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The transfer of United States technology to the Soviet Union: 1966-1986

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Silicon Valley. Continental Corporation purchased a comprehensive list of electronic equipment and transhippped them illegally to Moscow over a four-year period. These transhipments included at least one complete integrated circuit processing plant.69

Some technobandits are not so fortunate and are successfully apprehended by US law enforcement agencies. Customs agents in Denver arrested an American and a Britain in 1983 as they tried to export to Moscow a seismograph system needed for measuring nuclear explosions, as well as a laser device for testing fibre optics and etching computer micro-chips.70

The most successful operation in recent times against the outflow of high technology, was the interception by Swedish Customs officials of the sophisticated VAX 11/782 computer system that was headed for the Soviet Union in November 1983. The technobandit behind the illegal shipment of the US VAX 11/782 was a German named Richard Mueller, whom enforcement authorities regard as probably the most successful Soviet high technology smuggler of all time.

The Case of Richard Mueller

Some experts in industrial espionage have dubbed Mueller a "superbandit", due to his proficiency and far-flung operation of more than 40 front companies he directed around the world, to facilitate the diversion of sensitive US high technology transfer to the Soviet Union.

The activities of Richard Mueller, a Soviet agent,71 first came to light in 1974 when he and a colleague, Volker Mast, directed the shipment of semi-conductor manufacturing equipment to the Soviet Union via Canadian, West German and Swiss dummy companies.72

II Industries, a Silicon chip high technology firm headed by Gerald Starek, cooperated with the Soviet Union in 1974 through Richard Mueller, as a result of his company facing serious financial problems at the time. Mueller promised Starek a $1,5 million sale of semi-conductor equipment and ultimately $35 million for a complete assembly line for the mass production of micro-computers to ease his financial problems.73 In 1975, the CIA tipped off the US Commerce Department about Mueller's activities. In turn, Commerce Department officials called II Industries and informed them that Mueller's order was headed for the Soviet Union, which prompted Starek to cancel the order. However, Starek and Mueller secretly set up two front companies in Montreal to facilitate the continued diversion of semi-conductor equipment via Canada and Switzerland to the Soviet Union.

Eventually the US Government curtailed Mueller's activities, and in their absence, Mueller and Volker were both indicted by a Federal Grand Jury in San Fransisco in 1975. Several Americans, including Starek, received five year suspended sentences and small fines. Mueller faced arrest if he ever entered the US again.

This setback did not deter Mueller's activities. Based in West Germany during the late 1970's, Mueller expanded his operations when he and his partner, Volker, established two front companies in Switzerland called Semitronic AG and Integrated Time AG. Both these companies were subsidiaries of Mueller's West German company, Deutsche Integrated Time. Late in 1979, Mueller set up two further front companies in South Africa, Micro Electronics Research Institute (MRI) and Optronix, which were in turn fronting for Semitronic AG in Switzerland.74

By 1981, Richard Mueller was dealing in advanced Digital equipment computers and shipping them back to the Soviet Union. Utilising his South African company, MRI, Mueller attempted his biggest espionage coup ever. Using an intermediary company in New York to handle the paperwork and obtain a Commerce Department export licence, MRI purchased a complete VAX 11/782 computer weighing more than 85 tons, and software worth some $2 million.75 Its ultimate destination? The Soviet Union.

The US Commerce Department granted the licence on condition that the computer was not transferred from MRI in South Africa to another destination.

Ironically, at the same time that the Commerce Department granted permission for the VAX computer to be exported to South Africa, the US Customs Department was investigating the exporting affairs of Richard Mueller. Towards the end of 1983, events suddenly moved rapidly when on receiving new information on Mueller, the Customs Department frantically tried to track down the VAX shipment. What had happened? The answer lay in the arrest in 1983 of German-born South African Commodore, Dieter Gerhardt, Deputy Commander of South Africa's Simonstown Naval Base, on charges of having worked for the GRU for more than a decade.

Intelligence sources believe that Mueller had worked closely with Gerhardt before his arrest, while he was in South Africa to supervise the transfer of the VAX 11/782 computer from South Africa to the Soviet Union.76 During his interrogation, it is believed that Gerhardt revealed the identity of his agent controller - Richard Mueller.77

With his cover blown, Mueller was in serious trouble, as the South African authorities were now seeking his arrest.

On October 29 1983, the VAX computer was shipped out of Cape Town Harbour on a container ship bound for Hamburg and then Stockholm, where the equipment would be sent on to the Soviet Union. According to South African police authorities, Mueller left shortly afterwards for Austria, because he faced export charges if he went back to West Germany. US Custom officials in Europe finally caught up with the VAX shipment when, with the aid of Swedish Customs officials, the VAX computer was impounded in Stockholm.

Intelligence sources report that Mueller has since undergone plastic surgery and continues to operate from bases in Eastern Europe - some believe from Hungary. Mueller remains to this day the the most sought-after technobandit by the CIA, Britain's MI6 and West Germany's Bundesnachtendienst Intelligence Services.

The CIA estimate that between 1978 and 1983, Mueller delivered to the Soviet Union advanced computers, peripherals and micro-electronics manufacturing equipment worth at least several tens of millions of dollars.78

In conclusion, the combination of past and present Soviet acquisition practices and projected Soviet military needs indicates that the US and its Allies are likely to experience serious counter intelligence and related industrial security and espionage problems over the next five to ten years. Since the early 1970's, the Soviet Union has developed a formidable acquisition apparatus which the West is only now beginning to understand fully.

As the US and its NATO Allies continue to tighten the flow of high-technology sales to the Soviet Union, so the Soviets will increase their efforts to obtain illegally their high technology requirements. It is often the combination of legally and illegally acquired technologies that gives the

Soviet Union the complete military or industrial capability it needs.

The Soviet illegal acquisition programme has played a crucial role in modernising its military/industrial complex. Although the extent is not precisely known, it would compare at least favourably with figures released by the Rumanian authorities, who estimated in 1978 that over 35% of the inventory and development of Rumanian industry was due, at least in part, to covert intelligence operations.

Furthermore, through their illegal acquisition programme, not only have the Soviets realised substantial savings in scientific and technological development breakthroughs, they have also obtained an overall view of the status and technical level of Western weapons production, and the directions that advanced weapon systems are taking. This enables the Soviet Union to adjust its acquisition needs accordingly.

Today, economic espionage has become the Soviet Union's top intelligence priority, which Western countries are only now beginning to respond to.

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CHAPTER 6: WESTERN CREDIT TRANSFERS: SUBSIDISING SOCIALISM?

Since 1917, US and European banks and later their respective governments, have played a key role in financing the economic development of the Soviet Union. There are three identifiable periods in the history of the Bolshevik regime, where US financial aid to the Soviet Union in the form of credit loans have been most prominent: 1917-1930; 1940-1945 and 1968-1980.

In the early years of the Bolshevik Government, the key US banks that gave financial assistance to the Soviet Union included Chase National Bank, The Federal Reserve Bank of New York, Guaranty Trust Company, National City Bank and the National Bank Fur Deutschland.1 These banks, along with several European banks, were primarily responsible for resuscitating Soviet industry after the Bolshevik Revolution. The US bank that stood out above the others in assisting the Bolshevik Government, was the Rockefeller-owned Chase National Bank, which today is known as Chase Manhattan Bank.

During the 1920's, the Bank financed Soviet imports of US cotton. When the Soviet state-owned company, Amtorg, was established in New York in 1924, Chase National agreed to handle its promissory notes and letters of credit to aid the import from the Soviet Union of fur, timber and precious metals to the US. In 1926, Chase advanced the Soviet Government revolving credit of $30 million and during World War II, Chase was Amtorg's principal US bank in lend-lease transactions.2

Reeve Schley, one of Chase National's Vice-Presidents in the 1920's, was also President of a Wall Street lobby group known as the American-Russian Chamber of Commerce, which was set up in 1922 with Soviet agents to break the US

Government's ban on trade with the Soviet Union.3 Reeve Schley was a vocal exponent for recognition of the Soviet State and increased US-Soviet trade.

The rationale behind this seemingly unholy alliance between Wall Street Capitalists and Bolshevik revolutionaries - the "traditional" class enemies of world politics, will be explored more fully in the final chapter. What is important to note at this stage is that this collusion has been corroborated by private researchers, notably A. Sutton who had access to classified State Department files and intelligence documents.

Shortly after the US Government recognised the Bolshevik Government in 1933, the US Export/Import (EXIM) Bank was set up in 1934, primarily to finance Soviet purchases of US goods.4

During World War II, the US Government loaned $11 billion in lend-lease equipment to the Soviet Union, a debt which was never repaid and finally cancelled by Henry Kissinger in the early 1970's. During the Cold War, financial loans to the Soviet-Bloc dropped to almost zero as the Soviet Union reverted to autarky and Western attitudes hardened towards international Communism.

However, in the mid-1960's the emergence of detente as a credible foreign policy instrument to deal with the Soviet Union, and the realisation by Soviet leaders of the need to turn to the West to solve the economic contradictions of Socialism, paved the way for the greatest transfer of credit yet to the Soviet-Bloc, which according to Felix Rohatyn, a prominent Wall Street banker, overshadowed the post-World War II US Marshal Plan to reconstruct Europe.

The rhetoric of detente in the early 1970's provided the political rationale for the decision of both private banks and Western Governments to open the credit floodgates to the Soviet-Bloc. US and European banks, along with various government financial agencies, participated in the financing of a host of industrial development projects in the Soviet Union. The US EXIM Bank was the leading US government agency issuing loans to the Soviet Union for various projects, which included the Fiat Togliatti car plant, the Kama River truck plant and various chemical complexes. Chase Manhattan Bank was the leading US Bank funnelling credit transfers to the Soviet Union. In January 1973, Chase epitomised the spirit of detente when it became the first Western Bank to open an office in Moscow on Karl Marx Square.5 The largest single financial loan to the Soviet Union was $5-10 billion made by a consortium of European banks in the early 1980's, to finance the construction of the Yamul pipeline.

If detente provided the political rationale for facilitating credit transfers to the Soviet Union, the economic rationale for this decision, some economists believe, can be traced back to the 1973 oil crisis. Awash with petro-dollars from the burgeoning oil sales of OPEC countries, Western banks were looking for good investment areas. At the time, the industrial countries were recession-bound, offering weak incentives for investment while the developing countries were unstable and capital poor. The banks believed that the Soviet-Bloc offered the best investment opportunities because (a) the governments were stable (and not likely to be overthrown); (b) the labour force was skilled; and best of all (c) there were no trade unions.6 Furthermore, the banks believed that the Soviets would bail out its allies if their loans were not repaid. Known as the "umbrella theory", bankers perceived that the Soviet Union would act as a credit safety net for its Eastern European allies, and had a political if not a

legal obligation, to bail out its allies if they were unable to service their debts.7 Western governments extended credits to Eastern European countries in the (misguided) belief that it would help loosen the Soviet Union's grip, both economically and politically, on these countries and make them more amenable to Western influences.

As a result during the 1970's, credit transfers to the Soviet Union mushroomed, which in turn precipitated an alarming increase in Soviet-Bloc debt. In 1971, Soviet-Bloc debt stood at only $9,3 billion. By 1975, this debt reached $20,8 billion; in 1981, $87 billion and today stands at over $100 billion. The CIA estimated in 1980 that 80% of this debt was representative of commercial bank loans to the Soviet-Bloc.8

In 1971, Soviet debt stood at only $1,8 billion. In 1979, Soviet gross debt had risen to $17,2 billion and according to the OECD, stood at over $30 billion in 1984.9 The Soviet Union has, however, built up deposits in Western banks of some $7-8 billion, which in effect gives that country a nett debt of $23 billion. Between 1974 and 1979, repayments on principal and interest rose from 12% to 18% of total Soviet hard currency earnings from exports.10 Today this figure probably stands at over 20%, which means that 20% of Soviet exports go to paying off the interest obligations on its debt alone.

The Polish situation is more alarming, because like the Soviet Union, Polish debt rose from $1,4 billion in 1971 to $32 billion in 1981, but unlike the Soviet Union, does not have the export capability to even cover the interest payments on its debt. In the late 1970's, 85% of every dollar borrowed by the Polish Government went to servicing its foreign debt.11

By the end of the 1970's, Soviet-Bloc debt had reached serious proportions, which in turn threatened the stability of the Western banking system and with it the world's Capitalist economies. The economic and political rationale behind the credit transfers lay in ruins, and instead had created unforseen problems for Western bankers and Western national security considerations. Even the architect of detente, Henry Kissinger, voiced his concern on the dramatic rise of Soviet-Bloc debt. When addressing a ministerial meeting of the OECD in June 1976, he warned that the debtor countries had acquired substantial leverage over the creditor countries through the latter's fear of default.12

A Swiss banker who was once questioned years ago about the expanding Soviet-Bloc debt, commented "... make a small loan and you have a debtor, make a large loan and you have created a partner." Western governments and bankers, economists believe, have created a Frankenstein-type partner, which they no longer have much control over. While it has been argued that the Soviet Union would only use its debtor leverage in extreme instances, not wishing to prematurely jeopardise future financial ties with the West, the real dilemma facing the West is that this (potential) Soviet leverage is not effectively counter balanced.13

The Soviet-Bloc has already rocked the Western banking establishment on several occasions with minor repayment problems. Poland was technically bankrupt in all but name, when conventional lending to Poland was suspended in 1978. However, Western banks seemingly ignored Poland's serious debt problem when in 1980 a large Western banking consortium lent $550 million to Poland to purchase grain,

as did the US Government when it extended $570 million in food credits to that country at a time when it needed $2 billion annually just to service its debt.14 This type of lending by the US Government to a country which is technically bankrupt has perplexed many observers and angered opponents of credit transfers to the Soviet-Bloc.

While the Soviet Union's debt to US banks is only $275 million,15 which is negligible compared to overall Soviet-Bloc debt, US banks are heavily exposed to other East-Bloc countries, especially East Germany and Poland. Poland owes the US $2,8 billion, according to Prof Raczkow of the International Financing Relations at the Central School for Planning and Statistics in Poland.16 US banks faced a crisis in July 1982 when Poland refused to repay the principal and interest due on several private sector loans, unless new credits were forthcoming. In the face of what amounted to economic blackmail, US banks advanced $450 million to Poland to help service its debt repayments.17

The "umbrella theory" collapsed as the Soviet Union refused to bail out Poland, which as a result has placed the burden of any future Polish default on the backs of the US taxpayer, because over 50% of all US private sector loans to Poland are guaranteed by the US Government and will be covered in a default. A similar portion of West European bank loans are similarly covered by their respective European Governments.

In the late 1970's the US Government, realising the increasing possibility of being faced with Soviet-Bloc defaults, enacted the Monetary Control Act of 1980 which gives the US Government - more specifically the US Federal Reserve Bank - the power to monetise foreign debt, i.e. pay out US banks for any loans made to a foreign country which may go "bad". This controversial piece of government

legislation effectively places the burden of any Soviet-Bloc default on the backs of the US taxpayer to avoid a US banking collapse. By 1983, the US Government had already transferred $125 million to US banks whose loan repayments were not forthcoming from Poland.

US bankers are looking hopefully at Poland's bid to become a member of the International Monetary Fund (IMF) and the World Bank to ease its liquidity problems, where it will have access to new financial loans. Membership of the IMF, which makes short term balance of payment loans, is a prerequisite for membership of the World Bank, which makes loans generally to support long-term projects in energy, agriculture, transportation and other economic fields.18 Poland's membership must still be ratified by the IMF Board, where the US commands a 20% vote. Although the US maintains sanctions against Poland, imposed in November 1982 when the Polish Government outlawed the Solidarity movement, it will not oppose Poland's IMF membership, which will enable Poland indirectly to obtain US Government financial aid through IMF handouts. These handouts will ensure that Poland can continue at least to service its debt obligations to US banks.

Financial experts believe that the Soviet Union itself may soon be facing serious problems in servicing its still growing foreign debt. Originally, the Soviets had borrowed large amounts of Western credit, by capitalizing on its much-publicised oil and gold reserves to serve as collateral against extended credit lines. However since 1983, world raw material prices have fallen sharply, which has put a serious strain on Soviet earnings. Two thirds of the Soviet Union's hard currency exports of $32 billion consists of oil and natural gas whose prices have dropped sharply since 1984, from above $25.00 barrel to a low of $12.00 in 1986. Soviet earnings from oil will drop some $4

to $8 billion in 1986, which means that Soviet borrowing requirements will rise sharply in the short term to counteract this revenue shortfall.

