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Computers are a vital part of the apparatus the South African government uses to enforce apartheid. They are also critical to the operation of the modern South African economy. US corporations are the major source of computers for South Africa. The white-controlled government is the largest computer user in South Africa. Computers are used by the South African military, for nuclear development, in internal security, for the administration of apartheid, and by private and state-owned corporations.

In 1971 the managing director of the South African subsidiary of Burroughs Corporation, a giant US computer manufacturer, told two American researchers: ‘We’re entirely dependent on the US. The economy would grind to a halt without access to the computer technology of the West. No bank could function; the government couldn’t collect its money and couldn’t account for it; business couldn’t operate; payrolls could not be paid. Retail and wholesale marketing and related services would be disrupted.’

The vulnerability of South African computer users and the entire South African economy to sanctions or boycotts affecting computers was recently stressed by the head of computer operations of South Africa’s Anglo-American Corporation: ‘No other sector of the economy is as utterly dependent as the computer industry is on the multinationals, and it is a sector through which a stranglehold can be applied on the whole economy.’

This study will examine the role of US computer companies in South Africa, the ways that computers strengthen apartheid, and will critically analyze the claims made by the companies in justifying their South African operations.

THE CORPORATIONS INVOLVED
US computer companies do not manufacture computers in South Africa; their operations consist of sales and service.

Five US companies which produce large "mainframe" as well as smaller computers have operations in South Africa. They are:
- International Business Machines
- Burroughs
- Control Data
- NCR
- Sperry Rand

Several US companies manufacturing small computers also have operations in South Africa:
- Hewlett-Packard
- Data General
- Datapoint
- Computer Automation
Some US companies sell computers to South Africa but have no offices in the country. These include Digital Equipment and Foxboro Corporation, which sold at least two of its FOX 1 computers for use at the highly strategic Valindaba uranium enrichment plant. Honeywell has withdrawn from the computer market and Singer Business Machines has sold its South African subsidiary to the British computer company International Computers Ltd. (ICL).

HISTORY OF USAGE
South Africa was late among the industrialized nations to enter the computer era. The first computer, a British one, was installed in 1959. During the 1960's the computer industry in South Africa expanded at a rate of more than 30% annually and by 1970 there were an estimated 400 computers in the country with a value of some $100 million.

During this period US computer companies came to dominate the South African market, with IBM leading the field. By 1974 the total number of computers was estimated at more than 1000, with a value of $365 million. While the South African economy slipped into a recession in the mid-70's, computers were described as "selling like hotcakes," with market growth estimated at between 20% and 30% a year. In September, 1976 South African Interior Minister Mulder said that there were 1500 computers in the country representing an investment of more than $500 million. Management magazine of South Africa noted in its December, 1977 computer survey that only the US and Britain spend more than South Africa on computers as a percentage of GNP.

A recent article in the Sunday Times of Johannesburg estimates the growth rate of the computer industry in South Africa at 20-25 percent for 1978, with the market for minicomputers expanding the most rapidly. The annual value of computer sales is estimated to be approximately $100 million. The three largest companies (IBM, ICL, and Burroughs) have combined annual sales of some $200 million, but this includes software, service, and other business equipment. IBM is ranked as having the highest revenue from computer sales in South Africa. ICL of Britain is ranked second in sales while claiming to have sold the largest number of computers. Burroughs is ranked third in computer sales.

THE APARTHEID SYSTEM
In South Africa the white minority, 16 percent of the population, controls all aspects of the political, economic and social life of the country. South Africa is a country based on racial domination, maintained by violence and terror. Apartheid is enforced by repression on a massive scale. Amnesty International in its recent report Political Imprisonment in South Africa says that repression is implemented by "... a system built upon detention without trial, banning and banishment, the widespread and systematic use of torture, and frequent judicial and extrajudicial killings by the government." For the first time in its history, Amnesty International refused to include specific recommendations to the government, saying "no reforms in the present structure will be sufficiently far reaching to remove the causes of political imprisonment unless the whole system of apartheid is dismantled."

This society, in which US computers play an integral part, is in the midst of revolt. The black majority refuses to accept apartheid. The brutality of the white
regime's efforts to crush the black movement for liberation has been shown by the police killings of an estimated 1000 young black men and women involved in protests against apartheid that began in Soweto in 1976.

The underlying postulate of the Nationalists' apartheid policies is that the African majority are not South African at all, but foreigners, residents of 10 fragmented, impoverished, rural "bantustans" created by the white regime and comprising only 13 percent of the country's land area. Africans are being denied citizenship and political rights in the country they were born in and helped to build. Millions of Africans who have lived in urban areas for decades, serving in the modern economy and demanding equal political rights, have been forced back to these bantustans. They are allowed in white areas only as transient migrant workers to serve the labor needs of whites.

Apartheid has demanded an extraordinary degree of repression and administrative control by the regime. The white government, industries, mines, and farms are all dependent on black labor. Virtually all white homes are served by black domestic workers. At the same time, black South Africans are kept powerless and under white control. Some 200 laws govern all aspects of black people's lives: where and how they may work, eat, live, sleep, drink, be born, die and be buried.4

It is not surprising that US computer companies have found a booming market for their products in South Africa. Computers have become a valuable tool in numerous government agencies administering apartheid. Further, while apartheid has built white prosperity at the expense of the black majority it is also placing a tremendous strain on white resources. Faced with the emergence of black revolution at home and growing international isolation, the white regime has been pursuing a policy of "strategic investment"5 to promote development and self-sufficiency in defense, atomic energy, oil, and electricity; telecommunications; transportation; mining; and the production of steel and aluminum. Computers are used by the government and private corporations to promote the greater sophistication of operations in all these strategic fields. Thus the significance of the role of US computers in South Africa is not restricted to their use by repressive agencies of the government. The web of apartheid laws extends throughout the government administration and state-controlled corporations into the operations of business and all spheres of social life. The modern corporate economy served by US computers meets the strategic needs of the white regime in many areas.

COMPUTERS AND THEIR USES
How They Work
Computers are electronic machines for doing numerical calculations. On the basis of computer programs (called "software") they can store, manipulate, and retrieve information ("data") as called for by their users. What all computers can do, with variations depending on size, are prodigious feats of "number crunching," making monumental calculations in a fraction of a second. Computers can be linked on a world-wide basis to exchange information and data may be provided to and
retrieved from a central computer office by decentralized local computer terminals.

