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The Chips Are Down: Legal Implications of Alleged Japanese Unfair Practices in the United States Semiconductor Industry

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The Chips Are Down: Legal Implications of Alleged Japanese Unfair Practices in the United States Semiconductor Industry

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I. INTRODUCTION

The United States semiconductor industry, which produces high-technology electronic components for computers, has become increasingly alarmed at the emergence of significant Japanese competition for both the domestic and international markets. The industry's concern is reflected in a growing number of press and magazine articles which voice resentment over Japanese business tactics and anger at the failure of the United States government to protect domestic interests.

The industry's complaints emanate primarily from an area south of San Francisco known as Silicon Valley where many United States manufacturers of electronic components are located. These firms manufacture extremely complex microscopic assemblies of...

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3. FORTUNE, supra note 1, at 74. Two executives are quoted: "They are out to slit our throats and we'd better recognize that and do something about it." "There's a war on and both sides know it."
4. Id. at 78, 79.
6. Silicon Valley's proper name is Santa Clara County, California.
7. FORTUNE, supra note 1, at 74.
electronic circuitry imprinted on small crystals - "chips". The sobriquet "Silicon Valley" is derived from the main chemical constituent of electronic chips, Silicon.

Each advance in high technology chip design and manufacture greatly affects the economy of other industries because of the mushrooming use of computers in all areas of commercial and intellectual life. New developments in technology appear with astonishing frequency: today's innovation is tomorrow's cliche.

In the computer business, a company's assets include both industrial and intellectual property. Industrial property encompasses physical assets such as machinery, buildings and raw materials. Intellectual property includes tangible assets such as books, records and manufacturing specifications and intangible assets such as trade secrets and know-how. Know-how that promotes the development of sophisticated and specialized semiconductor technology is extremely valuable property. Chip manufacturers must protect this know-how in order to remain in the vanguard of one of the world's most volatile industries.

Competition within the semiconductor industry is fierce. Secrecy is essential in order to preserve the fruits of research and development for the benefit of the companies responsible for them. The Silicon Valley complaints of unfair Japanese competition present a variety of problems in the protection of sensitive material. The charges range from industrial espionage and misappropriation of know-how to covert information gathering and dubious business

8. See J. SOMA, THE COMPUTER INDUSTRY: AN ECONOMIC-LEGAL ANALYSIS OF ITS TECHNOLOGY AND GROWTH, at 96; TIME, supra note 2, at 56.
9. Id., supra note 2, at 56.
10. Id. at 44; FORTUNE, supra note 1, at 74. (The 1977 sales volume of just one pioneering firm, Intel, was $282 million).
11. See generally TIME, supra note 2, at 44.
12. WADE, INTRODUCTION (1976), INDUSTRIAL ESPIONAGE AND MISUSE OF TRADE SECRETS (1964) at 96; TIME, supra note 2, at 56.
13. Id.
14. The most comprehensive definition of a trade secret is provided in the RESTATEMENT OF TORTS. Here it should suffice to quote: "A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. . . ." RESTATEMENT OF TORTS, Explanatory Notes § 757, comment b at 5 (1939).
15. Know-how is "the informational and experiential expertise related to practical application of specifics . . . ." 12 MILGRIM, BUSINESS ORGANIZATIONS, TRADE SECRETS, § 2.09[3], (1978) [hereinafter cited as 12 MILGRIM].
16. TIME, supra note 2, at 51.
17. FORTUNE, supra note 1, at 74-75.
18. Id. at 75.
19. Id.
ethics.\footnote{20} The problem is compounded by allegations that the Japanese government supports the Japanese companies through protective trade tariffs,\footnote{21} dumping practices\footnote{22} and direct economic support of high-technology development.\footnote{23} Domestic manufacturers are increasingly resentful of both Japanese policy, which aids its own semiconductor industry and of United States policy which does not.\footnote{24}

Longevity in semiconductor manufacturing requires the protection of intangible as well as tangible assets. Trade secrets and know-how must be safeguarded from possible theft, misappropriation or inadvertent disclosure.\footnote{25} In the United States, law in the area of trade secret protection is fairly well established but novel problems continue to surface.\footnote{26} In Japan, the development of corresponding legal protection has scarcely begun.\footnote{27} United States industries which consider themselves the victims of unfair Japanese competition are frustrated therefore by both the ineffectiveness of legal remedies in a rapidly changing technological context and by the support given Japanese industries by their government. The absence of international remedies further aggravates the problem.