After a relatively quiet period between 1979 and 1984 when Soviet foreign debt levels remained relatively constant, Soviet borrowings increased dramatically in 1985 when it borrowed $8 billion19 from Western countries, which reflected the sudden drop in Soviet hard currency earnings from its raw material exports. A similar amount will be borrowed in 1986. Economists have warned that, faced with the prospect of declining oil production and continued low oil and gold prices, the Soviet Union could end up in the same sort of trouble as the Latin American debtors. Projected Soviet foreign debt is expected to increase from around current levels of $40 billion to between $70-80 billion by 1991.

The threat that the Soviet Union and its allies will use its growing debt as a lever to extract economic and political concessions from the West, cannot be ruled out. Financial experts believe that the Soviet Union may be quietly encouraging Cuba to form a Third World "debt cartel", which will hold serious implications for the Western banking system. Raul Leon Torras, the President of the National Bank of Cuba, has already held discussions with several Latin American countries, including Brazil, Mexico, Argentina and Peru, to gauge support for this idea.20

The collapse of the West's banking system at the hands of this debt cartel would represent the greatest triumph for international Communism over Capitalism. Already the massive borrowings of credit from Western Europe may be seen in terms of Soviet global policy to ensnare the region in a web of economic commitments that will ensure Soviet

political and economic leverage over its policy formulations.

While US banks are less exposed to Soviet-Bloc debt than their European counterparts, they are indirectly tied to the fate of European banks by inter-bank loans, whereby it has been estimated that over 40% of large banks' international deposits are redeposited with other international banks.21 US banks face collapse if European banks are confronted with a Soviet-Bloc default.

A major criticism levelled at credit transfers to the Soviet Union is that by using untied credits and by tapping into the large Eurodollar market, the Soviet Union can both sustain its present level of costly global commitments and finance the legal and illegal acquisition of Western technology to modernise its military/industrial complex. One noted East-West trade authority estimates that approximately 15% of the Soviet Union's GNP is currently dependent on trade with credits from Western countries.22 Soviet hard currency exports by themselves are not sufficient to sustain a global empire.

The Soviets not only rely on Western credit loans from governments and private banks, but are also increasingly tapping into the less visible global inter-bank market to raise its financial borrowing requirements. The inter-bank market is global in scope and has been formed by the practice of the world's banks depositing cash with one another to facilitate the efficient flow of funds and to earn income on excess cash.

Six Soviet-owned banks located in the West are heavily interlocked into the inter-bank market. These banks include Eurobank in Paris; the Moscow Narodny Bank, London and the Ost-West Handlesbank in Frankfurt.23 It has been

estimated that these Soviet-owned banks have attracted roughly $5 billion in Western deposits, while other Eastern European banks have attracted a further several billion dollars more, which constitutes a sizeable source of cheap money that the Soviets can draw upon for their purposes.24 No steps have been taken to curtail the intrusion of Soviet-Bloc banks into the inter-bank market.

Much of the untied credit transfers made to the Soviet-Bloc are used against the security and strategic interests of the US. A confidential Department of Defence letter released by the Senate Banking Committee during the hearings on Bill 812, stated a $500 million US loan made to East Germany in 1984, because "the loan was large enough to assist in financing Warsaw Pact support of Soviet adventures and operations in the Caribbean and Central America ... while sustaining imports of US strategic technology." The letter noted that East Germany then granted a $20 million loan to Nicaragua, untied to any project and therefore available for weapon procurements.25

Another major criticism levelled at credit loans to the Soviet Union is the role that Western governments have played in actively guaranteeing and subsidizing private banking loans and exports to the Soviet Union. Large banking institutions were offered large amounts of preferential financing and guarantees to enable their companies to profit from the Western development of Soviet-Bloc economies.26

According to the OECD, two thirds of the Soviet debt (some $24 billion) was subsidized by Western governments, which makes the Soviet Union's foreign debt the most heavily subsidized in the world.27 US Government agencies that disburse foreign loans to the Soviet Union include the Commodity Credit Corp, which finances the sale of US

agricultural exports; the EXIM Bank; Export Sales Program, and indirectly the IMF and World Bank where US contributions are substantial.

Foreign loans are all ostensibly designed to further the export of US goods and services abroad. This is the role designated to the US EXIM Bank, where it loans "x" million dollars to the Soviet Union to enable it to buy US commodities from US companies. This loan is then repaid over a number of years to the US Government. Business is given to US companies and US exports are promoted. In reality, however, the Soviet-Bloc debt and the inability of countries like Poland to even service the interest on its debt repayments, have cancelled out these potential advantages.

Another disturbing aspect of US Government credit transfers to the Soviet Union is that most loans are made at extremely favourable interest rates, in contrast to the high interest rate US consumers and companies have to pay for similar loans. In 1979, while US consumers were paying 20% on prime borrowing rates, the US EXIM Bank dropped its average cost of a loan from 8,53% to 8,25% - mainly to East-Bloc countries.28 It seems illogical to lend countries with shaky debt structures loans on such favourable terms. The US taxpayer is ultimately subsidizing government low interest loans made to the Soviet Union and its allies.

This collusion between Western governments and the international banks has nothing to do with Free Market economics. The risk factors involved in assessing the merits of making loans to the Soviet Bloc have been softened by government guarantees to cover bank loans made to the Soviet Union and its allies. If this preferential arrangement had not existed between governments and banks,

loans to the Soviet-Bloc may have been considerably less than their present levels. Ultimately the US taxpayer and not the US banking communinity has to bear the financial consequences of bad economic policy decisions made towards the Soviet Union and its allies.

In conclusion, a valid and security-related question that must be asked is whether the US and Western Europe will ever receive comparable returns on such long term "credit investments" in non-market economies. Financial experts believe that they will not. The Wall Street Journal argues that since the 1970's, Government export credits and official guarantees to the Soviet-Bloc have cost Bonn, Paris and London billions of dollars. Europe's huge government-sponsored misallocation of capital (from West to East), the Wall Street Journal believes, helps to explain Western Europe's slow economic growth.29 Financial loans withdrawn from the US and European financial markets for the Soviet-Bloc has tended to have a "crowding out effect" on the availability of cheap money for local borrowing requirements, which in turn has a depressive effect on the economic performances of these countries.

Furthermore, because of the increasing inability of the Soviet-Bloc to meet their debt repayment obligations, many US and European companies have switched to counter trade. (A quasi barter arrangment where the Soviet-Bloc repays in products.) This is creating problems of dependency on Soviet-Bloc countries (e.g. natural gas from the Yamul Pipeline) where the dumping of cheap Soviet-Bloc products threatens the viability of some important industries in the West.

Despite these serious problems that have resulted from Western credit transfers to the Soviet Union, sectors of the US establishment continue to downplay the debt threat

and press for more credit transfers to the Soviet Union. For example, according to Ed A. Hewett, a Senior Fellow and specialist in Soviet Affairs at the Brookings Institution, a prominent Establishment think tank that supports detente with the Soviet Union :"The Soviet Union has come to be regarded as one of the best credit risks around."30 This statement contradicts the serious economic problems that are starting to beset the Soviet system.

In May 1982, the Trilateral Commission, a global power elite whose membership includes prominent politicians, economists, bankers and heads of multi-national corporations from North America, Western Europe and Japan, published a report which encouraged more credit loans to the Soviet-Bloc.31 This at a time when Soviet-Bloc debt was nearly $100 billion, Poland was technically bankrupt and Soviet aggression in Third World trouble spots was increasing. The views of the Trilateral Commission should not be underestimated as its influence pervades through the US State Department and the White House in areas of economics and foreign policy.

Some experts believe that it is almost impossible for Western bankers and governments to extricate themselves from the Soviet-Bloc debt problem. A Catch-22 situation is developing, whereby the US has to aid Soviet economic development through more loans so that the Soviets can exploit their natural resources for export and in turn pay off their loan repayment obligations. Falling prices of commodities like oil and natural gas, is an anathema to the Western banking community, because it impedes the ability of the Soviet Union to repay its foreign debt. Ironically, Western governments and banks now have a vested interest in the continued stability and economic development of the Soviet Union, which is contingent on the maintenance of detente to facilitate the transfer of credit loans to that

country. This development which effectively finds the West's banking community on the same side as the Communist rulers behind the Iron Curtain, poses a serious problem for Western government policy formulations towards the Soviet Union.

A scenario has been postulated by some experts, which suggests that the international banking system would frown upon any talk of "liberation" taking place behind the Iron Curtain, in case the new rulers repudiated the loans of the former Communist regimes.

According to Prof Richard Pipes, one of the foremost Sovietologists in the US, Lech Walesa and his Solidarity Organisation was bad news to the US banks, and when the Polish Government imposed martial law in December 1981, "the sigh of relief emitted by bankers was almost audible". The bankers hoped that repression would improve productivity in Poland and, by increasing exports, enable that country to repay some of its foreign debts.32

Ironically, the threat of the people of Eastern Europe regaining their freedom poses as much of a threat to Western bankers as it does to the nonelected Communist rulers. As a result, US banks vigorously continue to promote detente, and through the US State and Commerce Departments, oppose any efforts made to control the flow of credit transfers to the Soviet Union. This was clearly apparent when conflict erupted in the Reagan Administration at the end of 1985 in response to legislation proposed by Senator Jake Garn, Chairman of the Senate Banking Committee and Congressman William Proxmire, that would enforce tighter controls on credit lending to the Soviet-Bloc. The proposed legislation would amend the Export Administration Act of 1979 to give the President discretionary authority to prohibit, curtail, monitor or otherwise regulate the

transfer of credits or other financial assets to Communist countries, excluding Yugoslavia, but including Red China.33

The White House was divided down the middle. Those supporting this amendment included Defence Secretary, Caspar Weinberger; former National Security Council advisor, Robert C. McFarlane; CIA Director, William J. Casey and Attorney-General, Edwin Messe. Supporters of this amendment stressed the need to monitor financial flows to potential adversaries, including countries that supported international terrorism.

Those opposing the Bill included Secretary of State, George Shultz; Treasury Secretary, James Baker III; Commerce Secretary, Malcolm Baldridge and Presidential Chief of Staff, Donald T. Regan. Opponents of the Bill stated that the Bill would have a "chilling effect" on President Reagan's efforts to encourage trade with the Soviet Union. The Assistant Treasury Secretary, David Mulford, stated that it would send a message "directly counter to the message from Geneva and that US Allies would resist any attempts to cooperate in restricting credit to the Soviet Union."34 President Reagan cast the deciding vote against the Bill, effectively neutralising White House support for the Garn/Proxmire amendment.

The Bill is also receiving opposition from the US banking community at a time when they are again stepping up the transfer of credit to the Soviet-Bloc. After several years of little credit-lending by US banks to the Soviet-Bloc, US lending suddenly increased dramatically from $75 million in 1984 to $1,3 billion in 1985. In 1985, US banks led an international syndicate that raised $1,1 billion for East Germany.35 First National Bank of Chicago, which has a history of financing grain exports to the Soviet Union, led another banking group in July 1984 that made a $200 million

loan to Moscow.36 The Geneva Summit has helped in facilitating the latest Soviet overtures to US banks for more loans to compensate for its falling foreign currency earnings. The Garn/Proxmire Amendment is the last restriction that both the Soviets and the US banks need to interfere with their resuscitation of detente. As a result, with little support from the White House and opposition from the US business community, this important amendment is unlikely to be passed by Congress.

The question of control over credit transfers to the Soviet Union is a difficult one. It would be unrealistic to terminate completely all credit transfers, for the simple reason that credit transfers are needed to service debts such as Poland's, to avoid a default. However, there are a number of actions that could be taken by the US Government to lessen the flow of credit transfers to the Soviet-Bloc countries. The Garn/Proxmire Bill is one such example, which would at least give the US President discretionary powers to monitor and intercede if necessary, on loans given to Communist countries that may be used for supporting international terrorism or formenting revolution in certain parts of the world.

Secondly, all loans made to the Soviet-Bloc by both the Government and US private banks should be disclosed to Congress. A CIA report on Soviet and East European hard currency debt admits that Western financial reports, both from governments and private banks to the Soviet Union, are deficient. Arguably, the US taxpayer has a right to know how his taxes are being used to facilitate Soviet economic development, and US banks should not be exempt from disclosing its loans made to the Soviet Union, if they are subsidized or guaranteed by the US Government. Public scrutiny may dampen both government and private banking enthusiasm to make loans to the Soviet Union and its allies

as freely as they have in the past.

Thirdly, while it is difficult to control credit transfers to the Soviet Union from private banks, a greater deal of control can be applied on government loans to the Soviet Union. Section 620 (f) of the Foreign Assistance Act of 1961 prohibits the furnishing of any aid authorised by that Act to any Communist country, although it does not apply to food for peace and US contributions to multi-lateral development banks. Nor does it apply to US contributions to the IMF; credits extended by the Commodity Credit Corporation for foreign food purchases; or loans made by the EXIM Bank.37 Opponents of detente therefore believe that the US EXIM Bank and the US Commodity Credit Corporation ought to be scrapped, because of the scant economic benefits that the US economy has derived from these two institutions, which were primarily set up to facilitate the transfer of cheap loans to the Soviet Union.

The Wall Street Journal makes the following salient point regarding trade with the Soviet Union. "Government to government trade is for Socialists, not Capitalists, and there will be no shortage of US entrepreneurs (and bankers) to make mutually advantageous deals when, and if, the Soviets ever manage to compete in the World Market. Until then, commerce has no business soliciting unprofitable business by pledging US subsidies."38 The bottom line then for credit transfers to the Soviet Union is that the burden of risk (in the form of government guarantees and loans) be removed from the US taxpayer and placed exclusively on the backs of the US private banking sector. A re-evaluation of US policy towards subsidizing the economic development of a totalitarian global power is long overdue.

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CHAPTER 7 : CONTROLLING US TECHNOLOGY TRANSFERS

Having carefully analysed the full extent of high technology transfers to the Soviet Union, and the impact that it has had on the development of the Soviet Union's military/industrial complex, this chapter will examine the various policy options currently being considered or implemented by the US Government to control the outflow of high technology to the Soviet Union, and the debate surrounding the effectiveness of sanctions as a viable foreign policy instrument.

Various studies have been undertaken by both private and government agencies in the US as to what policy measures should be taken to control strategic technology outflows to the Soviet Union. One such study was produced by the influential Heritage Foundation, which recommended the following export controls on high technology:

(a) the establishment of an Office of Strategic Trade;
(b) the enforcement of the export control laws (currently administered by the Commerce Department) should be turned over to the Customs Service, which has the needed expertise;
(c) a tightening of advanced US technology sales to allies that allow a diversion of US technology to the Soviet-Bloc;
(d) that greater powers be given to the President to restrict imports and exports as a foreign policy instrument; and
(e) the tightening up of controls on technological research by Soviet scientists in the US.1

Expanding on these proposals, a summary of various projects and policy formulations that are currently being considered or implemented by the US, to control the hemorrhage of high

technology outflows to the Soviet Union, are discussed below.

Operation Exodus

In late 1981, the US Customs Service launched "Operation Exodus" with an initial budget of $30 million from the US Department of Defence. Involving both departments, a concerted effort was made to block the export of illegal technology, flowing out via US airports and harbours, to the Soviet Union.

The operation, according to US Defence Department officials, is reaping remarkable successes. US Defence Secretary, Caspar Weinberger has stated that "For every dollar spent today on the technology security program, the US taxpayer saves at the minimum nearly $350.00 in projected Defence expenditure".2

Translated into total dollar figures, the savings have been substantial. The Department of Defence has estimated that since the start of "Operation Exodus", the US has prevented the Soviet Union from saving between $6,6 billion and $13,3 billion in research and development costs, by blocking the sale of advanced technology. Similarly, it would have cost the US and its allies between $7,3 and $14,8 billion in the acquisition of new weapon systems to counter the Soviet military advances provided by the potential transfers.3

While it is impossible to control the outflow of technology to the Soviet Union totally, some policy is better than no policy at all. Richard Perle summed up this position when he stated : "The fact that we cannot perfectly control the flow of technology does not mean that we shouldn't try to whenever we can. ... stretching out Soviet programs and

forcing them to invest more to achieve the same purpose."4 Operation Exodus increases the Soviet cost of developing modern weapon systems.

A related development to "Operation Exodus" was the 1984 Defence Authorisation Act passed by Congress, which provides the Secretary of Defence authority to withhold from public disclosure any technical data with military or space application that is under the Defence Department's control, and which would be subject to export control. The Act effectively overrules the Freedom of Information Act that has been used by Soviet-Bloc agents to tap into classified defence data.

The Act covers technical data that may fall under the military critical technologies list, which is a detailed and structured technical statement of development, production and utilisation technologies which the Department of Defence assesses to be crucial to given military capabilities and of significant value to potential adversaries.5

The Office of Strategic Trade

The Heritage Foundation has identified three key problem areas that effectively cripple US export control policies, all three ironically centred around the US Commerce Department.

