternoon, which did in fact happen. For several days, 300 terminals were out of order, Engelhard said. An insurance company dealing with computer misuse surveyed 13,000 companies with data processing, 30 percent of which indicated the presence of manipulation of data processing. Engelhard also turned his attention towards the misuse of home computers by "hackers." The cracking of access codes, he said, is not a game, but rather "electronic trespassing." Nor is stealing programs (software piracy) a trivial offense; a Hanover high school student allegedly inflicted damages totalling DM 23 million through unauthorized copying. Thus, Engelhard said, it is proper that programs be covered by copyright in the amended copyright law, and that criminal acts henceforth be punishable by a maximum sentence of five years in prison (was one year).

Furthermore, the second law for combatting white-collar crime is intended to avert capital investment fraud and curb dubious futures trading, as well as to standardize the mix of penal provisions pertaining to the misappropriation of wages.