A Case Study in French Espionage:

Renaissance Software

Abstract: This case study, employing a link analysis methodology, examines the industrial espionage activities of a French electrical engineer against an American software engineering company in Northern California. It illustrates the relationships between French government and business intelligence activities and the way in which even the smallest American firms are at risk from sophisticated and focussed intelligence tasking and operational activities. The levels of analysis are increasingly narrowed, with operational linkages established as we move from one level to another. The perspectives to be gained by the reader validate the age-old intelligence axiom that "There's no such thing as a coincidence."

"In a world that increasingly measures power in economic as well as military terms, many foreign intelligence services are turning their sights to stealing American technology and trade secrets."

"Some countries with whom we have had good relations may adopt a two-track approach, cooperating with us at the level of diplomacy while engaging in adversarial intelligence collection."

- Former CIA Director Robert Gates

"This espionage activity is an essential way for France to keep abreast of international commerce and technology. Of course, it was directed against the United States as well as others. You must remember that while we are allies in defense matters, we are also economic competitors in the world."

- Retired Director of the DGSE, Pierre Marion

On an international level, the differences between the American approach and the French approach are clear. While Mr. Gates diplomatically suggests that some friendly countries ***may*** take a two-track approach, Messr. Marion is candid: espionage against the United States is essential. And, Messr. Marion is in an excellent position to speak to the issue of French intelligence operations against the United States and American business enterprises as economic and technological targets. He was not referring to a recently established practice, but rather one which had its roots in the 1960's under then-President Charles deGaulle.

deGaulle initially authorized the aggressive collection of economic and technological intelligence information in order to assist French companies and industries become more competitive in the international marketplace. The assignment, initially given to the *Service de Documentation Extérieure et de Contre-Espionnage (or SDECE),* was eventually taken over in 1968 by Service 7 of the *Direction Générale de la Securité Extériure (DGSE* - the successor to the SDECE*)* at the instigation of President Francois Mitterand. Since that time, Service 7 has collected intelligence information from a variety of target countries, industries and companies using a wide variety of

techniques, means and people. Its acknowledged mission is the gathering of secrets, technologies and marketing plans of private companies, and the French government has publicly acknowledged its operations on behalf of Compagnie des Bull against IBM and Texas Instruments, among others.

On a national level, a closer focus on French intelligence operations against American targets, provides clear indications of the sophistication one can expect from the highly competent and integrated intelligence tasking and targeting method which are characteristic of a major power. In May 1993, a French intelligence service collection targeting and priority list, obtained by the CIA, was made public during Congressional testimony and entered into the Congressional Record. Tables 1, 2 and 3, which are drawn from that document, focus solely on the American aerospace industry.(1) This French intelligence collection priority list is now well known by - and of greater concern to - the American business community and has led to various corporate responses, to include complete withdrawal from, or downsizing of exhibits at, the prestigious Paris Air Show of 1993 by major American aerospace firms.

Table 1 - Priority One French Intelligence Service Aerospace Targets (US)

TARGET: **GENERAL DYNAMICS CORPORATION**(SPACE SYSTEMS)

- REQUIREMENTS: ATLAS/CENTAUR LAUNCHERS COMPETING WITH ARIANE; NASP MODULE

TARGET: **HUGHES AIRCRAFT COMPANY** (SPACE AND COMMUNICATIONS GROUP)

- REQUIREMENTS: TELECOMMUNICATIONS, WEATHER, PROBE SATELLITES

TARGET: **ITEX OPTICAL SYSTEMS**

- REQUIREMENTS: OPTICAL ELEMENTS FOR SPACE (MIRRORS, COMPOSITES, CRYOGENICS)

TARGET: **LOCKHEED MISSILES AND SPACE COMPANY**

- REQUIREMENTS: SDI/BSTS, SSTS, ERIS, SHUTTLE TILES, MILSTAR SATELLITE, SPACE STATION

TARGET: **MCDONNELL DOUGLAS ASTRONAUTICS**

- REQUIREMENTS: SDI/GSTS, BMC3, DELTA-2 LAUNCH VEHICLE, NASP MODULE, SPACE STATION (JOHNSON)

TARGET: **MARTIN MARIETTA ASTRONAUTICS GROUP**

- REQUIREMENTS: SDI, ZENITH STAR LASER, SPACE INTERCEPTOR, SBI; STRATEGIC MISSILES, SATELLITES, PAYLOADS, SENSORS, TETHERED SATELLITE PROJECT; LIQUID FUEL BOOSTERS, TITAN 2,3,4 LAUNCHERS

TARGET: **ROCKWELL INTERNATIONAL**(SPACE/SATELLITE ELECTRONICS DIVISION)