Elaborating on these key problem areas, the Heritage Foundation states that:

1. Export controls are administered by Commerce, which has conflicting interests and gives only secondary priority to the decision-making and use of resources related to export controls.

2. The Export Administration within the Commerce Department is "bureaucratically" de-emphasised, in that the highest-ranking official at Commerce concerned with export controls is only a deputy assistant secretary.

3. The Commerce Department suffers from a serious lack of expertise in enforcing export controls, a task currently assigned to the Export Administration office within the Commerce Department, but that should be with the Customs Service.6

As a result, in March 1984 conservative US Congressmen entered the Garn-Heinz Bill (S.979) in the US House of Representatives, which represents the first concerted Congressional attempt to close the loopholes in the Export Administration Act. Central to the Bill is the setting up of an Office of Strategic Trade - separate from the US Defence and Commerce Departments, whose sole responsibility will be to monitor security related products effectively.7

The proposed Office of Strategic Trade would assume some of the roles of the Commerce Department's Export Administration Office, some of the State Department's trade negotiations powers with other nations, and have an enforcement division. The Office of Strategic Trade would also have a seat on the US National Security Council. There is a contradiction in the Commerce Department attempting to control exports of high technology when its formation (with the active support of US business interests) was designed to promote trade with other countries.

The formation of a separate strategic trade monitoring agency would help defuse the current conflict that exists between the Commerce and Defence departments as to who should control exports of sensitive technology to the Soviet Union. However, while the Defence Department supports the formation of a strategic trade office, the Commerce Department and US business see it as a potential threat to their trade dealings with the Soviet Union and therefore vigorously oppose its formation. As far as curtailing technology transfers to the Soviet Union are concerned, the establishment of the Office of Strategic Trade would be a necessary and vital step in the right direction. The CIA has already established a special Office on Strategic Trade to monitor US technology transfers to the Soviet-Bloc.

Technology Databases

A number of US Government agencies have recently set up a network of databases to help in evaluating and controlling technology developments and transfers which may aid potential adversaries.

The US Department of Defence is the leading government agency that is currently putting together sophisticated data banks of information to help law enforcement agencies to monitor the flow of technology transfers to the Soviet-Bloc.

The most comprehensive computer database is the recently completed network known as SOCRATES - the foreign availability assessment system. Developed by the DIA, its purpose is to refine the evaluation of which technologies are critical to the Soviet-Bloc and, as a result, may be the key to protecting the technology from being acquired by the Soviet Union or its East European allies.8

According to a US Defence Department document, SOCRATES will help track the technological capability (equipment, know-how, materials) of all technologically significant countries in terms of years ahead or behind US capabilities, and the parameters of the equipment which gives the country its state-of-the-art capability.9 With this information, it is hoped that export enforcement agencies will be able to assess and compare the level of US technology being transferred to the Soviet Union against similar technology that may exist in other countries, and on that assessment decide how critical that technology is to the Soviet Union. The Defence, Commerce, State and Customs Service departments will all have access to SOCRATES.

Another important database that was opened by the *Department of Defence in 1984, is the Foreign Disclosure* and Technical Information System (FORDTIS), which assists the Department of Defence decision-makers and analysts in the processing of export licence requests and Foreign Disclosures cases. (That is, the release of classified information on a government-to-government basis.) It supports this function by providing a case tracking and assignment process for active cases and maintains a historical record of prior cases, including their disposition.10 In 1985, the FORDTIS network was extended when the Commerce and State Departments and the CIA received FORDTIS terminals, enhancing its operational capability significantly.

The formation of these inter-agency data bank networks was partly in response to the formation in 1982 of the "Senior Inter-agency Group on the Transfer of Strategic Technology", whose task it was to bring together all US government agencies with strategic technology programmes of

interest at a policy making level of the government's technology transfer activities.

The CIA and the Department of Defence will also have to identify emerging technologies and discover their military application before the Soviets do and make this information available through data banks to aid agencies in their attempts to control the export of emerging technologies to the Soviet Union.

The use of artificial intelligence will become an increasingly important asset in US attempts to control the outflow of critical technology to the Soviet Union.

The Military Critical Technologies List

Prior to 1969, the 1969 Export Administration Act, while prohibiting the sale of technology with a direct military application, allowed for the sale of technologies that would enhance the Soviet Union's "economic potential". This Act failed to take into account dual use technology. Reliance on "end use" guarantees by the Soviets of Western technology for civilian purposes are of marginal utility only, according to Lawrence Brady, when he testified before the Sub-Committee on Research and Development of the House Armed Services Committee in May 1979.11

In an attempt to rectify this situation, the Department of Defence under the guidance of Dr Davis, begun in 1977 to devise a specific list of military critical technologies "whose acquisition by a potential adversary would make a significant contribution to its military potential and thus prove detrimental to the national security of the US."12 In January 1979, a 15-item Militarily Critical Technologies List (MCTL) was produced (see Appendix XII, MCTL List, p.287) by the Department of Defence, which was later used

in an amended version of the 1979 Export Administration Act. Any technologies that fell within the ambit of the MCTL list required an export licence from the Commerce Department. The Act also authorised the Department of Defence to participate with Commerce in reviewing licences for the export of sensitive technology. However, the language in the Act is vague and often the Commerce Department does not cooperate with the Department of Defence when reviewing licences for the export of sensitive technology to the Soviet-Bloc.

In October 1984, an updated version of the MCTL was published with major improvements in both format and content. The latest revisions are intended to make the document easier to use with other documents related to the implementation of technology and hardware controls.

Each section of the MCTL has been reviewed, not only to include technologies not previously identified, but also to remove technologies no longer considered critical. Each element has been reviewed to improve specificity and special attention has been given to include technologies related to the US munition list of retricted items of technology.13

The problem is that currently there is bitter rivalry between the Commerce and Defence departments over who should control the reviewing of licence applications for listed products destined to the Soviet-Bloc. The powers of the Department of Defence have been increased, but unfortunately the Commerce Department still has the final say over licence applications for critical technology headed for the Soviet-Bloc. This is the weak link in US export control management, because the Commerce Deparment has been extremely inefficient in the'r identification of what constitutes strategic technology, a situation that the US Department of Defence wants changed.

Strengthening COCOM

The Coordinating Committee for Multilateral Export Controls (COCOM), was created on 22 November 1949 as the NATO watchdog to monitor strategic trade with the Soviet Union. Today membership of COCOM includes all NATO countries, excluding Spain and Iceland and including Japan.

COCOM ostensibly has three major functions. These include:

1. Establishing and upgrading the militarily critical technology lists (similar to the US MCTL) prohibiting sales of technology to the Soviet-Bloc, which are reviewed every three to four years.

2. Acting to analyse requests by member governments to ship certain embargoed materials to proscribed countries.

3. Serving to coordinate the administration and enforcement procedures of member governments through its export control sub-committee.

However, until very recently, COCOM's powers and resources were both ineffectual and inadequate to cope with the hemorrhage of technology transfers to the Soviet Union. COCOM operates under what the US State Department calls a gentleman's agreement. No enforcement backs its decisions, no penalties follow violations.14 Consensus is the order of the day.

The voting system at COCOM is also very cumbersome. Voting is taken item by item on whether an export item is of strategic importance to the Soviet-Bloc and whether export

permission should be granted or not. Even the most minute changes to the embargo can only be made by a unanimous decision of the 15 representative COCOM countries.15 Before 1981, the COCOM embargo list of strategic technology has been limited to goods with direct military application. As a result, the Soviets have been free to acquire technologies of ancillary military utility. COCOM's total budget was a paltry $500 000.00. Its staff members, all 14 of them, were simply incapable of judging the technical significance of the new equipment they were supposed to be protecting.16

During the 1970's, the US and not the European countries, was primarily responsible for making COCOM so ineffectual. Contrary to statements issued by the US Government to the effect that whatever the US did not sell to the Soviets, the Europeans would, it was the US which sought more COCOM exemptions than any other COCOM member. In the early seventies, the US requested approximately 25-30% of the total exemption requests in COCOM. In 1978, the US requested 65% of all COCOM exemptions.

However, at the Western Economic Summit in Ottawa in 1981, President Reagan proposed to his European allies the need for stricter COCOM regulations. In January 1982, the US Government convened a special meeting of COCOM which was the first time in over 25 years that Cabinet-level representatives of the COCOM member states had met at COCOM's head quarters at Rue de la Boetie in Paris.17 European representatives were presented with a formidable array of facts and figures from US security experts who briefed the assembled ministers on the major military advances made by the WARSAW Pact - courtesy of Western technology.

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Initially the European ministers responded coolly to Reagan's proposals, as they had lucrative contracts with the Soviet-Bloc which they were not prepared to abandon contractually.

Then between 1981 and 1983, President Reagan resorted to tougher measures against Europe to tighten up export controls. This US policy of a "little economic blackmail" as Business Week described the action, did succeed in bringing some European countries into line. The US cancelled a $46 million micro-chip project in Austria, unless that country tightened up on sales to the Soviet Union of rotary forges, used for the manufacture of artillery tubes. As a result, in October 1984, Austria announced tougher export regulations.

A similar squeeze was applied against Sweden when the US threatened to delay the deliveries of crucial components for Swedish Air Force fighter interceptors, which resulted in that country also tightening up its export controls against the Soviet Union.

However, it was the defection of a 36-year old KGB man named Vladimir Kuzishkin to the British Embassy in Tehran in June 1982, who provided British Intelligence with critical data on KGB operations in acquiring sophisticated technology in Western Europe; along with the French DST report on high technology thefts by the Soviet Union in France, and the murder of Bernard Nut that helped swing European support behind President Reagan.18

As a result, US Administration officials were able to state towards the end of 1983 that it was getting better cooperation from its European allies, and that there was a narrowing of political differences between the US and the Europeans. "West European governments, mostly Conservative today, are in agreement with the broad thrust of US

policy", stated Joachim, a trade expert at Kiel University's Institute for World Economic Research. "They are out to reach a consensus with the US that both could live with comfortably."19

This increasing cooperation became more visible in 1984 when a comprehensive review of Western computer sales to the Soviet-Bloc was produced by COCOM and made enforceable for four years. The new COCOM regulations included :

1. A ban on all exports of mainframe computers with a data processing rate of more than 48 million OPS. (A figure which computer experts believe is still too high.)

2. Computers with a processing rate of 15-48 million OPS will be subject to a 30-day review period by COCOM, specifically subject to volume control, i.e. not more than 3 to 4 computers at a time.

3. Computers with an OPS capability of 15 million will not be subject to COCOM controls when sold to the Soviets.

4. A ban on large switches used in telecommunications.

5. A ban on "ruggedized" computers, i.e. small, tactical computers used in combat operations.20

Since 1982, COCOM's stature has been upgraded and it is being taken more seriously by its members. However, there is still room for improvement. It still has no enforcement powers of its own, having to rely on the enforcement measures taken by its members. At present, US staff to COCOM are State Department officials - political rather than technical appointees. They should be replaced by

specialists from the US Department of Defence. Finally, COCOM's efficacy is still being determined by the export policy of its individual members. A greater degree of rationalisation is needed.

Improving US Counter Intelligence Capabilities

Two CIA men watched attentively as a dapper, polite little man filled out a request form applying for information on the jamming system of the F-111 fighter bomber, a US aircraft based at forward NATO bases in Britain and Western Europe, and equipped to drop nuclear weapons over the industrial areas of the Soviet Union.

The man's name was Vladimir Kvasov, a major in the KGB. He knew he was being tailed. The American agents knew that he knew that he was being tailed. But that is the name of the game. The CIA cannot intervene because it is perfectly legal for anyone to openly collect masses of technical data in the US.21

The reason for this absurd situation can be traced back to the 1970's when leftwing lobbying groups successfully emasculated America's internal security network and counter-intelligence capabilities, which has made it almost impossible to keep track of the KGB's espionage efforts. The FBI's counter-intelligence wing, which has been reduced from several thousand to several hundred men, have an almost impossible task keeping track of over 17 000 Soviet-Bloc nationals that visit the US every year.

The counter-intelligence capabilities and powers of the CIA and the FBI will have to be increased considerably to match the KGB's ruthless espionage efforts. Greater controls are needed to curtail the flow of Soviet-Bloc nationals to the US. This includes limiting the size of Soviet Embassies in

the US. According to Harry Rositake, a retired CIA officer and author of the book "The KGB: The Eyes of Russia", estimates that some 85-90% of the Soviet Union's 300-odd agents in New York, Washington and San Fransisco concentrate on acquiring US technology and industrial secrets.22

Some steps have, however, already been taken to counter Soviet high-tech espionage efforts in the US. The CIA has been given increased surveillance powers to monitor susptected espionage agents operating in the US.

The State Department is considering confining all members employed by the United Nations Secretariat to New York City in an attempt to control the operation of Soviet agents from the United Nations.

A Committee on Exchanges (COMEX) has recently been established by the US Department of Defence, which provides advice to the State Department to help evaluate national security and technology security threats posed by visitors from Communist countries. Scientific exchange agreements are carefully monitored and visas may not be granted to certain Soviet-Bloc visitors.23 These steps taken by the US Government is an acknowledgement of the serious threat posed by the Soviet Union's espionage efforts to acquire US strategic technology.

Taxing Multi-National Corporations

One method being proposed by economic experts to discourage Multi-National Corporations (MNC's) that still sell high technology to the Soviet Union, is to place the additional defence costs as a result of these transfers on to the MNC's, and not as is presently the case, on the US taxpayer. Known as "defence damage control" taxes,

companies would be forced to assess the profit made on the sale of a technology item to the Soviets against the cost that might be incurred by the US. While some technology transfers would effectivly bankcrupt some companies (e.g. the Chucking Grinder sale which would have cost the company ween $50 and $100 billion in new US defence costs), a sliding scale of penalties could be developed which would place extremely heavy fines on US MNC's trading with the Soviet Union.

The Reagan Years

One of the major election issues that Ronald Reagan won his election on, was that of technology transfers to the Soviet Union, and the team he took with him to Washington, including Caspar Weinberger, Fred Ikle and Richard Perle, were well-suited to dealing with this sensitive issue.

During the first three years of the Reagan presidency, the hardliners asserted themselves within the Administration to curtail the flow of high technology to the Soviet Union. The Commerce and State Departments went on the retreat in the face of a determined bid by conservative officials to mould a tougher foreign policy towards the Soviets, which effectively meant discarding detente. For a moment, it seemed that US-Soviet relations would revert to the Cold War era.

The US Defence Department's technology office was revamped, its budget boosted by $25 million, its personnel increased by 25 and a modern data processing system called FORDTIS installed. Caspar Weinberger earmarked $2 million to upgrade COCOM's monitoring resources.

In October 1981, Operation Exodus was officially launched with a budget of $30 million which, within the first twelve

months of its existence, seized 2330 illegal shipments of high technology valued at $148.8 million.24

William Von Raab, the new Customs Chief, trained over 400 new officials and stationed them rapidly at US embassies and consulates around the world.

The CIA was directed in 1981 to investigate the consequences of US technology flows to the Soviet Union. As a result of their comprehensive report (a censored version which was released in April 1982) a specialised team of intelligence experts was formed at the Langley Headquarters called the "Technology Transfer Assessment Centre", whose members joined Customs and Commerce officials to coordinate US enforcement efforts globally.25

In December 1981, President Reagan instituted US sanctions on the Yamul Pipeline project and increased US pressure on its European allies to do the same. The Soviets were starting to feel the squeeze of a concerted US effort to throttle their high technology lifeline. However, the situation changed dramatically when the US establishment, through the State and Commerce Departments, reasserted their influence within the Reagan Administration.

The resignation of General Alexander Haig as Secretary of State paved the way for the entry of George Schultz, a vigorous supporter of detente and trade with the Soviet Union. Shultz quickly reasserted the State Department's dominance in shaping US foreign policy, which was aided by the resignations of Richard V. Allen and William Clarke, both conservative hardliners, from the National Security Council and their replacement by MacFarlane, a pragmatist. Since 1983 Schultz, Baldridge, Secretary of Commerce and Treasury Secretary James Baker III, have worked closely to minimise the influence of the Department of Defence, the

National Security Council and the CIA in the formulation of US foreign policy.

President Reagan's resolve weakened in trying to enforce the Pipeline sanctions, because his European allies refused to cooperate with him, and his efforts were being opposed by both US business interests and by some members of his own Cabinet. By the beginning of 1984 President Reagan, it seems, had given up and started to side increasingly with the Commerce and State departments against the CIA and US Defence Department.