The complaints of Silicon Valley manufacturers raise several questions of international and domestic law. If Japanese industrial espionage or trade secret misappropriation is a prevalent activity, why are there few if any legal actions against the Japanese? Are domestic remedies inapplicable to Japanese misconduct? Can remedies be found in Japan? Are there international resources such as treaties, agreements, conventions, or tribunals that may be utilized for coping with the alleged misconduct? If domestic or international

\footnote{20. Id.}
\footnote{21. Id. at 78.}
\footnote{22. Id.}
\footnote{23. Id. at 75; note particularly the $250 million program to develop Very Large Scale Integration (VLSI). VLSI refers to the next advance over present chip technology, called Large Scale Integration (LSI). \textit{See also} \textit{Time}, supra note 2, at 55.}
\footnote{24. \textit{Fortune}, supra note 1, at 79. A semiconductor executive is quoted: "... they have the unfair advantage of having their government on their side, and it seems that they have our government on their side as well."}
resources are available but not employed, may it be inferred that the complaints of wrongful conduct are merely propaganda designed to muster support for government economic sanctions against legitimate but threatening foreign competition? Or are the desired economic sanctions the only effective defense that can be introduced against otherwise impervious unfair competition?

The facts available are insufficient for clear answers to many of these questions. If additional facts were available, they might very well provide such answers and also prove allegations of injuries for which relief is available. The purpose of this note, accordingly, is to present a broad spectrum of protections against unfair practices that would provide relief if the allegations could be proved. After setting out the protective mechanisms available, the note considers their application to Silicon Valley's complaints. The presentation indicates the lack of satisfactory solutions to legal problems that accumulate in rapidly developing technological industries. More particularly, it also exposes a troublesome area of United States-Japanese relations that is expected to grow both more important and more complex.28

These problems in the Japanese competitive context open controversial questions of political and administrative policies. Although such questions are tantalizing, answers free of subjective considerations are virtually impossible to provide and will not be offered here. Instead we shall suggest that the semiconductor industry seek protective relief based on particular arguments that appear compatible with current administrative and judicial standards.

Following this section introducing the Silicon Valley complaints, Section II describes the technological environment in which they arise. Section III deals with the legal protection available in the United States, in Japan and on the international level. In Section IV, applications of the protective mechanisms to Silicon Valley's allegations are analyzed. This analysis suggests that the imposition of countervailing duties on imports of Japanese chips would be an appropriate remedy for Japanese trade practices. Section V looks into the prospects for such countervailing duties. Section VI contains our conclusions.

28. "[Japan] has declared that the information industry is the strategic industry of the future and has set the goal of increasing computer exports at the dizzying rate of 30.4 percent a year through 1985." Utal, Japan's Big Push in Computers, FORTUNE, Sept. 25, 1978, at 65.
II. BACKGROUND: The Technological Environment of the Semiconductor Industry Poses Special Challenges to the Legal System

In order to appreciate the special character of the legal problems arising in international competition in the semiconductor industry, one should first picture the manufacturing environment in which the legal problems arise. In order to picture this environment, one should be introduced to the product in controversy—the chip—and the technology involved in its production.


The computer component industry is similar to other high-technology industries in which Japan competes aggressively, such as speciality steels and automobiles, in that it requires large investment in plant and production equipment. The industry is different, however, in at least two respects. First, there are many more individual semiconductor manufacturers than in the early days of automobile, steel or aircraft manufacture. Second, the period during which innovations in computer technology provide a market advantage is much shorter than corresponding periods in other industries. These characteristics induce a business atmosphere in which risks and potential rewards are high, competition is intense and companies either grow or perish.

The phenomenal growth and dynamic change in the electronic components and computer industries are reflected in a variety of ways. The speed of computer operations (storage and retrieval of information, computation, etc.) has increased more than one hundred million times since 1945. The cost per unit of memory has decreased by a factor of at least a thousand in the last decade. "Computer power" has increased tenfold every eight years since 1946. Whatever the measure used by technicians, both layperson and technician can recognize how rapidly computer technology advances from year to year by noting the increased use of computers.