- REQUIREMENTS: SBI/SBL; GPS SATELLITES, NASP MODULE, FUTURE SHUTTLE, SPACE STATION

Table 2 - Priority Two French Intelligence Service Aerospace Targets (US)

TARGET: **AEROJET GENERAL CORPORATION**

- REQUIREMENTS: SOLID AND LIQUID PROPELLANTS (MINUTEMAN); SATELLITE SENSORS

TARGET: **GTE COMMUNICATIONS**

- REQUIREMENTS: STRATEGIC RECOGNITION SYSTEMS; SPACE BASED LASERS

TARGET: **GE ASTROSPACE (NOW MARTIN MARIETTA)**

- REQUIREMENTS: SOFTWARE, PROPULSION, GUIDANCE AND COMMAND, SPACE STATION (GODDARD)

TARGET: **GRUMMAN AEROSPACE CORPORATION**

- REQUIREMENTS: SBI/BSTS, SPACE STATION

TARGET: **TEXTRON CORPORATION (TEXTRON DEFENSE SYSTEMS)**

- REQUIREMENTS: RE-ENTRY VEHICLES

Table 3 - Priority Three French Intelligence Service Aerospace Targets (US)

TARGET: **BALL CORPORATION**

- REQUIREMENTS: SATELLITES AND INSTRUMENTATION

TARGET: **BOEING AEROSPACE CORPORATION**

- REQUIREMENTS: SPACE STATION (MARSHALL)

TARGET: **EOSAT**

- REQUIREMENTS: LANDSAT

Even the most cursory review of the targeting list is sobering, since the mere listing and the focus on specific technologies at specific companies and locations amply demonstrates the amount of basic intelligence collection and analysis which preceded the assignment of these collection objectives.

On an operational level, the techniques have ranged from technical to classical, non-technical intelligence collection, also known as Human Intelligence or HUMINT. Technical measures have included the full range from electronic intercepts of telecommunications traffic, accomplished from French-government owned and operated mountain-top listening posts, to the installation of clandestine listening devices (more commonly, bugs) in hotel rooms in which foreign businessmen and technical experts stay in France or in aircraft in which such foreign target personalities travel. The more classical HUMINT type of operations have ranged from recruiting present or anticipated employees of American firms' French office locations to arranging for foreign employment opportunities for French citizens with French companies overseas, who then move on to jobs with other, host country, target companies. In an extension of this approach, the French government provides alternatives to military service for a variety of individuals whose skills can be enhanced for the benefit of the French industrial and social base. College graduates in various disciplines ranging from engineering to medicine can opt instead for service overseas under a program administered by the French Ministry of Foreign Affairs. While some such assignments are demonstrably altruistic, in the case of medical graduates being assigned to a two year stint in an emerging nation, others are somewhat less so. In this latter category are those whose skills can be refined while working in an overseas company. Then, in addition to the skill enhancement aspects of the assignment, the individual is also required to submit monthly reports on his activities at the foreign firm: technologies with which he is working, characteristics of manufacturing processes, and the like. French companies have a number of incentives to participate in such activities, not the least of which is a share of the "take" which results from the operations to which they might not otherwise have access. Often, owing to the close relationship between the government, industries and companies in France, a very sophisticated and focussed, government-sponsored intelligence collection operation can yield highly valuable, strategic business information.

Moving to another analytical level, that of the multinational corporation's operations in the United States, it is instructive to note that foreign investment in the United States is quite an attractive option, just as it had once been a logical and dominant theme in American business operations. While the rate and pace of change in international commerce suggests that the United States will no longer dominate the world economy or maintain monopolies on innovation, capital, new ideas or technologies as it did in the forty years following World War II, there is still a considerable advantage to be gained from understanding what's new in America and how it will be received in the rest of the world. American firms, operating virtually across the entire industrial landscape, are increasing the number and depth of foreign business relationships, as are foreign investors in the United States. Whether the purpose of this development is to invest in a foreign laboratory, seek foreign capital or merely to gain access to international business leads who are able to help to expand the firm's business base, international business leadership understands clearly that success in the coming decade is predicated upon operations in the global market. As a result of this great wave of international mergers, acquisitions and strategic alliances, ultimate ownership of laboratories, production facilities and distribution channels has been blurred.

To date, this blurring has been largely to the advantage of foreign competitors.

International corporate actors have invested heavily in American firms in recent years and just in the period 1987-1991, they spent over $200 billion on new acquisitions and manufacturing facilities in

the United States. Major actors include ABB from Sweden, Fujitsu from Japan, Phillips from the Netherlands and Thomson from France. Among the big American names owned by Thomson, for example, are RCA and General Electric brand names in consumer electronics. A linkage between those firms which are either in whole or in part nationalized by their respective governments and the reciprocal - and mutually beneficial relationships - is clear to any professional intelligence analyst.