It is true that computers are just another tool and must be programmed and maintained by people. But they are tools with tremendous power. Technological advances of the '70s have produced the microprocessor (computer "chip"), a single piece of silicon 1/6" x 1/8" which can contain 2,250 transistors and has the power of the first room-sized computer or a 1960's computer the size of a desk. "In theory the same chip could do everything, from guiding a missile to switching on a roast," says a recent article in Time magazine.6

Military and Police Use of Computers

The military applications of computers are vast and include areas as complex as missile guidance and as mundane as menu planning. Computers are used in the production of nuclear weapons. Computers are used in early warning systems and to track and control satellites and aircraft. Computers are used for navigation, for military codes and communications, for logistics and planning, for surveillance and intelligence, and for procurement and recruitment.

Some idea of the military importance of computers can be gained by the listing below of the rank in the top 100 US Department of Defense contractors for 1976 of those US computer companies which have operations in South Africa: 17

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<th>Company</th>
<th>Rank, 1976</th>
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<tr>
<td>IBM</td>
<td>14</td>
<td>505.5 255.9 121.7</td>
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<td>Control Data Burroughs</td>
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Company

Sperry-Rand IBM
Control Data Burroughs Hewlett-Packard Computer Sciences
DoD Contractor

Rank, 1976
14 30 47 88 97
98

Computers are the basis for the 'electronic battlefield' developed by the US in Vietnam. In 1969 General William Westmoreland described the new military technology:
On the battlefield of the future enemy forces will be located, tracked, and targeted almost instantaneously through the use of data links, computer-assisted intelligence evaluation, and automatic fire control."

A recent New York Times report notes that the major part of the $44.4 billion Pentagon budget request for military research and development for 1979 is earmarked for this type of program.9

Computers have also come to play important roles in police work. As in the military, computers can add efficiency in all phases of administrative and logistical work. Computers allow the maintenance of centralized data banks of arrest records, criminal convictions, and other information which can be linked with local terminals.

A recent article entitled "Why Police States Love the Computer" by journalist Hesh Weiner underscored the repressive potential of computer usage. "Pioneered by the wealthy and technologically advanced democracies, the use of computer systems for police, political, health, and economic administration is now a high priority for every dictatorship."20

US COMPUTERS IN SOUTH AFRICA

NOTE:
The basic source of information for this section, unless specified otherwise, is the December, 1977 survey of computer users in South Africa compiled by the South African magazine Management. This listing is not totally comprehensive, though the magazine notes that it was easier to account for large computers than small ones.

In its previous November, 1974 survey Management had specified the computers being used by military, arms production and procurement, and atomic energy agencies. In the 1977 survey these agencies are cited only as using "various" unspecified computers.

In December, 1977 the Control Data Corporation provided the Interfaith Center on Corporate Responsibility with a listing of its major computer installations in South Africa. However, this listing did not specify Control Data computers being used by the South African Atomic Energy Board and South African Airways that are listed by Management.

South African Military

In 1971 a South African newspaper report described some of the areas in which computers were being used by the South African military forces:

Computers have been built into the South African Air Force early-warning system to make it far more sophisticated and effective...

The computers have been incorporated in the underground nerve-center of the Northern Air Defence Sector at Devon, in the satellite radar station at Ellisras, near the Botswana border, as well as at Mariepkop on the edge of the Transvaal Drakensberg escarpment commanding the Lowveld and the
A computer also functions in the latest equipment of the Mozambican border.

The origins of the computers described in this article have never been established. However the 1974 Management survey lists the South African Defence Department as using all IBM equipment (an IBM 360/40, and IBM 370/145, and an IBM 370/145, and an IBM 370/158) for "personnel, financial, and stock control" purposes.

In Congressional testimony IBM vice president Gilbert Jones stated that no IBM computers sold to the South African government have been used for security functions or military use, but only for accounting, payroll, or administrative purposes. "Defending this claim, IBM chairman Frank Cary stated at the corporation's 1977 annual meeting:

We have investigated each instance brought to our attention [note: including the question of use by the South African military], where there has been any reason to believe that [IBM computers] might be used to abridge human rights, and ... we have found no instances in which they have.23 Yet only a few moments before Cary had said:

We would not bid any business where we believe that our products are going to be used to abridge human rights. However, we do not see how IBM or any other computer manufacturer can guarantee that they will not be. The facts of the matter are that we do not and cannot control the actions of our customers...

... there are thousands of experienced customers throughout the world who do all their own work, and there are customers who for reasons of business or national security do not allow anyone to know what they are doing. [italics added]

Thus IBM spokesmen have themselves admitted their inability to control the uses to which their computers are put.

IBM has also argued that in compliance with US arms embargo restrictions they have not supplied 'military' computers to South Africa, such as those developed by their Federal Systems Division for the US military.24 However ordinary commercial computers can be put to military use. An article in Armed Forces magazine of South Africa on the use of computers in military air and marine simulators (for training) notes that the requirements for military simulators have been built into computers which are commercially available in South Africa.25 [IBM has taken out at least one full-page advertisement in Armed Forces.26] Further, any computer used by the South African armed forces, even for purely administrative purposes, adds to their efficiency and capabilities. As a specific example of this, a deserter from the South African armed forces has recently given information reaching the Interfaith Center on Corporate Responsibility that a computer is being used in the South African military draft program.27

The 1977 Management survey states that the South African Defense Force is implementing a $13 million computer-based army logistics project (code named
Convor), which is expected to save the South African military $55 million annually when installed. The kind of computer being used is not revealed. The South African Defence Research Institute was listed in the 1977 survey as using "various" computers. This agency was not listed in the 1974 survey. The National Institute of Telecommunications Research does both civilian and military (in areas such as radar and communications) research. In the 1977 survey this institute was listed as using an IBM 1130 computer (linked to the IBM 370/115 at the Council for Scientific and Industrial Research), and six Hewlett-Packard computers.

Arms Manufacturing and Procurement

ARMSCOR (the South African Arms Development and Production Corporation) is the state-owned corporation which has developed South Africa's domestic arms production capabilities. ARMSCOR was listed as using "various" computers in the 1977 survey, and was not listed at all in the 1974 survey. With the aid of foreign technology and licensing agreements South Africa can now manufacture a wide range of sophisticated modern weapons, such as Mirage jet fighter planes and Panhard armored cars, as well as smaller arms. Any computer used by ARMSCOR must inevitably strengthen South African military capabilities by direct involvement in armaments production. The agency handling military procurement is the South African Armaments Board. In 1974 the Armaments Board was listed as using an NCR C100 computer and a Hewlett-Packard 2116 computer, and in 1977 as using "various" computers. The most significant aspects of South Africa's arms procurement are conducted on the international scene and are shrouded in secrecy, but a report last year by Sean Gervasi indicates that South Africa has been able to build a powerful modern military machine based on weapons provided by Western powers in violation of the voluntary international arms embargo imposed by the UN since 1963 and made mandatory by the Security Council in 1977. US computers used by the procurement agency must thus serve to streamline procurement procedures and add to South African military strength.