29. Noyce, Microelectronics, in MICROELECTRONICS 3, at 8-9 (1977); TIME, supra note 2, at 50.
30. Hodges, Microelectronic Memories, in MICROELECTRONICS 53, 63; Noyce, supra note 29, at 8.
31. Hodges, supra note 30; Noyce, supra note 29, at 8; TIME, supra note 2, at 51.
32. J. SOMA, supra note 8, at 13.
33. Id. at 101.
34. TIME, supra note 2, at 59.
in every phase of modern life. In a time much shorter than was necessary for the auto to make the buggy-whip obsolete, the vacuum tube and its successor, the transistor, gave way to integrated semiconductor devices.\textsuperscript{35} This rapid growth requires investment in research and development (R & D),\textsuperscript{36} maintenance of substantial physical facilities and commitment to continuing development programs. Companies that fall behind may drop out of the race, as did giants such as RCA, GE and Philco\textsuperscript{37}—who no longer manufacture computers.(RCA still produces integrated circuits.)

In a setting so prone to change, advances in research and in production techniques have great value but the attendant competitive advantage is short-lived. In order to stay in the race, companies rely on secrecy to protect their own technology and must try to penetrate the secrecy shielding the technology of their competitors. As a result of such pressures a business atmosphere develops in which employees shift companies frequently or withdraw to form their own firms.\textsuperscript{38} The president of one semiconductor company in Silicon Valley stated that all a prime engineer or designer needs to do to change jobs “is drive down the same street in the morning and turn in a different driveway.”\textsuperscript{39}

The semiconductor industry expects that this atmosphere of pressure and change will persist. As the technology becomes more intricate and employee mobility remains fluid, the difficulty of protecting trade secrets presents special legal problems. The legal system is challenged to devise protection which can respond to rapid changes in technology without stifling free enterprise or unreasonably interfering with the freedom of individuals to pursue career opportunities.

\section*{B. Chip Technology: Principles and Processes.}

One of the most powerful applications of the chip is its use as a memory component of a computer. At present, U.S.-Japanese competition centers on marketing a reliable “64 K memory chip,”\textsuperscript{40} a chip on which is imprinted the equivalent of 65,536\textsuperscript{41} transistor

\begin{itemize}
\item \textsuperscript{35} J. SOMA, supra note 8; TIME, supra note 2, at 55.
\item \textsuperscript{36} Commonly used abbreviations will be enclosed in parentheses following the names and phrases they connote.
\item \textsuperscript{37} J. SOMA, supra note 8, at 136.
\item \textsuperscript{38} TIME, supra note 2, at 51.
\item \textsuperscript{39} Id. More than half of each issue of the newsletter MICROELECTRONICS NEWS, supra note 5, is devoted to notices of job offerings and corporate changes among the semiconductor experts in Silicon Valley.
\item \textsuperscript{40} FORTUNE, supra note 1, at 79.
\item \textsuperscript{41} Noyce, supra note 29, at 9.
\end{itemize}
circuits. Each microscopic circuit is used to store and retrieve the smallest unit of information - a "bit". These circuits are most conveniently visualized as switches. To visualize the connection between bits and switches, one must note that computers store information in the form of binary numbers. Ordinary arithmetic uses a decimal number system with ten digits ranging from zero to nine. Binary arithmetic uses a number system with only two digits "ranging" from zero to one. Just as the number of dollars in a bank account is represented by a string of decimal digits, for example 209, the same number is represented in the binary system as 11010001.42 Since each element of a binary number must be either a "zero" or a "one", the two possibilities comprising a bit, the same information contained in a string of bits can be characterized by a string of "offs" or "ons": the words we use to describe the positions of a switch. Thus numerical information that we are accustomed to record as strings of digits, each bearing the possible labels "zero" through "nine", may be translated into "switch" language as (longer) strings of digits each bearing the possible labels "off" or "on". Everyone has seen the strings of lights that dramatically blink "on" and "off" on computers shown in movie films. The changes in configuration of the lights are usually accompanied by dramatic clicks or staccato music that connote the processing of information. Each particular configuration of lights in their "on" or "off" positions contains the same information as a particular binary number composed of zeroes and ones. The same light configuration "displays" the corresponding "on" or "off" positions of the array of switches that stores this binary information.