The Commerce Department came down hard on its own employees who attempted to control the exports of strategic technology to the Soviet Union. One such person was Lawrence Brady, who as Deputy Director of the Office of Export Administration under President Carter, had regularly challenged those who wanted to sell strategic technology to the Soviet Union. Lawrence Brady resigned from the Commerce Department in 1979 after he publicly disagreed with his superior, who headed the Office of Export Administration, at a Congressional Hearing that US computers sold to the Soviets have a recordation device which will assure the US that it will not be used for anything other than what it was intended to be used for.

When he was appointed to the Reagan Administration to head the Office of Export Administration, Dr Brady was still hampered in his work by pro-detente forces within the Commerce and State departments. He resigned again in frustration in 1983 and was replaced by William Archey, a firm advocate of trade with the Soviets.

It seems that the State and Commerce Departments are trying to undo some of the trade restrictions placed against the Soviet Union. After the Yamul Pipeline controversy, the

State and Commerce departments put pressure on President Reagan to lift restrictions on the sale of oil and gas equipment to the Soviets - enforced by President Carter in July 1978 after the jailing of Soviet dissidents, Shcharansky and Ginzburg. After the recent Geneva Summit in November 1985, and the meeting of the US-USSR Economic Trade Council in Moscow in December 1985, it seems that these restrictions will be lifted.

In an effort to counter the Jake/Heinz Bill to set up an Office of Strategic Trade which would severely curtail the powers of the Commerce Department, an opposition bill sponsored by Republican Congressman Don Bonker, was introduced which would rewrite the Export Administration Act of 1979 and strip the Customs Department of its authority to examine exports of technology shipments to the Soviet Union.

The head of Customs, William Von Raab, reacted angrily to the Bill, describing it as a "KGB relief Bill, which would gut all the service's efforts to stop Soviet spies from stealing US technology."26 Jack Anderson, commenting on the Bonker proposal in the Washington Post, stated:"The Commerce Department has only 50 inspectors and investigators to keep an eye on high tech exports. In contrast, the Customs Service has 200 years experience and more than 5000 trained people around the world to track smugglers." He commented further that "the mission of the Commerce Department is to promote sales of US goods. It has neither the manpower nor the inclination to stop valuable technology from slipping through the cracks to the Soviet Union."27

An example of the Commerce Department's sloppy enforcement of export laws was the sale of the sophisticated VAX 11/782 computer to Richard Mueller in December 1982. It is clear

that the Commerce Department should be delegated less authority in overseeing the export of sensitive technology.

In an attempt to deflect criticism away from the Commerce Department, Baldridge launched a counter attack on the Defence Department, claiming that the Soviets had access to too much declassified data from the National Technical Information Service (NTIS) acquired through the Soviet All Union Scientific Research Institute. While this was true and later rectified when the NTIS stopped providing the Soviets with this source of data, it hardly helped to vindicate Baldridge's real concern on technology transfers to the Soviet Union. After the Geneva Summit, he personally headed a delegation of several hundred businessmen to Moscow to reactivate detente!

The situation within the Reagan Administration is currently deadlocked between the two factions, and until effective export control measures discussed above can be fully implemented, the outflow of high technology to the Soviet Union will continue.

Sanctions - How Effective?

Discussions around curbing high technology exports to the Soviet Union invariably lead to the question: How effective is the use of sanctions or the denial of trade, as an economic weapon against the Soviet Union?

The anti-sanctions lobby always looks to former Rhodesia as one of the best examples illustrating the failure of sanctions. US economist, Robin Renwick, in an article entitled Economic Sanctions, stated ' ... the decade from 1965 to 1975, the Rhodesian econo ansformed from virtually total dependence importation of manufactured goods in exchange for aterials, to a

remarkable degree of self-sufficiency in most areas. The successes were a product of local ingenuity and enterprise, under the stimulus of sanctions."28

However, the reason for the Rhodesian success was that conditions in the country were conducive to ingenuity and the production of local products, because of the free market system that existed there at the time. Incentives rewarded ingenuity - two critical conditions that do not exist in closed, totalitarian societies. In the absence of these two conditions, an economy such as the Soviet Union's would stagnate in the face of sanctions.

Secondly and more importantly, the Soviet Union has to maintain its status as a world super power. To accomplish this, the Soviets' global Marxist/Leninist strategy dictates that it stays in the forefront of the world "scientific/technological revolution", and as this paper has conclusively ascertained, it needs Western technology to do so. Sanctions would have the effect of forcing the Soviet economy to shift towards a more open market-orientated system, thereby threatening the power base of the entrenched Communist Party.

The US-based Institute for International Economics has brought out a study which analyses 100 cases of export sanctions around the world that have occurred this century, and concludes that by and large they have not been successful. The Institute maintains that the Soviet Union is "relatively self-sufficient and only slightly dependent economically on the US."29 The latter part of the statement is patently untrue, the Soviets having been dependent on US technologically since the Bolshevik Revolution.

It must not be forgotten that the Institute for International Economics, formed in the late 1970's, is closely interlocked with the Trilateral Commission and the Council on Foreign Relations - private power elites in the US which have de-emphasised or ignored the extent to which technology transfers have taken place to the Soviet Union.

The argument that the practice of free trade will raise the expectations of Soviet citizens by creating the promise of greater wealth, is tenuous because the Soviet military sector has priority over the consumer sector for trade products from the West. The Soviet Union's imports of consumables are negligible. Instead, imports consist of high technology and heavy machinery, crucial for the development of the military/industrial complex. Private to government trade is not "free" trade. The population of the Soviet Union remains uninvolved and largely uninformed as far as East-West trade is concerned. "Building trade bridges" to the Soviets does not extend to its citizens. Simply put, the Soviet populace are denied the ability to have their expectations raised. The Czechoslovakians prematurely did in 1968, and paid harshly for it.

Perhaps the most credible argument put forward by the anti-sanctions lobby, is that US sanctions merely transfers contracts from US companies to European and Japanese companies. For example, Cooper Industries lost $100 million in sales to the Yamul Pipeline. Dresser Industries lost $120 million and Caterpillar $50 million.30 There are two counter arguments to this point. The first is that with all technology transfers from the US to the Soviet Union, a subjective evaluation is needed on the five following points: comparability, quantity, quality, price and maintenance. In many cases US technology is often far superior, cheaper and easier to maintain than any European or Japanese equivalents, e.g. computers.

Secondly, technology sales by US companies especially to the Yamul Pipeline project, would probably have been backed by US Government credits or alternately, by US private banks, which in turn would have had US Government guarantees that their loans would be safe. Government to government trade. where the burden of risk is effectively transferred from private companies to the US Government, has nothing to do with free market trading.

The major problem is that Western European suppliers are frequently subsidized by easy government credit or tax incentives. While this benefits companies, government investment is switched from local to foreign areas which means higher interest rates and lower economic growth for European countries. If this form of economic subsidization was withdrawn from US and European companies doing business with the Soviet-Bloc, East-West trade would drop substantially. Companies have no right to demand economic aid from their governments, because only the company and the foreign country benefits, not the local economy, nor ultimately the Western taxpayer.

Curiously, opponents of sanctions against the Communist Bloc are in the fore of demanding sanctions against countries like South Africa and Chile. When a Communist country is involved, moral considerations recede and sanctions are suddenly declared negative and counter-productive!

In the final analysis, while the Soviet Union could survive Western sanctions, it would however, be denied the ability of maintaining its position as a credible "super power" in the world - a position it currently enjoys due to the massive infusions of Western technology and credits that have taken place since the 1960's. The denial of vital Western technology would undercut the Soviet Union's

ability to maintain its far-flung global empire and its colossal military development programme, which in turn might facilitate the break away of Eastern Europe from Soviet hegemony. The seemingly inexorable march of international Communism could be halted in its tracks and effectively reversed. It is this scenario which makes the case for sanctions more credible, and a foreign policy option which gives the President some manoeuvrability between rhetoric and military action to express US outrage at unacceptable Soviet behaviour. The authority to impose economic sanctions is the most important intermediate option of declaring war on a foreign adversary.

To conclude, while it is impossible to halt the flow of high technology to the Soviet Union completely, the failure to stop the flood of sensitve goods and technology to the Soviet Union is felt every year with each increased US Defence Budget.

The policy options discussed in this chapter would go a long way in curbing technology exports to the Soviet Union, and its impact on Soviet economic development would be considerable and justified at little economic cost to the US.

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CHAPTER 8 : TOWARDS GLOBAL CONVERGENCE

This paper remains incomplete without discussing perhaps one of the most critical facets of US technology transfers, namely the motivation underlying the transfers of technology and credit to the Soviet Union which have taken place almost consistently since 1917.

Four possible scenarios emerge immediately:

1. Could it have occurred without any special motivation, but merely as a result of political astigmatism and ignorance?

2. Or was it because large MNC's and financial institutions found trading with the Soviet Union extremely profitable, and used its influe Washington to encourage rather than hinder it?

3. Then again, did US policy makers consider trade with the Soviet Union as a means of fostering peace?

4. Or did they feel that the US needed trade to survive and prosper economically?

These possible scenarios can, with the evidence at hand, be quickly discounted. Point 1 is fallacious in that the US Government - specifically the US State Department - knew of the extent of technology transfers and the military end use applications of that technology, which was going to the Soviet Union. Statements made by the US State Department during the sixties and early seventies to the US Congress to the effect that the Soviet military/industrial complex was based purely on Soviet technology and ingenuity, was contradicted by a mass of documentation that the State Department was sitting on.

Antony Sutton contends that the economic and military build-up of the Soviet Union is a deliberate policy, and that Western policy makers and businessmen know precisely the contribution that US technology has made to the Soviet military/industrial complex.[1] The question then is why?

Point 2 does not make much sense because : (a) US MNC's and private banks demand US Government and EXIM Bank guarantees in their business dealings with the Soviet-Bloc, which ultimately the US taxpayer has to shoulder; and (b) these firms have built some of the world's largest industrial complexes in the Soviet Union, designed not only to make that country economically self-sufficient in key products, but also to enable the Soviets to compete against the West in the world export markets.

Point 3 has been effectively discussed and debunked in chapter 2 of this paper. Not only have proponents of point 3 failed to understand the Soviet concept of peaceful coexistence, and the use of trade to strengthen the Soviets' military/industrial complex, but there is simply no hard evidence to suggest that trade fosters peace. In fact, there is a closer correlation between trade and war than there is between trade and peace. "Peaceful" trade is only peaceful if Soviet intent is peaceful, and with the evidence presented in chapter 2, this is clearly not the case.

Finally, point 4 has been arguably discredited in chapters 3 and 4 of this paper. Economically the US has benefitted little from two-way trade with the Soviet Union. Militarily the US spends over $300 billion annually in defence expenditure against an enemy which has been reliant on US and Western technology for its military preparedness.

Political and economic analysts have postulated a controversial fifth scenario to this enigma - suggesting that at the very top level of Western governments and business, trade and technology transfers were a deliberate policy to institutionalise the Soviet Empire in the East.

Solzhenitsyn spoke of an alliance between Capitalism and Communism which has existed since the first days of the Bolshevik Revolution. Addressing the US Congress, he noted: "We observe continuous and steady support by the businessmen of the West for the Soviet Communist leaders."2

When Antony Sutton was writing his three-volume series on technology transfers during the late 1960's and early 1970's, he wrote that there was a "persistent, powerful, but not clearly identifiable force in the West working for a continuance of the transfers .... policies (which) seem incomprehensible if the West's objective is to survive as an alliance of independent, non-Communist nations."3

What then is this powerful force that Sutton alluded to in the late 1960's, or the strange alliance between Communism and Capitalism that Solzhenitsyn mentioned? A partial answer is given by the late Prof Carroll Quigley of Georgetown University, who revealed in his 1500-page magnum opus entitled "Tragedy and Hope" in 1966 that "there does exist, and has existed for a generation, an international ... network which operates to some extent, in the way the radical right believes the Communists act. In fact this network, which we may identify as the Round Table groups, (forerunner to the US and British-based Council on Foreign Relations and the Royal Institute of International Affairs - RIIA), has no aversion to cooperating with the Communists, or any other groups, and frequently does so."4

Prof Quigley knew what he was talking about. He had impeccable Establishment credentials and had enjoyed access to confidential files belonging to this network. Quigley went on to identify the nature of this network and its location, when he revealed that "the relationship between the financial circles of London and those of the Eastern US (Wall Street) ... reflects one of the most powerful influences in Twentieth Century American and world history."5

The rest of this chapter will be devoted towards understanding the operation of this network and the critical role it has played in facilitating the economic development of the Soviet Union since 1917.

Wall Street and the Bolshevik Revolution

To answer the question why technological transfers have taken place, political analysts must go back to the 1917 Bolshevik Revolution to identify the strange role that certain US and European financiers played in aiding the overthrow of the Tsar, which represents the first visible manifestations of Solshenitsyn's Capitalist/Communist alliance.

Most of the evidence regarding Wall Street and Bolshevik collaboration during the Soviet revolution has been collated by Antony Sutton in his book published in 1974, entitled "Wall Street and the Bolshevik Revolution", where with the aid of classified State Department files, he managed to piece together what is essentially the missing dimension of world history. The following key revelations have been identified by Antony Sutton and others.

Before the 1917 Bolshevik Revolution, most of the Communist revolutionaries resided in Europe and the US. The two

leaders of the Revolution, Vladimir Lenin and Leon Trotsky, were staying in Switzerland and New York. In 1917 the US and European governments and private financial interests aided these two key leaders in their return to Russia in order to start the revolution.

Lenin, with the aid of the German High Command and Max Warburg of the German Central Bank, travelled across Europe in the famous sealed train with $6 million in gold. At the same time Leon Trotsky, with 275 revolutionaries and the aid of a US passport, sailed by ship from New York to Russia. At Nova Scotia in Canada, Trotsky and his revolutionary band were arrested by the Canadian port authorities. However, it was Colonel Mandell House, personal advisor to President Woodrow Wilson, who secured their release so that they "could carry forward the revolution" in Tsarist Russia.6

In his book "Czarism and the Revolution", Aresene de Goulevitch, a White Russian general, claims that Lord Milner of the British-based Round Table group spent over 21 million roubles in financing the Soviet revolution.7 According to a New York journal, American, of February 3 1949, Jacob Schiff - head of Kuhn Loeb and Co. - a Wall Street bank controlled by Rothschild interests, sank $20 million into the Bolshevik Revolution.

While it is difficult to substantiate these two statements with official sources, Antony Sutton, with the aid of State Department documents established that two significant financial transfers did take place between Wall Street and the Bolshevik revolutionaries. The first was a contribution of $1 million given to the Bolsheviks by William B. Thompson at the personal request of J.P. Morgan himself, who headed the powerful Guaranty Trust Co., "for the purpose of spreading their (Bolshevik) doctrine in Germany and Austria."8 This donation to the Bolsheviks

shortly after the November 1917 revolution perhaps effectively saved the tottering Bolshevik regime. Sutton concludes: "Without the financial, and more important, the diplomatic and propaganda assistance given to Lenin and Trotsky by Thompson, Robins, and their New York associates, the Bolsheviks may well have withered away and Russia evolved into a Socialist, but constitutional society."9 Thompson was at the time a Morgan agent and a director of the Federal Reserve Bank of New York, a large stockholder in the Rockefeller-controlled Chase National Bank.

In 1918, the American International Corporation set up in 1915 by J.P. Morgan and Rockefeller interests to promote US corporate interests abroad, gave another $1 million to the Bolshevik government through William Sands, who served as executive secretary for the corporation.

John Reed, the romantic American revolutionary who was a close friend of Lenin and a member of the Third International, was also an "establishment revolutionary" in that he was under the control of Morgan financial interests through the American International Corporation. John Reed's financial support from 1913 to 1918 came heavily from the Metropolitan newspaper, owned by Harry Payne Whitney, a director of the Morgan-controlled Guaranty Trust; and also from a New York private banker and merchant, Eugene Boissevain, who channelled funds to Reed both directly and indirectly through the pro-Bolshevik paper, Masses.10

After the Bolshevik Revolution, the Soviet regime did everything possible to establish diplomatic relations with the US. With the aid of Colonel House and other pro-Bolshevik sympathisers in the Wilson Administration, the Soviets were permitted to set up a Soviet Bureau to facilitate trade relations with US companies. The Bureau

was run by Ludwig C.A.K. Martens, who according to Scotland Yard reports at the time, had an unusually close working relationship with J.P. Morgan's Guaranty Trust.11

Similar reports indicate that the Morgan faction was heavily financing the Soviet Bureau, which in turn was working with and giving support to prominent US Communists, including Julius Hammer - one of the founding members of the Communist Party of the US.