Nuclear Power

South Africa's nuclear arms potential caused an international incident in 1977 when the USSR and then France reported a nuclear weapons test site in preparation in South Africa. The US, which has long aided South Africa's nuclear development, confirmed these assertions and President Carter warned South Africa not to proceed with any tests. South Africa, which claims that it is able to make nuclear weapons, was apparently dissuaded by US pressure from conducting tests. But the nuclear capacity of the white regime threatens both neighboring African countries supporting black liberation in South Africa and the fabric of world peace, and South Africa has consistently refused to sign the Nuclear Non-proliferation Treaty. The importance of computers for South Africa's nuclear programs was underscored in a 1977 article by journalists Tami Hultman and Reed Kramer of Africa News:
In 1973, two Foxboro Corp. engineers left their Massachusetts factory for South Africa, where they supervised the installation of two FOX I computers purchased by the South African government. Negotiations for the deal, code named Project Houston, had been conducted with extraordinary secrecy. Not until the two engineers were in South Africa did they learn that the Foxboro equipment was the key to an experimental uranium enrichment plant, a highly clandestine facility outside the network of international nuclear safeguards.

Two years later, South Africa successfully brought the Valindaba enrichment plant near Pretoria into operation, thereby propelling itself into that elite club of nations that had mastered the secret of transforming raw uranium into a form usable in nuclear reactors.

South Africa has passed the major hurdles towards making nuclear fuel and weapons—an event of enormous importance in a world both energy hungry and insecure.

The two Foxboro computers had been sold to the South African government-owned Uranium Enrichment Corporation (UCOR) for $1.8 million for the stated purpose of the "operation of experimental facilities and pilot plants for nuclear research and development." The deal was approved without question by the State Department and the Commerce Department. If US officials were untroubled by the prospect of aiding South Africa in its drive to become a nuclear power, they were curious enough to have the CIA question the Foxboro engineers about the secret facility on their return. They said they had been restricted to the plant’s computer area and closely watched. In addition to the obvious military threat posed by South Africa’s nuclear potential there are other strategic considerations as well. With no known oil reserves nuclear power is a valuable alternative energy source, a buffer against oil sanctions. Also in a world facing future energy shortages South Africa’s ability to market enriched uranium, essential for the production of nuclear energy, is a strong economic asset.

"We now have the bargaining power of any Arab country with a lot of oil," claimed South African Atomic Energy Board vice president Lou Alber in 1974. South Africa claims to have scaled down its immediate plans for the construction of a commercial enrichment plant at Valindaba because of excessive costs, but its potential capacity to produce enriched uranium gives it important economic and military leverage with the US, Japan and countries of western Europe.

South Africa’s atomic research program has drawn on the resources of several US computer companies. The Pelindaba atomic research facility for instance was at one time equipped with an IBM 360/40 computer. In a letter of March 14, 1978 IBM informed the American Committee on Africa that this computer was no longer operating the research facility. The letter confirmed however that the South African Atomic Energy Board owned an IBM 370/155 computer, which according to IBM was installed to assist with "reactor development" and is also used for "recording and controlling the industrial use of radioactive materials." The 1974 Management survey had noted the IBM 370/155 in use by the Atomic Energy Board, as well as a Control Data 1700, a Hewlett-Packard 2115 and three 2114’s, and a Computer Sciences Varian 620L computer. There was no 1974
listing for the Uranium Enrichment Corporation. In 1977 both agencies were listed as using "various" computers.

In 1977, the director of Control Data's South African subsidiary informed the Interfaith Center on Corporate Responsibility that the Atomic Energy Board, the Uranium Enrichment Corporation and the Department of Defense each have "a wealth of computers (all IBM)," but this does not give with the information noted above.

Apartheid and Internal Security
The Department of Justice administers the legal structure of apartheid, the laws which mandate white domination and which make South Africa a police state by proscribing groups opposing apartheid and allowing detention and banning (similar to house arrest) without trial. Department of Justice policies have implicitly sanctioned police violence and torture against opponents, black and white, of apartheid. This agency was listed in 1977 as using six Data General Nova computers, reportedly for financial and statistical purposes.

The Department of Prisons is a pervasive part of the picture of apartheid; South African prisons hold hundreds of political prisoners and detainees held without trial. Many of the leaders of the South African liberation movement are imprisoned on the notorious Robben Island. The majority of South African prisoners are those charged with violations of the apartheid pass and 'influx control' laws—there were 250,000 blacks arrested under these laws alone in

IBM Headquarters, Johannesburg, S.A.
African Whites, Coloureds, and Asians. This agency is using two IBM 370/158 computers and IBM has admitted that its computers are being used for the "book of life" program. IBM also admits that it had bid for the program to computerize the "passbook," the central instrument for imposing apartheid on Africans. It lost out to ICL, the British company.

According to IBM its involvement with the "book of life" does not constitute support for apartheid or the abridgement of human rights, but this claim cannot be sustained in light of the importance of identity documents in a police state based on race.

The Department of Labor controls the terms and conditions of work under apartheid. Under this agency's policies no black worker may supervise a white worker. Black trade unions are not recognized and most strikes are illegal. The Department of Labor uses two Data General Nova computers.

The East Rand Bantu Administration Board is using a Burroughs 3700 computer. These boards administer apartheid on the local level by decree. They administer the pass laws, and are instrumental in destroying African family life by preventing a man from living with his wife and children when he goes to work in a town.
They have the power to herd people into compounds, destroy unauthor-
ized housing areas, and arbitrarily raise rents. They are a
hated symbol of apartheid for blacks and were a prime target during the student
rebellion in 1976. A number were wrecked, their files and records burned in an
effort to destroy their control of black lives. By computerizing its systems,
however, the white regime can keep local apartheid records securely-stored in
central computers, ready to be put into use when the need arises.
The Bantustans represent the ultimate goal of apartheid: the dispossession of the
African majority to be accomplished by forcing them to become citizens of
"independent" bantustans comprising only 13% of the country. The
administrations of two bantustans, Bophuthatswana and Gazankulu are using IBM
System 3/10 computers, while the administrations of the Ciskei and the Transkei
are using British ICL 2903 computers.
A growing number of local municipal administrations are also using computers to
solve problems of control. NCR has been a principal supplier for these purposes
and NCR computers are being used by the following municipalities:
Bloemfontein, King Williams Town, Parow, Pietersburg, Stellenbosch, and
Worcester. The town councils of Alberton and Witbank also use NCR computers.
The Randburg municipality is using a Control Data Cyber 18 computer.
The Transvaal Provincial Administration is using a Burroughs Dual 6700
computer for administrative functions and "law enforcement."