On this level of analysis, we will focus more closely on Thomson, 60% of which is owned by the French government, which suggests quite clearly France's considerable stake in Thomson's success around the world. Thomson-CSF, the major economic engine of the Thomson Group, consists of 68 domestic and 76 foreign-based firms. With over 100,000 employees around the world, Thomson-CSF derives approximately 70% of its $14 billion in revenues from its international operations. Of its physical facilities, which include over 200 plants, technical and maintenance centers, test beds and research centers, fully 90% are located outside France. Over the course of the past five years, Thomson-CSF has recorded the highest profitability rates among principal international actors, particularly in the defense electronics sector. Table 4 shows some of Thomson-CSF's overseas relationships in the United States.

Table 4 - US Operations of Thomson-CSF

US CORPORATE OFFICES

WASHINGTON, DC FORT MONMOUTH, NJ

HUNTSVILLE, AL TAUNTON, MA

US SUBSIDIARIES

AUXILEC (EDISON, NJ)

AXYAL (LOS ANGELES, CA)

BURTEK (TULSA, OK)

COMARK COMMUNICATIONS (COLMAR, PA)

SGS-THOMSON MICROELECTRONICS (TX, PA AND NJ)

THOMSON-LTV MISSILES (APRIL 1992 - BLOCKED)

THOMSON-LTV AEROSPACE (APRIL 1992)

MUST SOFTWARE INTERNATIONAL (NORWALK, CT)

US PARTNERS

THOMSON BROADCAST (STAMFORD, CT)

THOMSON COMPONENTS AND TUBES (TOTOWA, NJ)

THOMSON-ICS (SOUTHWICK, MA)

THOMSON PASSIVE COMPONENTS (WOODLAND HILLS, CA)

WILCOX ELECTRIC (KANSAS CITY, MO)

OTHER MAJOR TEAMING ARRANGEMENTS

CONTROL DATA (MINNEAPOLIS, MN)

GTE (TAUNTON, MA)

GEC MARCONI ELECTRONIC SYSTEMS (WAYNE, NJ)

HUGHES AIRCRAFT (HUNTSVILLE)

LTV (DALLAS, TX)

MARTIN-MARIETTA (ORLANDO, FL)

HAMILTON STANDARD DIVISION, UTC (FARMINGTON, CT)

RAYTHEON (PORTSMOUTH, RI)

TRW (HUNTSVILLE, AL AND REDONDO BEACH, CA)

Thus far in our descending levels of analysis, we have seen the development of a maturing appreciation of situations and circumstances which had received only passing attention owing to Cold War military alliance structures and political protocols. We have also conducted the most cursory of surveys of the French intelligence structure and its operations, to include the relationship between French government services, national corporate actors and even to the level of individual French citizens working in other countries, some of whom are employed simultaneously by the French government. We then discussed some of these relationships even closer, as an example, between a major French industrial actor and American companies - both large and small. With this background, we can then more fully appreciate the final analytical level in this link at the target company level.

Renaissance Software, in 1990, was a small start-up firm in Palo Alto, California which employed just over twenty people. Renaissance specialized in the development, design and production of risk-management software used by domestic and international banking concerns and on the trading floors of financial markets. Renaissance had been a pioneer in such software applications and had been the first to develop such applications for use at the work station level.

One of the engineers employed by Renaissance was Marc Goldberg, a French citizen. In late June,

1990, Goldberg announced his intention to leave Renaissance and return to France in the middle of July. Shortly thereafter, company officials noticed a change in his work habits. Software developers as a group, often under pressures of release deadlines or simply because they often are the type of people with little outside interests, frequently work long or strange hours. However, Goldberg had not fit the mold of the eccentric programmer and had never worked late at night. Thus, it was highly suspicious to Renaissance's management when they noted that he began coming back to the office on University Avenue after normal working hours shortly after he submitted his resignation. Suspicions mounted to the point where company president Patrick Barkhordarian and another employee came in on the morning of Saturday, July 7, 1990 to take what they believed would be some appropriate countermeasures. They activated a program in the main development computer to track and monitor the activities of anyone who signed on to the system. They activated similar protocols on all the other computers in the company as well. Next, they installed an additional feature to their copying machine so that they could tell if anyone made tape copies. Finally, they removed all the company's computer tapes from their typical open-shelf storage and secured them in a locked room.

The next morning, Sunday, July 8, Goldberg made another of his uncharacteristic visits to the company. Executing eight different commands on his computer, he copied the company's software source code to tape. Visiting other offices throughout the company, he made photocopies of a considerable amount of company proprietary data - virtually none of which had any relevance whatever to his work at Renaissance. Later that same day, Barkhordarian came in to check the measures he had installed the previous day and was able to trace virtually all the activity that Goldberg had engaged in earlier in the day. Barkhordarian and other company officials went to Goldberg's apartment and confronted him with their findings, demanding that he turn over the materials that he had illicitly obtained from Renaissance. Goldberg acknowledged that he had, in fact, taken the materials and handed Barkhordarian a blank tape and a stack of papers. But, he stated that while he had tried to make a copy of a variety of things, his efforts had been fruitless and that there really was nothing there. Barkhordarian and his colleagues left the apartment after telling Goldberg that they would see him in the office the next day to discuss his activities further.