At a Senate Foreign Relations Sub-Committee Hearing, set up to investigate the extent of Soviet activity in the US, Ludwig Martens boasted that a number of the largest banking and business firms in the US were aiding the Soviets. He specifically named US Steel Corporation (owned by Morgan) and the Standard Oil Company (owned by Rockefeller). He further asserted that "most of the big business houses of the country were aiding him in his efforts to get the US Government to recognise the Soviet Government."12

Several important Wall Street business pressure groups were set up specifically to aid the Bolshevik Government. Among these were the American Commerce Association, a group established in 1919 to promote trade with the Soviet Union. Formed by some 100 businessmen representing Chase National Bank, amongst others, the Association financed Lenin's representative in the US, Ludwig Martens, until he was finally deported by the US Government.13

In 1922, Chase National Bank was instrumental in setting up the American/Russian Chamber of Commerce to help finance the Bolshevik economy. In 1926, the Chamber sent Charles Haddell Smith to open an office in Moscow. According to the US State Department at the time, Haddell Smith was a member of the Peasant International,14 one of the numerous Soviet front organisations spawned by the Soviet Comintern to export Marxist revolution worldwide.

A picture begins to emerge as to the identification of the "network" that Carrol Quigley referred to. Financial and corporate conglomerates bred around the Morgan, Rockefeller, Rothschild axis, which were responsible for aiding the Bolshevik Revolution, have since 1920 been the most powerful supporters of detente and trade with the Soviet Union.

The Network

With the aid of US tax-exempt foundations, Quigley's "network", which includes prominent academics and personages from influential law firms and corporate and financial institutions in the US, has over the years established a host of private political and economic groups, both in Western Europe and the US, to help facilitate the establishment of a "New World Order". The most prominent of these power elites include the Trilateral Commission, Council on Foreign Relations, Bilderberg Group, Club of Rome, Atlantic Council and the RIIA; which in turn control numerous interlocking subsidiary spin-offs, including private think tanks, foundations and political lobbying groups which have the primary purpose of influencing Western governments on key economic, political and foreign policy issues.

The influence of some of these groups, such as the Council on Foreign Relations (CFR) and more recently the Bilderbergers and the Trilateral Commission, over US and European Government policy decision making, has often been substantial. Many of these organisations act as incubation chambers for the formulation of policy issues that later become official government policy. A prime example of this was the role that the Dartmouth and Pugwash Conferences,

discussed in chapter 1, played in formulating the basic concept of detente with the Soviet Union. There are several important groups in the US that have played a key role in fostering detente and trade with the Soviet Union. These include the CFR, the Trilateral Commission, US-USSR Trade and Economic Council and the American Committee on East-West Accord (ACEWA). A brief analysis is given below on each of these organisations and the influence they have had in shaping the present US policy of detente and trade with the Soviet Union.

Formed in 1921 as a spin-off from the RIIA, the CFR was the creation of J.P. Morgan, Rockefeller and Rothschild financial interests. Centred in New York, the CFR represents the core of the US Eastern financial "network" that Quigley identified in his book "Tragedy and Hope".

During the 1920's and 1930's, the CFR played a prominent role in lobbying for the recognition of the Soviet Union. The election of Franklin D. Roosevelt as US President in 1933 witnessed the rapid expansion of CFR influence in the US Government, especially in the US State Department, as many CFR members moved into influential government positions.

In 1945, the CFR played a key role in the establishment of the United Nations, identified by some political analysts as the second attempt by the "network" after the ill-fated League of Nations, to implement a New World Order, which would replace national sovereign states with a supra-national authority.

Since World War II, regardless of which political party is in power in the US, the CFR has invariably always dominated four key government positions in any US Administration, viz. the Secretary of State, Defence, Treasury and Commerce

which effectively control US economic and foreign policy. (See Appendix XIII, p. 288.)

Since its inception, the CFR has attempted to steer US foreign policy towards a global perspective, which stresses interdependence between nations rather than national considerations, such as national sovereignty and cultural self-determination.

In its publications and statements, the CFR has always alluded to the need for a new international order to replace the existing one, an order that can only be brought about by closer East-West cooperation.

In 1959, the CFR stated that "the US must strive to build a New International Order ... including states labelling themselves as Socialist .... to maintain and gradually increase the authority of the United Nations."15 Detente then has become the foundation for increased East-West cooperation, and trade the economic vehicle to help speed up the process of creating a New World Order.

Another example of the CFR's globalist orientated outlook was an article published by Richard N. Cooper in Foreign Affairs, the quarterly intellectual mouthpiece of the CFR, entitled "A Monetary System for the Future" (Fall 1984), the objective of which is "the creation of a common currency for all the industrial democracies, with a common monetary policy and a joint bank of issue to determine that monetary policy."16 It would seem that the CFR believes that they will preside over the implementation of their New World Order. However, it must be stressed that not all CFR members are pro-detente or "Internationalist" in outlook. Criticism of the leftwing bias of the CFR has seen a sprinkling of conservatives joining the CFR roster since the late seventies. These include former US Ambassador to

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Another example of the CFR's globalist orientated outlook was an article published by Richard N. Cooper in Foreign Affairs, the quarterly intellectual mouthpiece of the CFR, entitled "A Monetary System for the Future" (Fall 1984), the objective of which is "the creation of a common currency for all the industrial democracies, with a common monetary policy and a joint bank of issue to determine that monetary policy."16 It would seem that the CFR believes that they will preside over the implementation of their New World Order. However, it must be stressed that not all CFR members are pro-detente or "Internationalist" in outlook. Criticism of the leftwing bias of the CFR has seen a sprinkling of conservatives joining the CFR roster since the late seventies. These include former US Ambassador to

the United Nations, Jeane Kirkpatrick; Fred C. Ikle; Secretary of the US Navy, John F. Lehman; Arms Control and Disarmament Agency Director, Kenneth Adelman; Chairwoman of President Reagan's revived Foreign Intelligence Advisory Board, Anne Armstrong; former National Security Council member, Richard Pipes; Washington Times editor, Arnaud de Borchgrave and former Deputy Director of the CIA, Ray Cline. However, their influence within the CFR is minimal, as it is the Internationalists representing Wall Street corporate and financial power, who effectively dominate the CFR and formulate its policies.

The 2300-member CFR (1984) has been partially eclipsed in influence by the powerful Trilateral Commission that was formed in 1973 by David Rockefeller of Chase Manhattan Bank.

The idea of a Trilateral Commission began in 1971 as a response by prominent members of the US "Foreign Policy Establishment" (CFR) to Nixon's and Kissinger's new detente policies towards the Soviet Union and Red China, which it was feared, would not include America's Western allies and thereby weaken the Western Alliance.17 Western Europe and Japan had to be included into America's new detente policies with the Eastern-Bloc.

In his book published in 1970, entitled "Between Two Ages", Zbigniew Brzezinski had called for "a community of developed nations" in order to "contain the global tendencies towards chaos ... from an American standpoint, the more important and promising changes in the years to come will have to involve Europe and Japan."18

Later the Brookings Institution financed Brzezinski's tripartite studies that explained his concept of trilaterism, which proposed a community of developed

nations to strengthen the world economic community - an advanced nations club - made up of North America, Western Europe and Japan.
Brzezinski presented his tripartite studies to David Rockefeller, who used them to propose the formation of the Trilateral Commission (TC) at a Bilderberg* Conference in the small Belgian town of Knokke in April 1972. In January 1973, talks were held with Japanese leaders and the Trilateral Commission was officially formed in June 1973. Sponsorship for the Trilateral Commission was initially provided by the US Kettering Foundation and later from the Ford and Rockefeller Foundations.

Today membership of the Trilateral Commission has reached around 300, drawn almost equally from North America (excluding Mexico), Western Europe and Japan. If the CFR is the foreign policy arm of the US establishment "network," then the Trilateral Commission can be identified as the economic policy arm of the US "network". Most members of the TC are also members of the CFR.

Some political analysts believe that the TC has replaced the United Nations as the vehicle to speed up the transition to a New World Order, focussing first on regional planning and them combining the centralised

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* The Bilderberg group was established in 1954 to accelerate the movement towards European unity and facilitate the entry of the US into an Atlantic union with Western Europe. It is a covert political power group, where some 100 prominent European and US businessmen and politicians meet in secrecy every year to discuss future policy options covering a range of economic and political issues. The Bilderberg Steering Committee of 25 members from the US and Western Europe is headed by Walter Scheel (1980), former President of the Federal Republic of Germany.

regions into a supra-national conglomerate. Statements made by prominent TC/CFR members would suggest that the TC represents the third attempt by the network at forming a New World Order, after the League of Nations and the United Nations. Prof Richard Gardner, a prominent TC/CFR member and former US Ambassador to Italy during the Carter Administration, explained this new strategy in the CFR journal, Foreign Affairs, when he stated : "The house of World Order will have to be built from the bottom up rather than from the top down ... An end run around national sovereignty, eroding it piece by piece will accomplish much more than the old fashionable frontal assault."19 (i.e. the United Nations). The regional piecemeal approach of the TC is a new manifestation of this policy.

Like its CFR counterpart, the TC states clearly its globalist objectives for the implementation of a New World Order. One of its position papers published in 1978 and entitled "Towards a Renovated International System" (Triangle Paper 14), states quite clearly that keeping world peace, managing the global economy, controlling ecological damage, and meeting basic human needs can no longer be handled by sovereign states.20 Obstacles to this "cooperative management of interdependence" include national sovereignty, domestic political issues, numbers of independent countries, etc. These alleged problems are used by the TC and the CFR to heighten world order priorities in US Government policy decision making.

The TC states that solving these "global problems" can only be achieved by collaborating closely with Communist countries. This was emphasised when the TC brought out

Triangle Paper 13 in 1977, entitled "Collaboration with Communist Countries in Managing Global Problems : An Examination of the Options". The report, co-written by Chihiro Hosaya, Prof of International Relations, Hitosubashi University, Tokyo; Henry Owen, Director Foreign Policy Studies of the Brookings Institution, Washington; and Andrew Shonfield, former Director of the London RIIA, openly advocates a policy of "global management" in collaboration with the Soviet Union. Areas of collaboration envisaged include food production, nuclear exports and non-proliferation, oceans, trade policy, energy production, space, and weather modification. These recommendations go one step further than the current policy of detente - laying the framework for integrating the economic and political systems of East and West into a New World Order.

In the introduction, the report states : "Our main goal in seeking East/West cooperation is to manage the world's problems more effectively."21 The recommendations in the report hint at greater, not lesser government control and intervention in the global economy, a Socialist presumption which believes that only government or some similar regulatory body can solve the world's economic problems. Not surprisingly, key members of the TC are fervent supporters of detente and increased trade with the Soviet Union, believing that this will pave the way for some sort of convergence between the two super powers, defuse international tension and help in the "global management" of the world's economic, political and social problems.

The influence of the TC on US government and economic thinking since its inception in 1973, should not be underestimated. Almost one third of the entire North American TC membership was appointed by President Carter (himself a Trilateralist) to US Government positions - 17 in Cabinet

positions. Between 1977 and 1980, US Government policy was effectively TC policy.

Novak, a prominent columnist for the Washington Post, wrote in the Canadian journal, America, that according to sources in the US State Department, the Trilateral position papers had directly influenced the summoning of the Rambouillet and Puerto Rican Monetary Conferences, the sale of IMF gold, the Law of the Sea Conferences, the formation of the International Energy Agency, and steps to establish a new International currency which will replace the US dollar and gold.22

While the influence of the TC and CFR has waned somewhat with the conservative-orientated Reagan Administration, they are still prominantly represented by Internationalists George Bush, George Shultz, Malcolm Baldridge and James Baker III, who are the Administration's chief proponents of expanding US-Soviet trade relations.

The US-USSR Trade and Economic Council (TEC), mentioned briefly in chapter 1, is an organisation of leading US businessmen and top Soviet trade officials devoted to the promotion of commerce between the two countries. The Trade Council was the brainchild of Don Kendall, Head of Pepsi-Cola, who approached President Nixon on its formation to :

(a) counter the Jackson amendment which threatened Nixon's detente policies; and
(b) lobby for the granting of MFN status to the Soviet Union.

After Nixon gave the idea his full support, the TEC was inaugurated on October 1 1973 at a dinner in the Granovitovaya Palata in the Kremlin. Present at its launch was George Schultz, then Treasury Secretary in the Nixon Administration.

With Kendall as Chairman and led by 25 of the most powerful US businessmen and 25 highly-placed Soviet trade officials, the Council would meet alternately every year in the US and the Soviet Union to lobby for increased trade links between the two Super Powers.

The American Directorship of the Council consists of those businessmen whose companies have played a key role in aiding the economic development of the Soviet Union since 1917. They include David Rockefeller, Armand Hammer, Reginald Jones of General Electric, Frank Gary of IBM, Irving Shapiro of Dupont and William Franklin of Caterpillar International.23

In 1977 Donald Kendall stepped down as Chairman, after pressure from both the Soviet and US delegates, because being a staunch Republican Party supporter, he had little influence in the Carter Administration. G. William Miller, President of Textron Inc. was chosen Chairman, a useful choice as a few months earlier he had been chosen by President Carter to head the US Federal Reserve Bank.

In 1978 C. William Verity, Chairman of ARMCO Steel and a member of David Rockefeller's Chase Manhattan Board of Directors, was elected Chairman of the TEC. Today the Council is chaired by James H. Griffen.

The Council, which is ostensibly a private business lobbying group, enjoys extraordinary protection by the US and Soviet governments - to the extent that the Council was placed officially off-limits to infiltration from both the CIA and the KGB.24

Furthermore, according to Antony Sutton, the Trade Council is a secret organisation since it will not release its membership list to the media. Only its members and the

Soviet and US governments have access to the full membership lists.25 (See Appendix XIV, Reprint of partial list obtained by A. Sutton, p. 289.)

Antony Sutton further asserts that the TEC has eight full-time Soviet employees, engineers by profession, living in New York to assess US technology. By interviewing US businessmen and assessing the technology offered, US firms are then enticed into joining the TEC to facilitate the transfer of their technology to the Soviet Union. This blatant acquisition of US technology is seemingly above the jurisdiction of the US law enforcement agencies. Why? Because the TEC represents economic and political power at the highest levels of the US establishment. Many of the US directors of the TEC are prominent members of the TC and CFR, and claim backing from the Office of the Vice-President, George Bush, and Commerce Secretary, Malcolm Baldridge in the Reagan Administration.26

Finally, the last of the prominent groups lobbying for detente and trade with the Soviet Union, is the American Committee on East-West Accord (ACEWA). ACEWA was founded in 1974 by well-known advocates of trade with the Soviet Union. It was originally the brainchild of Prof Fred Warner Neal, CFR member and Chairman of the International Relations Faculty at Claremont College, California.27 Its Board of Directors include John Galbraith, Co-Chairman and prominent liberal economist; Don Kendall, Co-Chairman and Head of Pepsi-Cola, Fred W. Neal (above) and Carl Marcy, CFR member and former Chief-of-Staff of the Senate Foreign Relations Committee (1955-73).

Its membership includes Armand Hammer, Head of Occidental Petroleum; George W. Ball, TC/CFR member and former Under-Secretary of State; John Culver, TC/CFR member and former Democrat Senator; Theodore M. Hesburgh, CFR member and

President of the University of Notre Dame; Harold B. Scott, CFR member and former member of the TEC; and Leonard Woodcock, former TC member and former US Ambassador to the People's Republic of China.

The most interesting member of the ACEWA's roster of Directors is its President, Robert D. Schmidt, who is also Vice-Chairman of Control Data Corporation. Schmidt, a vocal supporter of detente with the Soviet Union and whose company has sold some of its most advanced computer systems to the Soviet Union, has brushed aside Antony Sutton's three-volume series on technology transfer. Responding to Sutton's work in a letter, he stated that the three volume series was "a gross exaggeration, poorly documented and an emotional recitation".28 Corporate figures like Schmidt, while determined to promote trade with the Soviet Union, ignore or side-step the consequences of this trade on the development of the Soviet Union's military/industrial complex.

To conclude, organisations like those mentioned above, have been heavily involved in promoting detente and trade with the Soviet Union. Their interlocking directorships and membership represents primarily those US banks and corporations which have been involved in the economic development of the Soviet Union since 1917.

To understand the motivation behind these technology transfers, the answer then lies partly in the desire by these groups for the establishment of a New World Order, a situation that will only be made possible through the convergence of East and West.

This controversial hypothesis has been given some credibility by a former President of the prestigious Ford

Foundation, Rowan Gaither, who told Rene Dodd, Council to the ill-fated Congressional Reece Committee investigating US foundations in the 1950's, that acting on directives from the White House he and others were to "make every effort to so alter life in the US as to make possible a comfortable merger with the Soviet Union".29

The Use of Hegelian Dialectics in World Politics

Some political analysts have postulated a theory that the mechanics of "Hegelian Dialectics" (the creation of two opposites) has been used to accelerate the movement towards global convergence.