EXAMPLES OF US COMPUTERS IN USE
Government Departments, State Corporations and Agencies
National Petroleum Refiners (SASOL I &II)
Electricity Supply Commission (ESCOM)
South African Iron and Steel Corporation (ISCOR)
Council for Scientific and Industrial Research (CSIR)
South African Reserve Bank
South African Airways
South African Broadcasting Corporation
Department of Inland Revenue
Department of Water Affairs
Department of Posts and Telegraphs
South African Railways
Department of Agricultural Technical Services
Department of Commerce
Department of National Education
Department of Social Welfare
Department of Transport
Computer
1 Sperry Rand Univac 1106
1 Control Data Cyber 74
3 Control Data 1700
4 Control Data 3500
2 .. . 3170
1 IBM 370/158
1 Control Data Cyber 74
1 Computer Sciences Varian (various other minicomputers)
1 Sperry Rand Univac 1106
1 IBM 370/168 1 IBM 370/155
3 IBM System 7 computers
1 Control Data 1700
1 Digital Equipment PDP/10
1 IBM 370/135
1 IBM 370/158
1 IBM 1130 22 Datapoint 2200
4 Datapoint 6500
4 Data General Nova
3 Computer Sciences Varians
8 Mohawk/Olivetti computers
2 Hewlett-Packard 21MX
3 Datapoint
2 Burroughs 1726
3 IBM 370/158
1 IBM System 230
9 Data General Nova 23 Allied Technology GA computers
2 Burroughs 7760
1 Datapoint
1 IBM 370/158
1 IBM 370/158
1 Control Data Cyber 74

Business and Industry

Computers are an essential part of modern business and industry and are widely used in the private sector in South Africa, both by US and other foreign companies, and by local South African businesses. Defenders of business have claimed that economic expansion would bring about the breakdown of apartheid, but the economic boom of the 1960's and 70's has brought prosperity, "for whites only," while the Nationalist regime has intensified repression to maintain white control. Business prosperity is seen among white South Africans as vindicating the apartheid policies of the Nationalist Party and strengthening their capacity to rule.

General Motors Ford
Chrysler (Sigma) Leyland
Mobil
Shell Caltex Exxon (Esso) British Petroleum Total
Firestone
Goodyear
Anglo-American Research Labs
The export of computers to South Africa first began to be subject to restrictions in December, 1976 (aside from the terms of the United Nations arms embargo adhered to by the US since 1963) when general licenses for the export of large computers to "free world" (including South Africa) countries were revoked. To export large computers to South Africa companies had to apply for individual licenses. Approval of the export of computers for sale to South African police, military, or atomic energy agencies was subject to review by the State Department.

In February, 1977 President Carter announced that in cases of applications to export computers to foreign police agencies, the Department of State would recommend denial of the export license where it was believed that the computer would be used in the suppression of human rights.

Computer
1 IBM 370/145
1 Burroughs 3700 1 Burroughs 3600
1 IBM 370/135 1 IBM 370/115
1 IBM 370/135
1 Burroughs L8300
1 IBM 370/145
1 IBM 145
1 IBM System 3/12
1 IBM 370/135 1 IBM 370/115
1 IBM 370/115
1 IBM System 3/32
1 IBM 370/155
1 Hewlett-Packard 3000
3 Computer Sciences Datapoint
1 IBM 1130
1 Burroughs 2761
1 IBM 370/145
1 IBM 370/135

All IBM equipment in the 360 & 370 series.
IBM 370/135 IBM 370/145 (on order)

In November, 1977 following the passage of a mandatory arms embargo resolution by the UN Security Council the Carter administration announced new curbs affecting computer sales to South Africa, which were implemented in Department of Commerce regulations published on February 16, 1978. The new
regulations prohibit, in furtherance of the administration's policies "supporting human rights," the sale of any US commodities or technical data to military or police entities in South Africa and Namibia. The restrictions apply not only to the direct sale of commodities, but any form of indirect sales or other arrangements through subsidiaries or other companies as well. However, the impact of these restrictions is limited in several ways. First, while computers are vital for the South African police and military, these agencies account for only a small number of the total number of computers in use throughout the country, many of which also play strategic roles in assisting apartheid. Second, it is not clear how tightly the new restrictions can or will be enforced.

An example of the enforcement problem arose soon after the restrictions were announced, when the manager of IBM's South African subsidiary was reported by the British magazine Computer Weekly to have said that IBM in South Africa would continue to supply spare parts and service to any affected military or police computers as long as parts supplies lasted.34

The West German subsidiary of IBM and the Japanese company Hitachi were both reported to have offered to supply parts to service embargoed IBM equipment.3 Such arrangements could violate the new restrictions, however, since the parts would be made under IBM patents registered in the US and such products appear to be included in the embargo. It is clear that IBM's concern is to maintain its servicing contracts with affected South African agencies, rather than try to operate within the human rights spirit of the Carter regulations.

The IBM computers which have been listed as being used by the South African Department of Defence, for example, are commercial models similar to ones being used by other government agencies and corporate customers. It could therefore be difficult for the US government to monitor spare parts that might go to the restricted agencies, as opposed to those going to other customers.

There are further problems as well. The South African government has already established a cooperative network among its computer sections in eight separate government agencies which will handle work for any government office.36 Therefore, work for military or police agencies could be farmed out to other agencies with computers. A range of other suggestions was made by the head of Anglo-American Corporation's computer company, interviewed in an article entitled "How to Beat the Computer Siege" in the Sunday Times of Johannesburg, March 26, 1978, about ways to blunt the US curbs. These include setting up local computer leasing and maintenance companies, as well as government funding for the local South African manufacturers of small and medium-sized computers. He noted that there is a good deal of spare computer capacity in existing government

EXAMPLES OF US COMPUTERS IN USE

Selected Key Sector Business and Industry (Private)

AUTO INDUSTRY
OIL INDUSTRY
TIRE & RUBBER
MINING
installations and "there is no way the US authorities will be able to prevent this capacity from being shared by the defence and police departments."
The ability of the South African government to exploit existing computer installations extends into the private sector as well. Under the terms of the 1970 National Supplies Procurement Act, the government may order any company operating in South Africa to deliver products to the government that it determines are necessary for national security. Thus any computer or computer part in the country could be seized and used by the white regime.

Another South African law could make it difficult for the US to openly monitor the actions of the South African government as they relate to US computer companies in South Africa. The Second General Law Amendment Act of 1974 makes it a criminal offense for anyone in South Africa to provide information in reply to any request from outside South Africa concerning any aspect of business, without government permission.

A striking example of the ineffectuality of US legal restrictions relating to corporate operations in South Africa is the well documented charge that Mobil Oil's South African subsidiary was a continuing supplier of petroleum products to Rhodesia in violation of US criminal law enforcing economic sanctions.37 In the face of investigations by the Treasury Department and the Senate Foreign Relations Committee, Mobil claimed that the South African Official Secrets Act and other laws prevented it from obtaining information from its own subsidiary. Under South African law, it seems, Mobil's subsidiary is required both to supply oil for Rhodesia (in violation of US law) and to hold all information about these transactions confidential.