In order to store and retrieve information by means of arrays of switches, a mechanism for setting or resetting each switch (storing a bit) and for determining the switch setting without changing it (reading the bit of information stored) is needed. One such mechanism for setting or resetting switches consists of an electrical current (a flow of electrons) between two points in an electrical circuit. Setting (or resetting) can be accomplished by causing the switch either to allow or to interrupt the current flow between the two points. Reading can be accomplished by observing whether or not current is flowing. (In the "blinking lights" computer described above, the light is "on" when the current is flowing and "off" when it is interrupted).

42. Holton, The Large Scale Integration of Microelectronic Circuits, in MICROELECTRONICS 26 (1977); TIME, supra note 2, at 56-58.
Clearly, three elements are needed to control current flow — the two points between which the current flows and a third point (which can be visualized as and usually is located between the other two) that causes the flow to commence or cease. In simple transistor switches, these three elements are fabricated in the form of a "sandwich" of semiconductor materials.43 (The word "semiconductor" implies that in its pure form or unexcited state the material does not easily allow the passage of electrons through it. In contrast, materials like copper, silver and gold offer much less resistance to the passage of electrons and are therefore called "conductors."44)

A "64 K chip" contains 65,536 such semiconductor sandwich switches with connections for setting and reading each switch.45 Since these rectangular chips are about one-quarter inch on a side,46 one appreciates the remarkable precision required to produce them properly, i.e., without imperfections that cause "open" or "short" circuits in the microscopic switches. In order to achieve such technological wonders, years of research by armies of researchers were required. Their efforts led to workable but highly refined and sophisticated production processes. These processes include:47 (1) producing "razor-thin wafers of precisely polished silicon about three inches in diameter" sliced from "extremely pure (99.9%) crystalline silicon grown somewhat like rock candy", (2) carefully impregnating ("doping") the pure silicon in 2,000 degree ovens with minute amounts of artfully determined impurities, (3) depositing thin layers of insulating and photosensitive materials on the wafers, (4) imprinting the electronic circuitry on the photosensitive layers by means similar to the development of photographs, i.e., shining ultra-violet radiation (or x-rays or electron beams) through masks (like photographic negatives), (5) etching away the parts of the layer exposed to the radiation and hardening the unexposed parts that outline the circuitry, and (6) rebaking and repeating the previous steps for each of several layers of integrated circuits.

Auxiliary but equally sophisticated parts of the process are the techniques of growing crystals, cutting wafers, designing and making masks, reducing and duplicating the masks so as to produce

44. Id. at 13.
46. Id. at 114; Time, supra note 2, at 44-45.
47. More detailed descriptions of these processes may be found in Oldham, The Fabrication of Microelectronic Circuits, in MICROELECTRONICS 41 (1977) and, (in simpler terms) Time, supra note 2, at 56.
about 250 images on a three-inch wafer, cutting the wafer into the
250 chips, and testing the finished product so as to assure that the
microscopic circuitry performs as designed and has not been dam-
age by a single dust speck or imperfection in masking or exposing
the surfaces.\textsuperscript{48}

This chip technology is already obsolescent and became so al-
most as soon as it was developed.\textsuperscript{49} Already somewhere between the
drawing board and mass production are memory components with
more storage capability and faster storage and retrieval. These new
products are based on concepts different from those underlying the
transistor switch system. The next generation of memory compo-
nents, which is expected on the market in the 1980's, may apply
presently experimental models bearing such exotic names as
"magnetic bubble memories" or "Josephson junctions." These
terms may then become familiar expressions in our language.\textsuperscript{50}

Possible improvements on current memory technology would far sur-
pass the present primitive state of the art. Even the largest comput-
ers anticipated for the next generation will not be able to store more
than a tiny fraction of the information stored in a single DNA mole-
cule.\textsuperscript{51} To people who have come to expect the products of technol-
ogy again to surpass the products of nature, it is an irony verging
on insult that their most advanced memory systems are so inferior
to those produced by the accidents of natural evolution. This inferi-
ority is a spur continually urging the invention of better memories
and processing systems.