Antony Sutton in his most recent book expands on this theory by discussing the use of "Hegelian Dialectics" and "controlled conflict" by the US establishment to achieve their long-range political objectives of East-West global convergence. The use of "controlled or managed conflict" and "crisis management" to bring about a favourable outcome, is discussed openly in literature of, for example, the Trilateral Commission.

According to Antony Sutton : "In Hegelian philosophy, the conflict between political "right" and political "left", or thesis and antithesis in Hegelian terms, is essential to the forward movement of history and historical change itself. Conflict between thesis and antithesis brings about a synthesis, i.e. a new historical situation."30

Analysing Twentieth Century history, there is some evidence to suggest that the network may have used the Hegelian dialectical process to create a predetermined historical

synthesis. During the 1920's and 1930's, financial and corporate interests centred around the CFR were financing both the rise of Stalin and Hitler - two supposedly ideological opposites.

In 1926 Thomas W. Lamont, Head of the powerful J.P. Morgan banking network, raised a $100 million loan for the Italian fascist dictator, Mussolini, at a time when J.P. Morgan interests were heavily involved in the economic development of the Bolshevik economy.31
The conflict that was generated between Soviet Communism (thesis) and Nazi/Fascism (antithesis) in World War II, gave way to the formation of the United Nations and other similar regional groupings, e.g. the EEC, NATO, COMECON, etc. (synthesis), as a first step towards creating a New World Order.

Since World War II, two new dialectical arms of the Hegelian process have emerged under the "controlled management" of the US establishment, namely the Soviet Union and the US, as the prelude to the creation of another and perhaps final synthesis.

To coerce the US into a New World Order, the network had to build a credible enemy (antithesis) in the form of the Soviet Union. This could only be achieved through massive transfers of technology and credit to the Soviet Union, which have taken place under the auspices of detente since the mid-1960's. The stage has been set to facilitate the convergence of the US with the Soviet Union, either through "controlled conflict", i.e. a limited nuclear war, or through political blackmail based on Soviet military superiority.

To conclude, it must be stressed that the discussion above is merely a hypothesis which needs further verification.

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To conclude, it must be stressed that the discussion above is merely a hypothesis which needs further verification.

Yet it is an attempt to explain a remarkable web of economic relationships that have transcended two ideologies, which conventional history has taught us, to have been, and continue to be, implacably opposed to each other.

CHAPTER 8 : NOTES

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CONCLUSION

In conclusion, this paper focussed on three important themes. These were :

1. The extent of US technology transfers to the Soviet Union since the mid-1960's and the impact these transfers have had on the development of the latter's military/industrial complex.

2. That contrary to Western policy perceptions, trade with the Soviet Union does not mellow the nature of a totalitarian regime.

3. That the motivation behind US technology transfers with the Soviet Union may have little to do with the conventional tenets of detente, but instead may be part of a hidden agenda to facilitate the convergence of the US and the Soviet Union into a New World Order.

Chapters 3 and 4 quantified the extent of US technology transfers that have taken place to the Soviet Union, and found that not only has it been substantial, but that Soviet economic and military development has, since 1917, been contingent on these continued infusions of Western technology. Various Soviet industrial sectors were studied in detail, and it was found that most are significantly reliant on foreign technology. The interdependence of the military and the industrial sectors was noted, as was the important role that dual use technology plays in enhancing Soviet weapons capability. Chapters 3 and 4 verified that indigenous Soviet technology is almost non-existent due to the stagnating nature of totalitarian regimes. Soviet acquisition of US technology is a prerequisite in order to maintain its position as a super power vis-a-vis the US.

Chapter 5 documented the massive Soviet programme to acquire Western technology, both legally and illegally, so as to maintain its competitive edge in the scientific-technological revolution.

Leading on from theme one, theme two debunks the notion that trade with the Soviet Union will (a) ameliorate its international behaviour; and (b) help implement internal economic reforms that will lead to a more open society. Chapter 2 dealt with the Soviet perception of detente and how this policy was effectively incorporated into their overall global strategy. Peaceful coexistence was formulated and utilised by the Soviet Union to exploit the economies of the West, in order to rectify the deficient and backward sectors of their own stagnating economy. Detente effectively postponed the inevitability of the Soviet Union to have to make fundamental economic reforms which would threaten the power base of the ruling minority elite. Trade has entrenched totalitarianism in the Soviet Union, rather than provide the catalyst for greater economic freedom that its proponents had hoped for.

Finally, theme three used the evidence presented from the first two themes to hypothesise the notion that US technology and credit transfers to the Soviet Union is a deliberate policy to coerce two opposing economic and political systems into a New World Order synthesis. This is a future scenario envisaged by certain power elites in the West, which through the use of Hegelian dialectics, will accelerate the dissolution of national sovereignty and see its replacement by some supra-national authority, to ensure a "more stable and managed global environment."

This paper has attempted to assimilate the many facets of technology transfers, often studied in isolation, into a

coherent whole, so as to give a broader perspective and understanding of a topic that is both little understood and often highly controversial.

APPENDIX I

MAJOR CATEGORIES OF LEND LEASE SUPPLY TO THE SOVIET UNION

Category	Description of Category	Amounts (Arrived in Soviet Union)
I	Aircraft and equipment	14,018 units
II	Vehicles (including tanks and trucks)	466,968 units
	Explosives	325,784 short tons
III	Naval and marine equipment	5,367,000 gross registered tons of shipping
		7,617 marine engines
IV	Foodstuffs	4,291,012 short tons
V	Industrial machinery and equipment	$1,095,140,000
VI	Materials and metal products	2,599,776 short tons of steel
		781,663 short tons of nonferrous metals
		1,018,855 miles of wire
		2,159,336 short tons of petroleum
		820,422 short tons of chemicals

Source: U.S. Dept. of State, *Report on War Aid Furnished by the United States to the U.S.S.R.* (Washington: Office of Foreign Liquidation, 1945), pp. 20-28.

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APPENDIX II

Letter (Protocol) of Intent dated 19 October 1973 (English version) between State Committee of the USSR Council of Ministers for Science and Technology and the Control Data Corporation.

Letter (Protocol) of Intent

I. The State Committee for Science and Technology of the USSR Council of Ministers and Control Data Corporation (CDC) in the interest of developing extensive long term technological relationships between Soviet organizations and enterprises and Control Data Corporation, have on 19 October 1973 concluded an "Agreement on Scientific and Technical Cooperation". The State Committee for Science and Technology and Control Data Corporation, together with the USSR Ministry of Foreign Trade, hereafter referred to as the Parties, having in mind furthering the development of the desired cooperation, wish to conclude this Letter of Intent to identify joint projects which need detailed study, and to commit the Parties to initiate these studies.

II. The objective of the projects called for in Paragraph III of this Letter (Protocol) of Intent shall be to:

A. Establish the coordinating group, and working groups called for in Article 4 of the Agreement on Scientific and Technical Cooperation.

B. Specify the scope and mechanism by which the scientific and technical information exchanges to be engaged in under the terms of Article 2 of the Agreement on Scientific and Technical Cooperation shall be carried out:

C. Implement detailed examination of those projects given first order of priority.

D. Define mutually satisfactory commercial and trade relationships.

III. The following preliminary list of tentative joint projects has been agreed to and a detailed examination of them will be our first priority.

A. **Finance and Trade** – To conduct studies and discussions in order to develop mutually satisfactory bases for payment for the activities to be undertaken within the scope of the Agreement on Scientific and Technical Cooperation. This shall include terms of credit, repayment, considerations, and cooperative activities whose purpose is to generate Western currencies to facilitate repayment of credit.

B. **Software and Applications Development** – Development by the USSR of automated programming methods for im-

proving programmer productivity as well as the generation of systems within certain applications areas of mutual interest. These would include, but not be limited to, the medical/health care field, the transportation industry, and the education environment.

Objectives of transportation study might include both the increase of efficiency of passenger transportation, as well as enhance the timely delivery of freight, both by surface and by air.

The medical health care study would include the creation of systems dealing with patient care, health care management, as well as health care planning.

Work in the education field will be centered on the disciplines of computer-based education and training, including networks, special terminals, author language, curriculum and courseware.

C. **New Computer Sub-Systems R & D** – The USSR will contribute research and technical development of computer elements based on new technical concepts. This research and development will be undertaken based on cooperative planning between Control Data Corporation and appropriate USSR organizations.

This research and development may include, but will not be limited to, the realm of memory systems, advanced mass memories, thin film, disk heads, plated disks, memory organization and ion beam memories, might be amongst the technologies to be investigated and research and development undertaken.

D. **Reserch and Development** – Joint exploration of research and development activities in USSR enterprises and institutes which will add to Control Data Corporation's research and development activities, particularly in the areas of computer systems software and applications software, and will constitute in part compensation for technologies which the USSR wishes to obtain from Control Data Corporation.

E. **Advanced Computer System Development** – To conduct a cooperative development of a computer with rearrangeable structures and a performance rate of 50 to 100 million instructions per second to be used for solving large economic and management problems. Results of software and architectural research conducted in the Soviet Union will be utilized. The functional design of the software system and the architectural concepts will be supplied by the USSR. The implementation would be conducted in four phases as follows:

1) Feasibility
2) Detailed design
3) Prototype construction and checkout
4) Test and evaluation

The feasibility phase will be used to evaluate the proposed computer concepts, both hardware and software, in order to verify that the system can be implemented with known hardware technology.

The following are among the areas to be considered as part of the evaluation: architectural design, software system design, new software techniques, new software applications, components and circuitry, system performance, operating systems, principal applications, manpower and cost. The entire program is expected to require from five to eight years to reach fruition. Results will be shared on an equal basis.

F. **Disk Manufacturing Plant** — To build a plant for manufacturing mass storage devices based on removable magnetic disk packs with up to 100 million byte capacity per each pack. The yearly plant output shall be 5,000 device units and 60,000 units of magnetic disk packs (approximate estimate). It is expected that 80% of the plant output will be 30 mega-byte devices and 20% will be 100 mega-byte devices.

G. **Printer Manufacturing** — To build a plant to manufacture line printers to operate at a speed of 1,200 lines per minute. The yearly output shall be 3,000 devices (approximate estimate).

H. **Process Control Devices Manufacturing** — To build a plant for the manufacture of process control oriented peripheral devices, including data collection, analog/digital gear, terminals etc. The annual plant output for all devices, including data collection, is estimated as approximately 20,000 units.

Note: With respect to items F, G and H, the Parties shall jointly develop technological documentation for manufactured products in accordance with the metric system standard and insure that all aspects of the plant(s) design and construction are of the highest quality such that the manufactured output will be fully competitive in all respects within the world market place. Control Data Corporation shall deliver technical documentation, complete sets of technological equipment, as well as know-how, and full assistance in order to insure mastering of full production techniques.

I. **Printed Circuit Board Manufacturing** — Delivery to the USSR of a complete set of equipment for the manufacturing of multilayer printed circuit boards.

J. **RYAD/Control Data Corporation Information Processing Systems** — Joint creation of information processing systems based on the use of Soviet manufactured computers and Control Data Corporation equipment. Control Data Corporation equipment would include local peripheral sub-systems as well as communications hardware, including front-ends, remote concentrators and terminals. It is expected that the system would include operational software jointly created to make a viable computer system for applications to problems in other parts of the world which could be commercially saleable as a total system.

K. **Process Control and Remote Communications Concentrator Manufacture** — To organize within the Soviet Union manufacturing of Control Data Corporation licensed remote communication equipment and analog to digital components for standalone use within technological process control systems. It must be kept in mind that such devices and components must satisfy requirements of both the Soviet Union and Control Data Corporation. Control Data Corporation evaluates that it can buy back approximately $4,000,000 worth of these products.

L. ***Network Information System*** **(CYBERNET)** — Joint study to provide a proposed specification for a Soviet computer communication network. Dimensions of networks to be explored will include both the distribution network between terminal users and processing center as well as an eventual bulk transfer network between cluster centers and private satellite centers. The USSR will develop systems and applications software for this Network Information System based upon the present commercially available Control Data Corporation network software system. The resultant software will be available and shared by both Parties. The various data communications technologies will be evaluated as one of the major tasks of the study.

M. **Control Data CYBER 70 Data Processing Centers** — Joint creation of processing centers which will utilize computers and other equipment of Soviet manufacture and those of Control Data Corporation for organization/application such as, but not limited to, those specified below:

1) World Hydrometeorological Institue, Moscow, for processing of weather data for forecasting and in preparation of weather maps.

2) Institute of High Energy Physics, Serpukhov, for nuclear research, reduction of accelerated data, and basic particle research.

3) Ministry of Geology, Moscow, for seismic data reduction.

4) USSR Academy of Sciences, Academ Goradok, Novosibirsk, for operational numerical weather forecasts, as well as for on-line concurrent processing of scientific data from experiments related to atmospheric, gas dynamics, weather research and basic scientific research.

5) Ministry of Chemical Industry, Moscow, for an information processing network and plant and pipeline control.

6) Ministry of Oil Refining, Moscow, for electric distribution and plant design.

IV In order to launch the above noted programs into viable, successful implementations, Control Data Corporation is prepared to advance long term credit on mutually beneficial terms through Commercial Credit Company, its financial affiliate. It is expected that the total volume of credit required for financing of the full dimensions of the Scientific and Technological Agreement may reach 500 million dollars. It is further expected that repayment of such credit will be made in the form of Western currencies. Commercial Credit Company is prepared to assist the USSR in obtaining such currencies by working jointly with the appropriate authorities in the USSR in the worldwide marketing of Soviet products and in the development of natural resources for which sustained world demand exists.

In the process of developing specific programs to generate currency for credit repayment, Control Data Corporation offered the following proposals for consideration:

A. **Financing** -- Control Data Corporation is prepared to assist the USSR in obtaining the financing needed to accomplish the above noted objectives. Through its wholly-owned subsidiary, Commercial Credit Company, Control Data Corporation can marshal substantial long term credit to facilitate Soviet purchases of equipment and technology projected under the Agreement, as well as credit for potential customers for worldwide sales of Soviet products and materials.

Commercial Credit Company will take the initiative in assembling consortiums of major leaders to extend long term credit to the USSR on mutually beneficial terms. Commercial Credit Company is also prepared to use its Luxembourg facility to make use of U.S. Export/Import Bank financing to the extent such credit is available to finance the export of Control Data Corporation equipment to the USSR.

B. **Joint Venture Marketing Company** -- A marketing company jointly owned by a competent Soviet organization and

Commercial Credit Company will be established. The company would be incorporated in Western Europe and would be a self-sufficient, profit oriented entity.

The prime purpose of the company would be to sell the service non-computer-related Soviet products in the Western world on the open market. In addition to selling the products of the USSR the Joint Venture Marketing Company will develop, in conjunction with Commercial Credit Company, economic and trade forecasts for the near to medium term future in the Western world that will indicate market trends, requirements and shortages, which can be fed back into the USSR five-year planning activities to insure that future USSR exports meet the requirements of future Western markets.

C. **Natural Resource Development** – Soviet natural resources are the largest of any single country in the world. The key to world trade in excess natural resources, not required for domestic use, is the creation of additional facilities to obtain and profitably dispose of these resources.

The financial resources and worldwide industry associations of Commercial Credit Company will be employed to create appropriate consortia having four major functional entities:

a. finance
b. resource extraction and processing expertise
c. construction and operation expertise
d. sales outlet for processed products

Natural resources to be considered would include, but not be restricted to: timber products, non-ferrous metals, precious metals and stones, asbestos, apatite, cement, synthetic rubber and resins, and coal.

The present Letter of Intent is executed in two versions, both in Russian and English. Both versions of the text have equal validity.

For the State Committee
of the USSR Council of
Ministers for Science
and Technology

For Control Data
Corporation

For the USSR Ministry
of Foreign Trade

Source: Sutton, A., The best enemy money can buy, Liberty House Press, 1986, p 218.

APPENDIX III

MAJOR FIELDS OF TECHNOLOGY OF INTEREST TO
SOVIET AND EAST EUROPEAN VISITORS TO THE UNITED STATES

Computers	Architecture	Memories
	Automatic Control	N/C (Numerically Controlled) Units
	CAD (Computer-Aided Design)	Networks
	Cybernetics/Artificial Intelligence	Pattern Recognition
	Data Bases	Programming
	Image Processing Design	Robots
	Image Processing/Retrieval	Software
Materials	Amorphous	Metallurgy
	CAD	N/C Machine Tools
	Composites	Powder Metals
	Cryogenics	Superconductors
	Deformation	Testing/NDT (Non-Destructive)
Semiconductors	CAD	Design
	Circuits	Ion Implantation
	Defects	Production Technology
	Devices	SAW (Surface Acoustic Wave) Devices
Communications, Navigators, and Control	Antennas	Satellite Communications
	Microwave/Millimeter Waves	Signal Processing
	Radio Wave Propagation	Telecommunications

APPENDIX III (Cont.)