This case shows that subsidiaries of US corporations in South Africa are free to flout US legal restrictions, under the protection of South African law. Thus the current restrictions imposed by the Carter administration, while posing a minor hindrance to the white regime, cannot be seen as a serious effort to end the involvement of US computer companies with apartheid, and make the need for corporate withdrawal all the more urgent.

COMPUTER MANUFACTURING IN SOUTH AFRICA

Another development which weakens the effects of US restrictions on computer sales to South Africa is the emergence of a local South African computer industry. While South Africa remains totally dependent on foreign companies, mainly US, for large computers, several minicomputers are now being produced and sold in South Africa. These include the Commander made by Messina, the 800 produced by Anker Data Systems, Hamac produced by the Mercedes group, and the Syfa produced in South Africa by the Commercial Systems Division of Computer Automation of the US, which may go on the South African market in 1978.38

The military and strategic implications of these developments can be seen by the fact that Standard Telephone and Cables of South Africa (in which ITT of the US holds a large interest) is working on a military specifications minicomputer using Israeli components, which they expect to have in production by the end of 1978.39
Yet the South African computer industry still remains dependent on foreign sources. The Messina Commander, for example, has a foreign content of 40% materials and labor. A South African expert has noted that "the US does have considerable muscle in this field as the bulk of computer patents in the world are still held in the United States." This indicates that to be most effective in the computer field, sanctions by the US would have to not only mandate withdrawal by US companies, but also block licensing and patent technology agreements with South Africa.

COMPUTER COMPANIES DEFEND THEIR ROLE IN SOUTH AFRICA

The growing international pressure for corporations to stop collaborating with apartheid and withdraw from South Africa began in the early 1960's after the Sharpeville massacre. Computer companies in particular have faced public scrutiny and protest for their role in strengthening apartheid. Since 1971 when the American Committee on Africa published a fact sheet condemning IBM's operations in South Africa and national church agencies called for IBM to disclose information on its operations in South Africa, IBM has continued to face strong protest. Other companies such as Control Data and Burroughs also have been cited and criticized for collaboration with racism and repression in South Africa.

The computer companies have justified their decisions to remain in South Africa by claiming that their operations do not constitute material and moral support for the apartheid system. Ultimately the companies are caught in a contradiction. They contend that they would not sell computers for repressive use, but also admit that they cannot control the actions of those who use their equipment. All computer companies exporting their products to South Africa must certify to the US Commerce Department how the equipment is to be used; if there is a deviation from uses specified in the export license the company or distributor could face legal penalties.

So in order to defend and facilitate continued sales the companies imply that they do know about and can control the end-uses of their equipment. In fact this almost certainly is not true, for, once delivered, computers can be adapted to very different purposes from those originally specified.

Summarized below are the arguments most commonly put forward by the companies, followed by a brief critical analysis of each position.

Claim 1: Computers supplied by US companies are not used for repressive purposes.

Control Data announced in October 1977 that it would not increase its South African investments, citing government repression as a factor, but it has not ended all sales. Frank Cary, Chairman of IBM, told the 1978 IBM annual meeting that "on more than one occasion" IBM had not bid for a computer contract because the company thought the computer might be used for repressive purposes. But these are very general statements, and all guidelines have been left very vague. Chairman Cary had told the 1977 annual meeting:
You know also that I have said time and again that we have investigated each instance brought to our attention where there was any reason to believe IBM computers might be used for repressive purposes, and we have found no such use.

Asked about IBM's criteria used in such investigations, Mr. Cary said at the 1978 annual meeting that the company could not use general criteria, and that investigations are made on a case-by-case basis, but "we know what repression is when we see it."

Analysis
This study has shown that IBM computers, and those of other US and foreign companies, are being used pervasively by the South African government and in South African industry in ways that contribute to enforcing apartheid and building the strategic power of the regime.

IBM has adopted the convenient tactic of first defining the crime, then conducting the trial, and finally declaring itself innocent. Further, Mr. Cary admitted at the 1977 IBM annual meeting that during the previous year the question of the use or misuse of IBM computers in totalitarian societies such as South Africa or Chile had never been on the agenda of the meetings of the Board of Directors.

IBM finds itself not guilty by arguing that although certain South African government agencies use IBM computers, they do so only for "administration." Since "administration" in IBM's view would not seem to constitute repression, then the computers are not put to repressive use. This approach ignores the nature both of the government and of the administrative tasks being performed.

Claim 2: We care about human rights, and will do nothing to abridge them, but it is not possible to control all final uses of our computers.

Thus, IBM Chairman Frank Cary told the April 1977 annual meeting that:

We would not bid any business where we believe that our products are going to be used to abridge human rights. However, we do not see how IBM or any other computer manufacturer can guarantee that they will not be. The facts of the matter are that we do not and can not control the actions of our customers, and it would be grossly misleading to espouse a policy that we cannot enforce.

Similarly Control Data said in October 1977 that "no US company would want its activities to lend support to the abridgement of human rights anywhere." But Chairman William C. Norris qualified that statement in a recent dialogue with church leaders by saying:

You can't place restrictions on a computer that you put in someone else's country ... (or) you wouldn't be selling computers in this world. You do the best you can, and that's exactly what we're doing.

Analysis
IBM's statement marked a new departure in the company's rhetoric: previously it had emphasized its willingness to sell computers anywhere not prohibited by US law. But despite the language voicing a concern for human rights, current statements by IBM and Control Data do not extend beyond the human rights
considerations recently incorporated into licensing procedures for the export of computers by the Carter administration. The companies are still willing to make available to South Africa just as much as the US government will allow. And despite their expressed concern for human rights, the computer companies are still reluctant to go along with one aspect of the administration curbs—the regulation placing an embargo on the supply of spare parts for computers already in place. The Computer and Business Equipment Manufacturers Association (of which both IBM and Control Data are members) wrote the Department of Commerce complaining that the new regulations, which will force them to default on their existing maintenance contracts, "will be seriously injurious to their reputation and their ability to sell throughout the world."44

In qualifying their claims about human rights, both IBM and Control Data argue the impossibility of controlling the use of their computers. Somewhat contradictorily, Control Data has said that it can monitor the major ways in which its computers are used, while IBM has claimed that it cannot.

not. Both companies agree that they cannot control the ultimate uses to which their computers are put. As indicated earlier, this casts serious doubts on the reliability of the information companies provide to the Commerce Department in order to obtain export licenses.