However, Barkhordarian and the others were not confident that they had - indeed - retrieved all that Goldberg had copied or that they would see him in the offices the next day. While in Goldberg's apartment, they had seen that his suitcases were already packed, even though he was not due to leave town for another week, according to his resignation letter and to his verbal statements. Barkhordarian notified the Palo Alto Police Department. Later that night, through the efforts of the Palo Alto Police Department and cooperation with other law enforcement organizations, Goldberg was arrested at San Francisco International Airport while attempting to board a flight to Paris. Following a search of his luggage and with the materials from his apartment, Goldberg was charged with eleven counts of theft and attempted theft of trade secrets.

Monday, July 9, saw a flurry of activity on Goldberg's behalf. First, the French Consul in San Francisco attempted to have the former president of Renaissance Software influence Barkhordarian to drop the charges. Barkhordarian, responsible to and concerned about his responsibility to his stockholders, declined. Diplomatic means, exhausted after a time in San Francisco, were then escalated to the French Embassy in Washington, with a note to the American State Department. It also had no effect. Notable was the amount of interest shown at those levels of the French government for what would have otherwise seemed a fairly straightforward arrest of a person engaged in criminal activity. Barkhordarian continued to advance his case and it was not until two weeks later that Goldberg was released on $100,000 bail which his father posted in cash.

Nine months later, on March 8, 1991, Goldberg pled guilty to two felony counts and was sentenced

to one year in county jail and three years of probation. However, the sentence was suspended with the order that Goldberg serve 1,000 hours of community service. By May, 1991, Goldberg was permitted to return to France to serve out the remaining 400 hours of his community service obligation.

Questioned subsequent to the trial and Goldberg's return to France, the Consulate's press attaché in San Francisco, Chantal Haage summed the matter up succintly with the statement that "*The incident had nothing to do with the French government.*" Yet, in fact, Goldberg's resumé suggests otherwise.

Goldberg had originally come to the United States under the Foreign Ministry program described earlier and received pay from the French government throughout his stay in the United States. In accordance with the conditions of that program, he had continued to file his monthly reports on the activities, products, processes and plans of Renaissance. However, Goldberg did not come to Renaissance directly from France; neither did he come without recommendations and prior experience. Both of these came from his first employer in the United States, MUST Software, Inc of Norwalk, Connecticut - the same firm listed on Table 4 as an American subsidiary of Thomson-CSF.

The issue of economic and technological espionage by friendly and allied countries against the United States is emerging as one of the major concerns of the 1990's, especially so when it directly affects the ability of American firms to remain competitive in the world's marketplace. This is compounded by the changes in the elements of national power: from large armies and land mass to economic well-being and intellectual property. Yet, just as computer crimes required a whole new body of law and an entirely different set of trained investigators and prosecutors, so too will there be a need for the American legal system to adjust to the peculiarities and vagaries of foreign competitive intelligence practices engaging official or quasi-official services of otherwise friendly or allied nations. The Goldberg case was tried in a county jurisdiction and not under any Federal statutes; similar cases where there has been Federal involvement incident to conviction have been lengthier investigations where the opportunity to engage a trade secrets thief in a Federal crime (i.e., wire or mail fraud, interstate transport of stolen property, et cetera.) has been used. In the meanwhile, simple due diligence - not to mention survival - will mandate that American companies develop effective countermeasures to deal with foreign competitive intelligence practices.

Significant, and appropriate, debate on the merits of employing American intelligence and counterintelligence assets on behalf of business interests continues in Washington and throughout the United States. Prospects for the active involvement by Federal agencies are slim except in certain, already well-defined cases and circumstances. Complicating the process is the basic character of state-sponsored or state-supported economic intelligence against the United States: it does not fit either the structural or operational mold that has been characteristic of the former adversaries of the Warsaw Pact against which American counterintelligence agencies have operated. Complicating the matter further is the issue of diplomatic relations between otherwise friendly states which prevents courses of action which are truly a deterrent to continuing such practices. A final issue is that of the origins of such cases: inevitably they are discovered from internal indicators and countermeasures and not from the intervention of any outside agencies. At bottom, responsibility for protecting a company's future, its secrets, its competitive edge rests where it should - with the company.

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1. * These tables only show a portion of the tasking and targeting document, which also includes 25 American financial institutions and several government facilities such a Los Alamos National Laboratories. (back to text)