Vehicular/ Transportation	Marine Systems	Shipbuilding
Laser and Optics	Fiber Optics Gas Lasers	Optics Tunable Lasers
Nuclear Physics	Cryogenics Fusion Materials Materials MHD (Magnetohydrodynamics)	Reactors Structural Designs Superconductors
Microbiology	Genetic Engineering	

Source: CIA Report, Soviet Acquisition of Western Technology, May 1982, p 4.

APPENDIX IV

CIA list of slave-made products

I Wood Products: plywood; lumber; furniture; casings for clocks; cabinets for radio and TV sets; wooden chess pieces; wooden souvenirs; wooden crates for fruit and vegetables; cardboard containers.

II Electronic: cathode ray tube components; resistors.

III Glass: camera lenses; glass ware; chandeliers.

IV Automotive: auto parts; wheel rims; parts for agricultural machinery.

V Mining/Ore Processing: gold; iron; aluminium; coal and peat; uranium; asbestos; limestone; construction stone and gravel.

VI Clothing: coats; gloves; boots; buttons; zippers.

VII Petroleum Products and Chemicals: ammonia; gasoline and other motor fuel; potassium chloride; urea.

VIII Food: caviar and tea.

IX Miscellaneous: brick and tile; watch parts; wire fences; matresses; screens; steel drums and barrels; lids for glass jars; plumbing equipment; storage battery cases; concrete products; electric plugs/cords; electric heaters; electric motors; pumps; woven bags.

Source: Allen G, The Red Traders, American Opinion, April 1984, P 103.

APPENDIX V

The Director of Central Intelligence

Washington, D.C. 20505

17 January 1985

The Honorable Donald T. Regan
Secretary of the Treasury
Washington, D.C. 20220

Dear Don,

In the wake of the release of the ITC report on the use of forced labor in foreign countries to produce goods for export, I thought I should write you to update the status of our research on this issue. Despite continued monitoring, we are unable to obtain sufficient facts to make a solid case that any particular good we receive from the USSR is produced by convict, forced, or indentured labor.

You will recall that on 16 May I sent you a letter which stated that according to our most recent analysis 3 percent of total Soviet labor is forced. That analysis remains valid, but I can find nothing in the ITC report that indicates the availability of more specific data.

Yours,

William J. Casey

THE SECRETARY OF THE TREASURY
WASHINGTON 20220

January 28, 1985

MEMORANDUM FOR WILLIAM VON RAAB
COMMISSIONER
U.S. CUSTOMS SERVICE

THRU: ASSISTANT SECRETARY WALKER

SUBJECT: Merchandise from the Soviet Union Which May Be Produced by Convict, Forced, or Indentured Labor

On September 28, [illegible] recommended to me that a finding be published pursuant to section 12.42, Customs Regulations, to the effect that certain classes of merchandise from the Soviet Union which are produced by convict, forced, or indentured labor, either are being, or are likely to be, imported into the United States in violation of section 307, Tariff Act of 1930 (19 U.S.C. 1307). The categories of products covered by your original proposal were modified by your memorandum of December 2, 1983.

As you will recall, on May 16, 1984, I informed you that the evidence then available did not warrant a decision at that time to withhold any Soviet products from importation. My decision was based upon careful consideration of the available evidence and, in particular, the views of the Director of Central Intelligence on that information, which had been provided by the Central Intelligence Agency. In deferring a determination, I specifically chose to wait until the completion of the International Trade Commission's review of forced labor practices throughout the world.

The International Trade Commission issued its report on forced labor practices on December 18, 1984. After thorough examination of the report, I have concluded that it provides no additional evidence which might support a decision to prohibit the importation of any Soviet-produced goods into the United States. Indeed, the report further discredits the already meager evidence about two of the products identified in your recommendation. Furthermore, the ITC has expressly cautioned that its report is not intended for use as evidence in any administrative proceeding.

I have also received another letter from the Director of Central Intelligence which updates the CIA's views as originally expressed in May, 1984. This latest letter, a copy of which is attached, confirms that the CIA has continued to monitor information on Soviet forced labor practices and that the CIA still is not able to make a "solid case" that any specific forced labor goods are imported into the United States.

In light of the report of the International Trade Commission and the current views of the Central Intelligence Agency, I find that the available evidence provides no reasonable basis in fact to establish a nexus between Soviet forced labor practices, and specific imports from the Soviet Union. Consequently, based upon the evidence currently available to me, I have decided that there presently is no basis upon which to prohibit or withhold from importation into the United States any goods produced within the Soviet Union. Accordingly, your recommendation of September 28, 1983, is not adopted.

While this is a final decision with respect to your recommendation and the evidence currently available, it does not preclude the introduction at a later date of new evidence about the possible importation of Soviet products made by convict, forced, or indentured labor.

Donald T. Regan

Source: Olson, C., The Stockowner's News, April 1985, Issue no 7.

APPENDIX VI

US COMPANIES TRADING WITH THE SOVIET UNION

COMPANY	PRODUCT
AEC	Atomic Energy
Acme Mfg. Co.	Machine Tools
Alcoa	Aluminium
Allen Bradley	Machine Tools
Alliance Tool & Die Corp.	Machine Tools
Alliance Tool & Die	Machine Tools
Allis-Chalmers	Machine Tools
Allsteel Press Co.	Machine Tools
Alpha Press Co.	Non Ferrous Metals
American Can Co.	Iron & Steel
American Can Co.	Food Machinery
American Chain & Cable	Machine Tools
American Express	Services
American Magnesium Co.	Metals Technology
Applied Magnetic Corp.	Electrionics
Ara Oztemal (Subsidiary of Satra Corp.)	Trading
Armco Steel	Steel
Atlas Fabricators Inc.	Machine Tools
Automatic Production Sys. (Div. of Ingersoll-Rand)	Motor Vehicles
Babcock & Wilcox	Boiler Technology
Bechtel	Construction
Belarus Equip. of Canada Ltd.	Agriculture Equip.
Bendix Corp.	Machine Tools
Besley Grinder Co.	Machine Tools
Bliss, E.W. Div. of Gulf & Western Industries	Motor Vehicles
Boeing	Machine Tools
Boeing	Aircraft Technology
Borg-Wagner	Machine Tools
Brown & Sharpe Mfg. Co.	Machine Tools
Brunswick Corp.	Machine Tools
* Bryant Chucking Grinder Corp.	Machine Tools
Burr-Brown Research Corp.	N.A.
C-E Cast Equipment	Machine Tools
Carborundum Co.	Machine Tools

Carlton Machine Tool Co.	Machine Tools
Carpenter Technology Corp.	N.A.
Caterpillar Tractor Co.	Agriculture Equip.
Centrispray	Machine Tools
Century Data	Electronics
* Chase Manhattan Bank	Finance
Chemetron Corp	Machine Tools
Cincinnati Milacron Inc.	Machine Tools
Clark Equipment	Machine Tools
Cleveland Crane & Eng.	Machine Tools
Colonial Broach	Machine Tools
Combustion Engineering	Motor Vehicles
Comma Crop.	Electronics
* Control Data	Advanced Computers
Cooper Industries Inc.	Petroleum Equipment
Cromalloy-Kessler Asso. Inc.	Machine Tools
Cross Co.	Machine Tools
D.A.B. Industries Inc.	Prime Movers
Denison Dv. of Abex Corp.	Machine Tools
DoAll Co.	Machine Tools
Douglas Aircraft	Machine Tools
Dow Chemicals	Chemicals
* Dresser Industries	Oil Tool Equip.
Dr. Dvorkovitz & Asso.	Non Ferrous Metals
E.I. duPont de Nemour & Co.	Chemicals
E.W. Bliss, Div. of Gulf	Machine Tools
Easco Sparcatron	Machine Tools
Easco Sparcatron	Machine Tools
Electronic Memories & Magnetics Corp.	Electronics
El Paso Natural Gas Co.	Gas Technology
Englehard Minerals & Chem. Corp.	Machine Tools
Ex-Cell-O Corp.	Machine Tools
FMC	Machine Tools
Fenn Rolling Mills Co.	Rolling Equip.
Fon du Lac	Machine Tools
Ford Motor Co.	Non Ferrous Metals
GMC	Machine Tools
Gearhart-Owen	Petroleum
General Dynamics	Aeronautical Tech.
General Electric	Petroleum Equip.

General Electric	Machine Tools
General Tool Corp.	Machine Tools
Giddings & Lewis	Machine Tools
Gleason Works	Motor Vehicles
* Gleason Works	Machine Tools
Goddard Space Flight Center	Machine Tools
Gould Inc.	Motor Vehicles
Gulf General Atomic	Atomic Energy
Gulf Oil Corp.	Petroleum Equip.
Halcroft & Co.	Machine Tools
Harig Products, Inc.	Machine Tools
Hewlett-Packard	Electronics
Holcroft & Co.	Motor Vehicle
Honeywell	Computers
Honeywell Information Systems	Electronics
Hudson Vibratory Co.	Mechanical Equip.
IBM	Machine Tools
IBM	Computers
IBM	Electronics
Ingersoll	Machine Tools
Ingersoll Milling Machine	Motor Vehicles
Ingersoll Rand Co.	Machine Tools
* International Computers	Electronics
Intel Corp.	Electronics
International Nickel	Nickel Technology
International Harvester	Machine Tools
Irving Trust Co.	Finance
Itel	Electronics
Jones & Lamson (Textron)	Machine Tools
Joy Mfg.	Drilling Equip.
Kaiser Aluminium	Non Ferrous Metals
Kaiser Aluminium & Chem Corp.	N.A.
Kaiser Industries Corp.	Machine Tools
Kearney & Trecker Corp.	Machine Tools
Kennametal Inc.	Macine Tools
Kingsbury Machine Tool Corp.	Machine Tools
Koehring Co.	Machine Tools

LaSalle Machine Tool Co.	Machine Tools
Leasco	Electronics
Leesona Corp.	Textile Equip.
Libby-Owens-Ford Co.	N.A.
Litton Indust. Int'l. Mach. Tool Syst. Group	Machine Tools
Lockheed	Aircraft Technology
Lummus Corp.	Oil Technology
McDonnell Douglas	Aircraft
Micromatic Hone	Machine Tools
Minnie Punch & Die Co.	Machine Tools
Modicon Corp.	Machine Tools
Monarch	Machine Tools
Monsanto	Chemical
Moore Special Tool Co.	Machine Tools
NBS	Machine Tools
National Engineering	Machine Tools
NED's Reactor & Fuel Mfg. Fac.	Atomic Energy
Norton Co.	Grinding Equip.
* Occidental Petroleum	Major factor in complete plants
Pneumatic Tool Co.	Machine Tools
Pratt & Whitney	Machine Tools
Pullman Corp.	Machine Tools
RCA	Electronics
Raycon Corp.	Machine Tools
Raytheon	Electronics
Reynolds Metals Co.	Metals
Rockwell International	Machine Tools
Snow Mfg. Co.	Machine Tools
Sorbus Inc.	Electronics
Spectra-Physics Inc.	Electronics
Speedfam Corp.	Machine Tools
Sperry Rand	Machine Tools
Standard Oil	Oil Technology
Sundstrand Corp.	Machine Tools
Swindell-Dressler Co.	Motor Vehicle
Swindell-Dressler Co.	Machine Tools

Systrom-Donner Corp.	Non Ferrous Metals
Tektronix Inc.	Electronics
Teledyne Landis	Machine Tools
Teledyne Pines Co.	Prime Movers
Tenneco	Chemicals
Texas Eastern Transmission	N.A.
Textron Inc.	Machine Tools
Udylite Corp.	Machine Tools
Univac	Electronics
V & O Press	Machine Tools
VSI Automatical Assembly Inc.	Machine Tools
Varian	Electronics
Verson Allsteel Press Co.	Machine Tools
Waveteck	Electronics
Wells-Index Corp.	Machine Tools
Welt Int'l Corp.	Trade
Western Industrial Prod. Corp.	Machine Tools
Zerox Corp.	Electronics
Young & Bertke Co.	N.A.

* These are the key companies involved.

Source: A. Sutton, Technological Treason, 1982, p 22.

APPENDIX VII

TABLE 6.1

SELECTED SOVIET TANK MODELS PRODUCED IN TRACTOR PLANTS

Tank Model Number	*Tractor-Tank Plant:*	*Where Tanks Were used:*
T-26 (8-ton) A, B, C versions	Ordzhonikidze (Kharkov)	Spanish Civil War Manchuria Finland
T-37 (3-ton)	Stalingrad Chelyabinsk	Russo-Finnish War World War II
T-32 (34-ton)	Kirov works (Leningrad)	Russo-Finnish War World War II
BT (12-ton)	Chelyabinsk	Spanish Civil War Russo-Finnish War
BT-28 (16-ton)	Chelyabinsk	Russo-Finnish War
PT-76	Volgograd (Stalingrad)	Indo-Pakistan War Vietnam

Source: Sutton A., National Suicide, Arlington House, 1973, p 104.

APPENDIX VIII

SELECTED ACQUISITIONS OF US DUAL USE TECHNOLOGY

WESTERN TECHNOLOGY ACQUIRED	SOVIET APPLICATION/IMPROVEMENT	COLLECTOR
Strategic Missiles		
Documents on Heat Shielding for Reentry Vehicles	Ballistic Missile Warheads	KGB, GRU
Air Defense		
Infrared Radiometer	Reduced Infrared Signature Aircraft	KGB
Fiber-Optics Systems	Aircraft and Missile Onboard Communication Systems	GRU
General Purpose Naval and Antisubmarine Warfare		
Gamma Radiation Radiometer	Nuclear Submarine Wake-Detection System	GRU
Acoustic Spectrum Analyzer	Submarine Quieting	GRU
Powerful Acoustical Vibrator	Submarine and Ship Sonars	GKNT, GKES, Academy of Sciences

APPENDIX VIII (Cont.)

WESTERN TECHNOLOGY ACQUIRED	SOVIET APPLICATION/IMPROVEMENT	COLLECTOR
Space and Antisatellite Weapons		
Documents on Systems and Heat Shielding of the US Space Shuttle	Reusable Space System	KGB
Transit Naval Navigation Hardware	First-Generation Space-Based Naval Radionavigation System	GRU
US NAVSTAR Navigation System Documents	Digital Signal Processing for Counterpart Satellite System	Others
High-Energy Chemical Laser Documents	Space-Based Laser Weapon	KGB
System 101 Processing Equipment	Digital Processing and Video for Space-Based Reconnaissance; Missile, Bomb, and Remotely Piloted Vehicle Command Guidance	Others
Tactical Forces		
International Radar Conference Documents	Synthetic Aperture Radar for Aircraft Detection	GRU
Infrared Imaging Subsystem Designs	Fire-Control System of Future Tank	KGB
Millimeter Radar Documents	Antitank Missile	GRU
Pressure Measuring Instruments and Documents	Advanced Modeling for New Artillery Projectiles	KGB, GRU

APPENDIX VIII (Cont.)

WESTERN TECHNOLOGY ACQUIRED	SOVIET APPLICATION/IMPROVEMENT	COLLECTOR
Manufacturing and Technology		
Complete Set of Manufacturing Equipment for Printed Circuit Boards	Copied for 11 Production lines for Strategic Missile, Armor and Electro-Optics, and Radar Industries	Ministry of Foreign Trade
DTS-70 Printed Circuit Boards Testing System	Military Microeletronic Production System	KGB
Fiberglass Manufacturing Technology	High-Pressure Airtanks for Submarines	KGB
Computer Disk Memory Systems	Military Ryad Series Disk Drives	KGB
Bubble Memory Technology	Tactical Missile Onboard Memories	Others
Technical Documents on Tests of Cold-Rolled Steel	Improved Structural Protection of Warships	KGB
High-Accuracy Three-Dimension Co-ordinate Measuring Machine	Copied for Several Industries	Ministry of Foreign Trade, GKNT, GKES, Academy of Sciences

Source: CIA Report, Soviet Acquisition of Military Significant Western Technology : An Update, p 11.

APPENDIX IX

Several Hundred Examples of Soviet Military Equipment and Weapons Benefiting From Western Technology and Products

There are hundreds of examples of Soviet military equipment and weapons of the 1980s and 1990s that have benefited or will benefit from the technologies and products of at least a dozen different Western countries. New and advanced technical directions will be incorporated into some of the weapon systems, subsystems, and equipment in each industrial area given below. The equipment in many projects will have their technical levels raised or project completion dates shortened principally because of the copying of design concepts embodied in Western technical documents, one-of-a-kind military hardware, and dual-use products.