The principal control a company has in this situation is control at the source. It can refuse to do business; it can cut off new supplies, maintenance, and spare parts; and it can thus insure that it is not supplying equipment in conflict with human rights considerations.

Claim 3: Ending computer sales would not affect the South African government's philosophy and therefore could not induce any change.

In a letter of May 6, 1975 written to Dr. Sterling Cary, then-president of the National Council of Churches, IBM Chairman Frank Cary stated: 
"Apartheid is abhorrent. However, there is no reason to believe that halting the sale of one company's line of computers would affect the government's philosophy."

Analysis.

The call for computer companies and other foreign companies to withdraw from South Africa is not based simply on the hope that this would prompt a change in 'philosophy' or policy on the part of the regime. It is first of all based on the premise that foreign corporations strengthen apartheid by their business activities in South Africa. The problem of creating a new society in South Africa, of changes of philosophy and policy, is a problem for South Africans themselves to solve. The call for withdrawal is a call to stop collaboration which strengthens apartheid and thereby to make it easier for the people of South Africa to eliminate apartheid.

Mr. Cary is ready to deprecate the role of "one company's line of computers" in South Africa. But this has not been borne out in this study of the impact of IBM and the other companies, which perform vital functions for the government and business.
Claim 4: Corporations do not and should not engage in politics.
IBM has stated:
Critics have called upon IBM and other corporations to take a variety of actions to change the policy of the South African government: from refusal to sell anything to the government, to refusal to sell any South African organization any product which could conceivably strengthen the economy. For a corporation to undertake any of these actions for political rather than economic motives is to inject itself into the conduct of foreign policy... corporations should be free to do business in any country acceptable to the U.S. government where they can operate profitably and treat their employees fairly.
Analysis
This argument is faulty in several respects. A private U.S. company may conduct its business in any manner it chooses so long as it does not violate U.S. laws or laws of countries in which the company operates. No US laws compel companies to do business in South Africa, or would be violated by a withdrawal from South Africa.
It is a myth that corporations never "inject" themselves into the conduct of foreign policy. Corporations are free to express their views on US foreign policy and frequently do. For example, to quote two minor examples, the Computer and Business Manufacturers Equipment Association protested the Carter administration imposition of curbs on spare parts for computers now in use by the South African police and military, and William Norris, Control Data Chairman, went to the banking committee in Congress to oppose the revocation of Export-Import Bank credits and loan guarantees for business with South Africa. Control Data, he said, would not even consider withdrawing from South Africa. Business interests and business concerns about foreign policy issues are in fact an influential element in the development of US foreign policy affecting many areas.
Claim 5: Companies promote progressive change by staying in South Africa.
Both IBM and Control Data have propounded versions of this standard corporate argument in defense of their doing business in South Africa.
IBM believes it should continue to do business in South Africa and to play a role in the development of black employees there. That role is to assist in their education, their employment in dignified and meaningful jobs, their opportunity to advance and to improve their leadership skills. Withdrawal would eliminate our chance as a company to set examples in job opportunity, equal pay for equal work, paid benefits, personal development and support for education.45
Control Data's objective in South Africa has been to assist, through its business and employment practices, progress in the living conditions of the deprived populations there. To that end, for example, we have allocated funds and are seeking cooperation both in South Africa and the United States for the establishment of a large scale computer-based education system for black people in South Africa. We see this development as the most practical means of bringing about a significant closure in the education gap and hence the opportunity gap of millions of underprivileged people."
Analysis

These justifications are a distortion of the significance of the companies’ efforts to employ and train black workers and to promote special education and assistance programs. In all these fields, the actions of the computer companies must fall within the parameters set by apartheid. Many of the companies have endorsed the “six principles” formulated by Reverend Leon Sullivan, who is on the board of General Motors. These call for desegregated work facilities, equal pay and employment practices, professional training programs for blacks, and business-sponsored programs to improve black housing and transportation. But the Sullivan principles and other benefits established for black employees pose no challenge to apartheid and have in fact been endorsed by government Interior Minister Mulder.

The cause of black poverty, lack of education and training and problems in housing and transportation lies in the system of apartheid, which denies to the black majority all political and social rights as South Africans. The Sullivan principles and the computer companies do not confront this central issue.

The records of IBM and Control Data reveal the limitations of the programs they propose. By December 1977, after more than five years of criticism by social activists and company assurances that change was being initiated, IBM’s total black work force (African, Coloured and Asian) amounted to 131, some 16% of a total work force of 1,427.47 Most IBM workers, and almost all workers doing more skilled jobs, were white.

Control Data reported in December 1977 that it had 19 black workers out of a total of 190 employees.48

It is hard to take seriously corporate claims of progress in light of these figures. Control Data has proposed a computer-run education program to solve problems in black education. But such a program would have to be administered under the rigid control of the white regime which is responsible for the systematic denial of education to blacks and the corruption of educational institutions by the poison of the apartheid ideology of black inferiority and white dominance. In these circumstances it is naive to see Control Data’s plan as a program that would change apartheid.

CONCLUSION

The computer companies have continued to contend that withdrawal from South Africa would mean the abandonment of the hope for progress of their (few) black employees and of the influence of their social programs. In fact, however, the only way that there will be any true hope for the advancement of black workers and solutions to South Africa’s social ills will be through the elimination of apartheid. The computer companies, by allowing their products to be used under apartheid, are acting to strengthen apartheid, and so intensifying the violence and suffering that lie ahead on the road to freedom in South Africa.

INTERNATIONAL BUSINESS MACHINES
(IBM)
IBM is by far the largest computer manufacturer in the world, and one of the world's largest corporations. There are several influential political figures on IBM's board, including Nicholas Katzenbach and William Scranton. IBM also produces electric typewriters, copiers, and educational and testing materials. IBM's offices were established in South Africa in 1952, and its operations there include rental, sales, and servicing, but no computer manufacturing. IBM in South Africa markets a range of computers, large and small. As of December, 1977 IBM had 1,427 employees in South Africa, and the percentage of black employees had risen from 4.6% in 1969 to 16.2% in 1977.

IBM ranks second behind ICL of Britain in the South African computer market, accounting for approximately 25%-30% of sales. About one third of IBM South Africa's business is with the South African government, and other customers include many of the largest private corporations in South Africa.

Because of its importance in South Africa, IBM has been subject to a number of protests and church shareholder campaigns. IBM has issued several reports defending its South African operations and provided information for the 1976 Congressional survey of US businesses in South Africa. IBM has endorsed the Sullivan principles.