Under the pressures of technology developing at so rapid a rate
and with the rewards so high for the first at any stage to develop
the next major advance, it may be a long time before the computer
industry and its component manufacturers reach a stable level of
competition. When that stage is reached, secrecy is necessary
mainly for considerations of styling, as now seems to be the case for
autos and transistor radios. In the meantime, the current competi-
tive stresses that urge the leading manufacturers to ever greater
inventiveness, may also be expected to urge them to develop more
aggressive,\textsuperscript{52} complicated and subtle methods of protecting their
own know-how and of acquiring the know-how of their competitors.

\textsuperscript{48} Time, supra note 2, at 56.
\textsuperscript{49} Id. at 50.
\textsuperscript{50} Hodges, \textit{Microelectronic Memories}, in \textit{Microelectronics} 54, 61-62 (1977); Time,
supra note 2, at 58.
\textsuperscript{51} Time, supra note 2, at 58.
\textsuperscript{52} Kay, \textit{Microelectronics and the Personal Computer}, in \textit{Microelectronics} 124, 134
(1977); Noyce, supra note 29, at 9; Oliver, \textit{The Role of Microelectronics in Instrumentation},
III. PROTECTION OF TRADE SECRETS

A. Legal protection in the United States


An industrial process may be protected by federal patent. Patent law is designed to encourage disclosure of discoveries and inventions, by granting a limited monopoly of seventeen years to the inventor, thereby stimulating industry with the infusion of new products. An inventor may prefer to protect an invention by maintaining its secrecy rather than permit the disclosure required on grant of patent. An invention or process which is sufficiently novel to qualify for a patent grant may not be patented because the owner prefers to keep it secret. In an industry of rapid technological growth such as the computer industry, a trade secret submitted for patent protection might well be obsolete before the patent could be granted. There may be a considerable interval between applying for and receiving a patent, while obsolescence in computer technology occurs in a shorter interval. Therefore much technical know-how remains outside of the federal patent system when that system does not offer suitable protection.

While federal patent law confers on the inventor the right to exclude others from using the product, design or invention, it requires disclosure. Where the element of secrecy is of paramount importance, the protection afforded trade secrets and know-how by common law is preferable to that of federal patent law. At common law, developers of processes or ideas are not granted exclusive use or limited monopolies but they are free to keep their secrets. An owner, however, must take adequate precautions to safeguard secrets. Where a company has allowed unrestricted disclosure to outsiders, the secrecy element of its trade secrets may successfully be challenged. If a company fails to protect its trade secrets by an
effective secrecy program, the information may lose its secret status and common law protection. Because there are many different definitions of what constitutes a trade secret or know-how, there is some uncertainty in what data, techniques, or processes are entitled to protection under the common law. Despite the lack of general agreement on definitions, the following guidelines for trade secret identification have been developed. (1) A trade secret must be essential to production and must reflect minimal novelty; processes will not be protected if they are common practice in the industry; (3) the element of secrecy must be firmly established; and (4) the high degree of invention required for patents is not necessary for trade secret protection. Many of the manufacturing processes of Silicon Valley companies meet all the requirements for classification as trade secrets. As indicated above, because of the nature of semiconductor technology, the industry's trade secrets benefit more from common law protection than from patent protection.

2. **Federal vs. State Protection**

Protection against the wrongful acquisition or use of another's trade secret is primarily a matter of state law. The doctrine of preemption of state law by federal law, as it applies to trade secret cases, was developed in three well-known cases in the 1960's. These decisions favored the application of federal law in trade secret cases. The conflict between the federal government's authority to encourage invention by granting patents and the states' power to legislate other incentives and protections for similar purposes was finally

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Starch Prods., Inc. v. Polymar Indus., Inc., 79 N.Y.S.2d 357 (1948).


64. DESSEMONTE, supra note 25, at 20-24.


69. See pp. 8-9 supra.

70. CAL. CIV. CODE §§ 980-84 (Deering 1971); DESSEMONTE, supra note 25, at 239; Dunlavey, supra note 61, at 458-59.

resolved in Kewanee v. Bicron.\textsuperscript{72} The court in Kewanee held that the states may enact laws to protect trade secrets without impinging on authority reserved to the federal patent system. The result of the Kewanee holding is that states may enact laws to protect business conducted within the state.