Aviation	Four New Fighter Aircraft	Reusable Space Shuttle
	New Tactical Fighter of the 1990s	Air-to-Air Missile (US Phoenix-Like)
	A Supersonic Aircraft	Fire-Control System for Three Fighters
	Ground Attack Aircraft	Gas Turbine Engine
	Airborne Command Post	Ramjet Engine
	Reduced-Infrared-Signature Aircraft	
	Four Transport Aircraft	
Projectiles and Explosives	100-mm and 152-mm High-Explosive Shells	Noise-Detonated Fuze
	203-mm Artillery Shell	Microelectronic Radio Fuze
	Sabot Design for Armor-Piercing Tank Round	Millimeter-Wave Proximity Fuze
	Armor-Piercing Tungsten Penetrator Shell	High-Efficiency Proximity Fuze for Mass Munitions
	23-mm Gun	Antisubmarine Torpedo
	Aviation Cluster Bomb	Antisubmarine Missile
	Remote Mining Shell Delivered by Artillery, Rockets, and Aircraft	Munitions Testing Equipment
	Large Caliber Artillery Shell Casing	Thermal Decoy Target
	Small Caliber Ammunitions	Protective Blast Structure
		Solid Propellant
		Unmanned Target Plane Equipment
Armor and Electro-Optics	Space-Based Photoreconnaissance System	T-55 Tank
	Infrared Space Reconnaissance System	T-64 Tank
	Space-Based Missile Launch Detection System	T-64A Tank
	Space-Based Infrared Image Processor	T-64B Tank
	Synthetic Aperture Radar for Space Reconnaissance	T-72 Tank
		T-80 Tank
		125-mm Tank Gun
		Industrial Gas Laser

	Aerial Frame Camera	Laser Rangefinder
	High-Altitude Aerial Camera	Antitank Missile
	Coordinate Measuring Machine	Countermeasure Against US Antitank Guided Missile
	Portable Antiaircraft Missile System	*Automatic Gun Barrel*
	Advanced Night Vision Device	New Artillery Gun Barrel
	Small-Arms Night Sight	Sniper Rifle and Machinegun
	Holographic Fire-Control System	High-Strength Gun Barrel from Electroslag Steel
	Laser-Guided Artillery Shell	Automated Rolling Mill for Military Production
	Laser Gyro	
	Optical Computer for Tactical Ballistic Missile	
	Diamond Turning Device for Mirrors for Future Laser Weapons	
Missiles and Space	A New ICBM	*Carbon-Carbon Nosecone for Reentry Vehicle*
	A New SLBM	Missile Motor Case Material (Based on DuPont Kevlar 49)
	Maneuvering Reentry Vehicle (MaRV)	Surface-to-Air Missile
	Strategic Cruise Missile	Missile Fuel Tank
	Reusable Space System (Shuttle)	Cryptographic System
	Navigation Satellites	Telemetry System
	Manned Space-Based Orbital Station	
	Reentry Vehicle	
Communications	Aircraft-to-Submarine Communications System	Narrow-Band Signal Analyzer
	High-Altitude Video Reconnaissance System	*Cryptographic System Scrambler*
	Video Processor for Space Reconnaissance	Magnetic Recorder
	Reconnaissance Radio Receiver	Fiber-Optical Cable
	Strategic Aircraft and Cruise Missile *Communication System*	Microcomputer for Communications
	Fiber-Optics Communications System	Programmable Oscilloscope
	Electronic Countermeasure Station	Digital Processor
	Signals Intelligence Equipment	Printed Circuit Board Production Equipment for Communications
		Correctable Aerial Bomb
		Remotely Piloted Vehicle
		Electronic Page Teleprinter
Radars and *Computers*	ABM Radar System Design	Disk Drives for Ryad Computer
	Space-Based Oceanographic Radar	Computer Software
	Three-Dimensional Phased-Array Radar	BESM-6 Computer
	Over-the-Horizon Radar	Magnetic-Bubble Computer for Onboard Missile
	Shortwave-Band Aircraft Radar	*Computer Matrix Processor*
	High-Capacity Computer	

	Aerial Frame Camera	Laser Rangefinder
	High-Altitude Aerial Camera	Antitank Missile
	Coordinate Measuring Machine	Countermeasure Against US Antitank Guided Missile
	Portable Antiaircraft Missile System	Automatic Gun Barrel
	Advanced Night Vision Device	New Artillery Gun Barrel
	Small-Arms Night Sight	Sniper Rifle and Machinegun
	Holographic Fire-Control System	High-Strength Gun Barrel from Electrosiag Steel
	Laser-Guided Artillery Shell	Automated Rolling Mill for Military Production
	Laser Gyro	
	Optical Computer for Tactical Ballistic Missile	
	Diamond Turning Device for Mirrors for Future Laser Weapons	
Missiles and Space	A New ICBM	Carbon-Carbon Nosecone for Reentry Vehicle
	A New SLBM	Missile Motor Case Material (Based on DuPont Kevlar-49)
	Maneuvering Reentry Vehicle (MaRV)	Surface-to-Air Missile
	Strategic Cruise Missile	Missile Fuel Tank
	Reusable Space System (Shuttle)	*Cryptographic System*
	Navigation Satellites	Telemetry System
	Manned Space-Based Orbital Station	
	Reentry Vehicle	
Communications	Aircraft-to-Submarine Communications System	Narrow-Band Signal Analyzer
	High-Altitude Video Reconnaissance System	Cryptographic System Scrambler
	Video Processor for Space Reconnaissance	Magnetic Recorder
	Reconnaissance Radio Receiver	Fiber-Optical Cable
	Strategic Aircraft and Cruise Missile Communication System	Microcomputer for Communications
	Fiber-Optics Communications System	Programmable Oscilloscope
	Electronic Countermeasure Station	Digital Processor
	Signals Intelligence Equipment	Printed Circuit Board Production Equipment for Communications
		Correctable Aerial Bomb
		Remotely Piloted Vehicle
		Electronic Page Teleprinter
Radars and Computers	ABM Radar System Design	Disk Drives for Ryad Computer
	Space-Based Oceanographic Radar	Computer Software
	Three-Dimensional Phased-Array Radar	BESM-6 Computer
	Over-the-Horizon Radar	Magnetic-Bubble Computer for Onboard Missile
	Shortwave-Band Aircraft Radar	Computer Matrix Processor
	High-Capacity Computer	

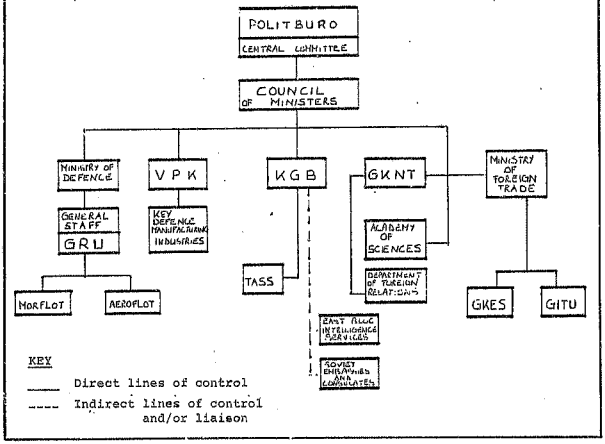
Nuclear and High-Energy Lasers	*Nuclear Weapons Safety System*	Space-Based Microprocessor for a Detector
	Space-Based Nuclear Reactor	Radiation Detector
	Nuclear Reactors	Airborne Military High-Power Carbon Dioxide (CO_2) and Carbon Monoxide (CO) Laser Weapon
	Naval Nuclear Reactor	High-Power Gas Dynamic Laser
	Water-Cooled Power Reactor	Space-Based High-Energy Chemical Laser Weapon
	Process for Reactor-Grade Zirconium	
	High-Sensitivity Mass Spectrometer for Uranium Enrichment	
	Isotope Separation Process	
Shipbuilding	New Aircraft Carrier Catapults for High-Performance Airplanes	Magnetometer
	New Submarine	Surface Warship
	Submarine Quieting Equipment and Techniques	Warship-Based Multitarget Radar Fire-Control System
	Antisubmarine Torpedo	Sonar System for *Nuclear Submarine*
	Telecontrolled Torpedo	Sonar for Surface Ship
	Torpedo Missile	Sonar for Ships and Helicopters
	Laser Submarine Wake-Detection System	Sonobuoy
	Radioactive Submarine Wake-Detection System	Radiowave Underwater Communication System for Diver-Scouts
	Hydrophone for Aircraft-to-Submarine Communications	Ship Demagnetizer
		Gyrohorizoncompass for Naval Ships
		Naval Gun
Electronics and Microelectronics	Photolithography System	*Charge Coupled Devices*
	Photomask Equipment	Traveling Wave Tube for Military Satellite Communications
	Microelectronics Tester (Fairchild Corporation SENTRY-7 Design)	Space-Based Laser Communication System
	LSI IC Circuit Mask Fabricator	High-Power Microwave Tube for Onboard Radar Against Low-Flying Targets
	Microelectronics for Onboard Weapon Systems	Laser Communication, Detection, and Ranging System (Hughes Aircraft Company 3800 Design)
	Large-Scale Integrated Circuit Tester	Infrared TV System
	Microprocessor (Motorola MC 10800 Series Design)	*MIG Aircraft Centimeter* Waveband Radar with Onboard Digital Processing
	16-Bit Microcomputer	Compact Analog-Digital Converter
	Computers (Digital Equipment Corporation PDP Series Design)	Quartz Resonator
	Micro- and Mini-computers for Military Purposes (AM 2900, LSI-11M, PDP 11/70 and REDAC Designs and Hardware)	Crystal Grower
		Power Generator
	Memories for Onboard Radar Fire Control Systems	Communication and Telemetry System
	Computer Memories	Microwave Generator
	New Semiconductor Thyristor for Military Equipment	

Chemicals	Hybrid Ramjet Engine for Cruise Missile	Polyamide Composite Materials for Aircraft and Tank Industries
	Solid Rocket Propellant for Strategic Missile	Carbon Fiber Production for Aerospace Applications
	Polyethylene Production System	Radiation Hardening Paint for Radio-electronic Equipment
	Color Aerial Photographic Film	Bonding Material for Spacecraft
	Photographic Film for Air and Space Reconnaissance	Ion-Exchange Resins
	Photographic Film for Space Reconnaissance (Kodak *3414 Film*)	Laser Systems for Remote Chemical/ *Biological Reconnaissance*
	Antistatic Photoreconnaissance Film	Fillers for Deep Sea Vehicles
	Low-Density Polyethylene	New Gas Mask
	Photoresist System for Microelectronic Photolithography	
Electrical Equipment	Space-Based Turbogenerator	Power Sources for Missile Installations
	Tank-Mounted Infrared System	Space-Based Solar Power Cells
	Sodium-Sulfur Battery for Missiles, Space, Tanks, and Submarines	Spacecraft Temperature Control System
	Electric Step-Motors for Aviation Weapon Systems	Ship Electrical Supply System
		Batteries for Naval Ships
Petroleum and Petrochemicals	New Fuel for Strategic Cruise Missiles	Rubberized Fabric Inflated Seal for Supersonic Military Aircraft
	New Jet Engine Fuel	Industrial Rubber for Aerospace and Armored Vehicles
	Polyurethane Binders for Solid Rocket Fuels	Industrial Rubber Seals
	New Zeolite Catalyst for Motor Fuels	High- and Low-Temperature Fluoroelastomer for Aerospace and Armored Vehicles
	Synthetic Motor Oil for Tanks in Arctic Areas (Mobil Oil Company)	Improved Protective Gear for Astronauts and Pilots
	Synthetic Lubricant for Aerospace Equipment	Radar-Absorbing Camouflage Coating
	Radiation-Resistant Additives to Lubricants for Space	
	Lubricant-Coolant for Motor Vehicles	

Source: CIA Report, Soviet Acquisition of Militarily Significant Western Technology: An Update, September 1985, p 31.

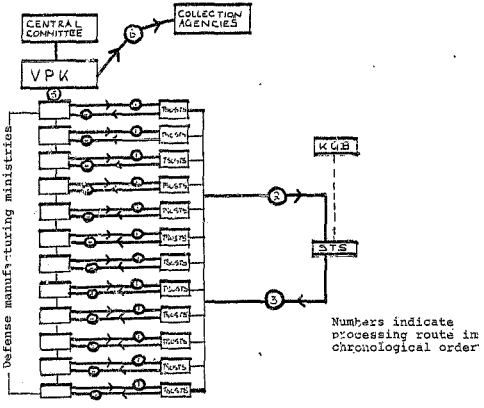
APPENDIX X

KEY ORGANISATIONS INVOLVED IN THE ACQUISITION OF WESTERN TECHNOLOGY

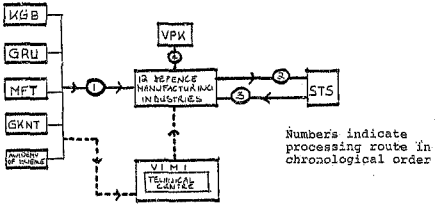


APPENDIX XI

OUTGOING TECHNOLOGY AND DATA DEMANDS : PROCESSING ROUTE



INCOMING TECHNOLOGY AND DATA : PROCESSING ROUTE



APPENDIX XII

MILITARY CRITICAL TECHNOLOGIES LIST

Computer network technology

Large computer system technology

Software technology

Automated real-time control technology (including array processor technology)

Composite and defense materials processing and manufacturing technology

Directed energy technology (incl. ding particle beams)

LSI-VLSI (large- and very-large-scale integrated circuits) design and manufacturing technology

Military instrumentation technology

Telecommunications technology

Guidance and control technology

Microwave componentry technology

Military vehicular engine technology (focusing particularly on jet turbine technology)

Fiber optics and advanced optics technology

Sensor technology

Undersea systems technology

Source: Randolph R.S., Trading with the Enemy : A Happy Way to Die?, National Review, September 19, 1980, p 1136.

APPENDIX XIII

CRF MEMBERSHIP OF WHITE HOUSE OFFICIALS SINCE WORLDWAR II

DATE	SECRETARY OF STATE	DATE	SECRETARY OF TREASURY	DATE	SECRETARY OF DEFENCE	DATE	SECRETARY OF COMMERCE
1943-53	Dean Acheson	1957-61	Robert Anderson	1947-49	James Forrestal	1946-48	Averall Harriman
1953-59	John Foster Dulles	1961-65	Douglas Dillon	1951-53	Robert Lovett	1958-59	Lewis Strauss
1959-61	Christian Herter	1965-69	Henry Fowler	1957-59	Neil McElroy	1967-68	Alexander Trowbridge
1961-69	Dean Rusk	1969-71	David Kennedy	1959-61	Thomas Gates Jr	1972-73	Peter Peterson
1969-73	William Rogers	1972-74	George Schultz	1961-68	Robert McNamara	1975-77	Elliot Richardson(TC)
1973-77	Henry Kissinger (TC)	1974-77	William Simon	1969-73	Melvin Laird	1977-81	Juanita Kreps
1977-80	Cyrus Vance (TC)	1977-80	M Blumenthal(TC)	1973	E Richardson(TC)	1981-	Malcolm Baldridge
1980-81	Edmund Muskie	1980-83	Donald Regan(TC)	1973-75	James Schlesinger		
1981-82	Alexander Haig	1983-	James Baker III	1975-77	Donald Rumsfeld	(TC) - Denotes Trilateral Commission Member-ship	
1982-	George Schultz			1977-80	Harold Brown(TC)		
				1981-	Caspar Weinberger (TC)		

APPENDIX XIV

PARTIAL LIST OF US MEMBERSHIP OF THE
US-USSR TRADE & ECONOMIC COUNCIL INC.

Abbot Laboratories
Allen Bradley
Alliance Tool Corporation
Allied Analytical Systems
Allis Chalmers
American Cyanamid
American Express
Archer Daniels Midland
Armco Steel
Bunge Corporation
Cargill
Caterpillar
Chase Manhattan
Chemical Bank
Clark Equipment
Coca Cola
Con Agra
Continental Grain
Corning Glass
Deere & Company
Dow Chemical
Dresser Industries
E.I. DuPont
FMC Corporation
Garnac Grain
Gleason Corporation
Hope Industries
Ingersoll Rand
International Harvester
Kodak
Marine Midland
Millipore Inc.
Minnesota Mining
Monsanto
Occidental Petroleum
Owens Illinois
Pepsi Co.
Phibro-Salomon
Phillip Morris
Ralston Purina
Rohm & Haas
Seagram
Stauffer Chemical
Tendler-Beretz Associates
Tenneco Inc.
Union Carbide
Unit Rig & Equipment Company
Zerox

Source: Sutton A., Phoenix Letter, Vol 4 No 11, January 1965, p 2

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