Among the reported users of IBM computers in South Africa are:
- Department of Defense
- South African Atomic Energy Board
- Department of Prisons
- Department of Interior Council for Scientific and Industrial Research
- National Institute of Telecommunications Research
- South African Broadcasting Corporation
- South African Airways
- South African Railroads

Control Data Corporation's principle business is in computers, though it has subsidiaries engaged in finance and insurance. Control Data began its South African operations in 1965, and its subsidiary there sells and leases computer systems and peripherals, data services and educational services. Sales in South Africa represent .5% of worldwide sales, 2% of overseas sales and 13% of the South African computer market. As of December, 1977...
Control Data reported having 190 employees in South Africa, including 19 blacks. There is no collective bargaining for any workers. Control Data has faced several protests by church shareholders and in 1977 announced that it would not increase its investments in South Africa because of opposition to apartheid. But Control Data has insisted that it is opposed to corporate withdrawal from South Africa and has proposed the donation of a computerized education system for black South Africans. Control Data has endorsed the Sullivan principles.

Among reported users of CDC computers in South Africa are:
- ISCOR (South African Iron and Steel Corporation)
- ESCOM (South African Electrical Supply Commission)
- Council for Scientific and Industrial Research
- South African Airways Randburg Municipality
- BURROUGHS CORPORATION
  R.W. MacDonald, Chairman Main office: Burroughs Place
  Detroit, Michigan 48232

South African headquarters: Burroughs Machines Ltd.
P.O. Box 3996
Johannesburg, 2000

Burroughs produces and sells computers and computer equipment. Burroughs began marketing products in South Africa in the early 1900's and a subsidiary was established there in 1929. Burroughs has been subject to a church shareholder campaign concerning its South African operations and issued a special report in 1973 in response. This report stated that Burroughs had 502 employees in South Africa, including only 44 Africans and 6 colored workers. Burroughs claimed:

Burroughs firmly believes that a healthy and growing business climate in South Africa is fundamental to the economic and social progress of all people in South Africa.

* * * Providing opportunities for technical training and increased employment . .. are important reasons for the Company to remain in South Africa and to continue to expand its operations in the country.

Burroughs did not complete the Congressional survey on South African business in 1976, but did provide background data without, however, updating figures. Burroughs has endorsed the Sullivan employment principles.

Among users of Burroughs computers in South Africa are:
- Cape Midlands Bantu Affairs Administration
- East Rand Bantu Administration Board
- Transvaal Provincial Administration
- South African Railroads
- Air Survey of Africa
- Ford Motor Company of South Africa
- NCR CORPORATION William S. Anderson, Chairman
NCR concentrates on the sale of integrated computer systems and other business equipment.
NCR has been in South Africa since 1892 and has been in the computer market there since 1962. According to the company, in 1975 South African sales represented 1.1% of worldwide sales, 2.2% of overseas sales, and 5% of the computer market in South Africa.
As of the early 1970's, NCR's Johannesburg office has served as headquarters for all of Africa.
In 1977 NCR reported that 25% of its 927 person workforce was black: 44 Colored, 50 Asian, 148 African. It has no black workers in supervisory positions above white workers.
NCR completed the 1976 Congressional questionnaire, providing information on its South African operation, and on its attitudes to the operation.
According to A.S. Gillan, vice-president for Africa, NCR has had a program for black workers since 1971, but this does not imply "equal opportunity" as the term is used in the US.
The company has no policy restricting the type of equipment sold in South Africa, although Gillan pointed out that sales to nuclear and military agencies require special licensing.
NCR does have unions for its white workers, but none for its black workers, although it stated that it has not been approached by African union organizers, and would be willing to recognize a union if 75% of the workers were represented by the union, thus qualifying it for recognition.
Commenting on its attitude to US policies the company stated that US "diplomatic posture more favorable to South Africa" and a relaxation of Export-Import Bank restrictions would be beneficial. Measures to curb US business with South Africa would "seriously affect" NCR's operations in South Africa.
NCR stated that it had no significant new investment plans for South Africa and that about 75% of new investment there would come from retained earnings of the subsidiary. NCR stated that it had not been affected by the Soweto uprising and did not anticipate any alteration of its development plans as the result of the uprising. NCR stated that it anticipated that the South African government would soften its racial attitudes and improve business prospects over the next 5 to 10 years.
NCR computers are being used by local government administrations and by supermarkets and other stores. In 1978 NCR in South Africa reported that 40% of its sales were of large computers and 40% of mini-computers.
Sperry-Rand, incorporated in 1955, is a large company producing computers, and business and electronic equipment for military and commercial use. It is an important defense contractor (ranking 14 in DoD contracts in 1976). The Univac computer division ranked third in revenues and second in profits in the computer industry in 1976.

Sperry-Rand Univac had 324 employees in South Africa in 1976, but has given no further breakdown of that figure. It did not complete the questionnaire of the Senate Subcommittee on Africa, providing only cursory background information in a letter. In response to questions by a National Council of Churches researcher in 1972, Sperry-Rand vice president Garwood stated that he had made a trip to assess the situation in South Africa and added:

In general it is our intent to continue our activities there as a good member of the community, and we hope to expand our programs of training and upgrading the skills of all workers, thus providing opportunity to lead to a better environment. Sperry-Rand has not been subject to direct protests or campaigns by groups concerned about South Africa.

In 1977 Sperry-Rand bought the Varian Corporation, the eighth-ranking US manufacturer of minicomputers. Varian computers have been distributed in South Africa by the local Computer Sciences corporation and as of July, 1977 there were some 115 Varians installed in South Africa.

Among the listed users of Sperry-Rand and Varian computers in South Africa are:

- National Petroleum Refiners (SASOL)
- Richards Bay Minerals
- Council for Scientific and Industrial Research (Varian)
- Magnetic Observatory (Varian)
- HEWLETT-PACKARD
  - David Packard, Chairman
  - Main office: 1501 Page Mill Road
  - Palo Alto, California 94304
- South African headquarters: Hewlett-Packard South Africa (Pty) Ltd.
  - Private Bag number 1
  - Wendywood
  - Sandton, 2144

Hewlett-Packard, incorporated in 1947, is the second-ranking manufacturer of minicomputers in the US, and also produces a broad array of electronic equipment for measurement and analysis. South African sales are $10 million annually, 2% of all international sales and 1% of total sales.

Hewlett-Packard did not complete the Senate Subcommittee on Africa's questionnaire on South African operations, but did provide some background information in a letter of response. According to company chairman David Packard, because of the nature of its products, the company employs "highly educated, highly skilled sales engineers and service technicians. This degree of education and level of skill is found
almost exclusively among the Caucasian population." Thus the company's workforce includes 113 South African nationals: 99 whites and 14 Coloreds and Africans. The black employees handle mostly routine clerical and manual tasks. Hewlett-Packard gave no information on wages, but said that its South African manager does not subscribe to the concept of the Poverty Datum Line, believing that wages and benefits "should be related to the ability of the individual, as far as the law permits."

The company has indicated support for the Sullivan employment principles. Hewlett-Packard has not been subject to protests or campaigns concerning its South African operations.

In South Africa Hewlett-Packard computers have been listed as being used in several strategic facilities:

- National Institute of Telecommunications Research
- Anglo-American Research
- South African Armaments Board
- South African Atomic Energy Board
- South African Department of Posts and Telegraph

In 1978 Hewlett-Packard's subsidiary reported that it had 180 minicomputers installed in South Africa and 880 programmable calculators.

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COMPUTER SCIENCES CORPORATION

W.R. Hoover, Chairman

Main offices: 650 North Sepulveda Blvd.
El Segundo, California 90245

South African affiliate: Computer Sciences Sigma, Ltd.
P.O. Box 31497
Braamfontein, 2017

Computer Sciences owns less than 20% of its South African affiliate. Computer Sciences does not produce computers. Its business includes designing computer and communications systems and the marketing of INFONET, "an international remote computing system for information processing and scientific computation," which its affiliate is selling in South Africa.

Its South African affiliate holds the South African distributorship for two US-made computers: Datapoint and Varian, both minicomputers. It is the largest supplier of minicomputers in South Africa with annual sales of about $15 million in 1977. Varian has been bought by Sperry-Rand in the US, but for the present the South African distribution is being handled by Computer Sciences Sigma.

Computer Sciences did not respond in detail to the 1977 Congressional Survey, but a letter from Matthew Lawson, director of corporate communications, reported that the South African affiliate is managed and controlled by Anglo American Ltd. Lawson went on to stress that Anglo American (South Africa's biggest conglomerate, built on gold and diamond mining) "is noted for its progressive stance." He did not, however provide any evidence of such advanced attitudes, admitting rather, "We do not, however, have any specific information on their business practices."
Computer Sciences South African affiliate was listed by the US as having 330 workers in 1976.

DATA GENERAL
E.D. deCastro, President
Main office: Westboro, Massachusetts 01581
South African distributor: Perseus Computing and Automation (offices in Johannesburg, Capetown, and Pretoria)
Data General has no subsidiary in South Africa; its Nova and Eclipse minicomputers are distributed and serviced by a local South African company, Perseus Computing and Automation. Data General is the third-ranking US manufacturer of minicomputers. An article in the South African press last year ("US Computer Giant Gives Assurances," Johannesburg Star, Dec. 31, 1977) briefly described Data General's South African links and policy. Don McDougall, International Marketing Manager, gave assurances that South African sales are not expected to be affected by US government restrictions. Data General's distributor says it is the largest supplier of general-purpose minicomputers in South Africa with more than 300 computers installed and on order. Data General has not come under protest for its South African links and was not included in the Congressional survey because it has no actual subsidiary in South Africa. Among the reported users of Data General Computers in South Africa are:
South African Department of Justice
South African Department of Labor
South African Railways

DATAPoint CORPORATION
H.E. O'Kelley, Chairman
Main office: 7900 Callaghan Road
San Antonio, Texas 78229
South African distributor: Computer Sciences 31947, Braamfontein
Incorporated in 1968, Datapoint's main product is a general purpose minicomputer. It has no South African offices, but its distributor in South Africa is Computer Sciences, a subsidiary of the giant Anglo-American Corporation. Datapoint has not come under protest for its South African links and was not included in the Congressional survey because it has no subsidiary in South Africa. Among the reported users of Datapoint Computers in South Africa are:
South African Department of Water Affairs
South African Department of Posts and Telegraphs
South African Department of Commerce

GENERAL AUTOMATION South African distributor: Data Corporation (Mercedes Group subsidiary)
General Automation (GA) is the fourth-largest US manufacturer of minicomputers. Their South African distributorship was acquired in 1978 by Data Corporation of South Africa from another South African company, Standard Telephone and Cables (STC). When the new distributorship was arranged General
Automation's international distributor sales manager Dennis Bress stated in Johannesburg:
Our management is very pro-South African. And as our approach here will be almost exclusively in the commercial sector, we do not expect to be affected by sanctions.

General Automation was not included in the Congressional survey because it has no South African subsidiary, and it has not been subject to protests concerning its operations in South Africa.

GA computers have been listed as being used in the following facilities:
- South African Railways
- Bureau of Engineering Computer Services

**COMPUTER AUTOMATION**
Robert E. Rawlins, Chairman
Main office: 18651 Von Karman Avenue
Irvine, California 92664

South African Division: Commercial Systems

Computer Automation ranked eleventh in 1976 among US producers of minicomputers and makes scientific equipment as well.

In 1975 Computer Automation bought a South African company which had developed a minicomputer called Syfa, calling it their Commercial Systems Division. Since then the South African developed Syfa computer has sold well in the US and Canada, but has not been on the market in South Africa because of a legal suit and distribution difficulties. It now appears, however, that the Syfa will come on the South African market this year. The Syfa represents South Africa's growing domestic computer capability, which stands as a buffer against international sanctions.

**FOXBORO COMPANY**
E.W. Pitt, Chairman
Main office: 38 Neponset Avenue
Foxboro, Massachusetts 02035

Foxboro company produces industrial instruments, including computers. It has no operations in South Africa, but its two known computers installed there are in a strategic installation; these are two FOX I computers installed in 1973 in South Africa's experimental uranium enrichment plant. Foxboro has not been subject to protests concerning its South African link and was not included in the Congressional survey of US business in South Africa.

**NOTES**
7. Sunday Times (Johannesburg), Dec. 6, 1970.
14. See for documentation publication series Notes and Documents, Centre Against Apartheid, United Nations, N.Y.
23. Transcript of IBM annual meeting, April 25, 1977, pp. 55-56.
27. Information provided to Timothy Smith, Interfaith Center on Corporate Responsibility, March, 1977.
29. Tami Hultman and Reed Kramer, "South Africa's Rising Nuclear Potential,' op. cit.
42. Transcript of IBM annual meeting, April 25, 1977, p. 29.
47. Information from J. O'Connell, IBM. May 1978.
48. Letter from Gary H. Lohn, Control Data Corp., op. cit.

This pamphlet is produced in co-operation with the Interfaith Center on Corporate Responsibility (Rm 566, 475 Riverside Dr., New York, NY 10027). American churches, both Protestant denominations and Roman Catholic orders, have been involved in research, fact-finding hearings, stockholder resolutions, negotiations with management, and testimony before the U.N. and Congress for a number of years. Over that period, they have offered repeated critiques of the role of U.S. computer companies in strengthening white minority rule in South Africa. Specifically IBM and Control Data have faced shareholder resolutions calling for an end to all sales to the South African government. Some churches have called for the withdrawal of the U.S. computer industry from South Africa.

For additional information on church actions in this area contact ICCR.

November, 1978