3. Legal Protection Available

a. Employment Contracts

Trade secrets can be protected by express or implied\textsuperscript{73} contracts not to divulge secret material. Most large corporations and business avail themselves of some form of employee contract,\textsuperscript{74} while smaller ones may rely on rights under equity rather than express contracts.\textsuperscript{75}

In the closely-knit semiconductor industry of Silicon Valley\textsuperscript{76} a pervasive trade secret problem confronts employers because of rapid employee turnover. An employee may transfer technical know-how by memorizing secret design data or production processes and divulging such knowledge to a subsequent employer. The industry restricts these practices by use of employee contracts\textsuperscript{77} which limit the kind of information that can be passed on by former employees to new employers. An employer is prevented, however, from placing complete restraints on an employee who terminates employment and then works for a competitor. Unlimited restraints are not permitted because they would hinder the employee from lawfully pursuing an occupation and earning an income.\textsuperscript{78}

Reasonable restrictive covenants are not illegally in restraint of trade\textsuperscript{79} and may augment common law secrecy protection.\textsuperscript{80} An express written contract can be used to put an employee on notice of his position of trust by setting forth (1) the confidential nature of the employer-employee relationship, (2) the categories of informa-

\textsuperscript{74} 12 MILGRIM, supra note 15, at § 3.02.
\textsuperscript{75} DESSEMONTET, supra note 25, at w99.
\textsuperscript{76} See note 39, supra.
\textsuperscript{77} See Note this issue at
\textsuperscript{78} Muggill v. Reuben H. Donnelley Corp., 62 Cal. 2d 274, 398 P.2d 147, 42 Cal. Rptr. 107 (1965); CAL. BUS. & PROF. CODE § 16600 (Deering 1976); BROWNE, supra note 67, at 15-16.
\textsuperscript{79} 12 MILGRIM, supra note 15, at § 3.02[1].
tion to be treated as trade secrets and (3) a covenant not to com-

61. 12 MILGRIM, supra note 15, at § 3.02[1].


69. 12 MILGRIM, supra note 15, at § 3.02[2].


ductor industry where employees are extremely mobile is challenging and satisfactory results are difficult to obtain. Major competitors cluster in a small geographical area and draw from a common pool of specialized technicians. The confined geography and high mobility in the industry limit the effectiveness of employment contracts in trade secret protection.

b. Licensing Agreements

Trade secrets and know-how are regarded as property which may either be sold outright or licensed to manufacturers who wish to use the process. Licensing can be accomplished without destroying the secret nature of the information. The licensor can draft an express provision of secrecy into the license agreement limited to a given number of years. A provision by which a licensor can continue to receive royalties beyond the period of secrecy specified by such a license agreement affords more protection than the exclusivity conferred by a patent. This feature distinguishes licensing from patent protection. Furthermore, even without an express provision of secrecy, some courts are willing to imply that trade secrets received in confidence in a licensing or prelicensing conference are to be protected because of the relationship of trust under which they were disclosed.

The effectiveness of a licensing agreement in protecting trade secrets and know-how depends in large measure on how carefully the instrument is drafted. A well-drawn license protects the property right of an owner of a trade secret who does not wish to engage in production and elects instead to license the trade secret. As in the case of employment contracts, it is very difficult to draft a license agreement so as to afford maximum protection to trade secrets.

93. See p. 10, supra.
94. Id.
95. Painton & Co. v. Bourns, Inc. 442 F.2d 216, 223, 225-26 (2d Cir. 1971); 12 MILGRIM, supra note 15, at § 1.06.
96. Lyon & Doi, supra note 27, at 73.
99. 12 MILGRIM, supra note 15, at § 1.06.
100. Lyon & Doi, supra note 27, at 70-74.
c. Criminal Law Theories

Trade secrets are regarded as property for purposes of licensing and, as in the case of tangible property, theft of trade secrets is covered by state and federal criminal law statutes.

Federal provisions enacted by Congress prohibit the transportation or sale or receipt of stolen goods valued at $5000 or more. Despite the narrow construction given criminal statutes, the term "goods" has been held to include intangibles. "Stolen goods" are broadly interpreted and include "all felonious takings with the intent to deprive the owner of the rights and benefits of ownership, regardless of whether or not the theft constitutes common-law larceny." 

The statutes of two major industrialized states, New York and New Jersey, have served as models for many other state criminal laws which protect trade secrets. California with some slight modifications has followed the New Jersey model. The California Penal Code has been invoked in trade secret litigation involving the computer industry but no appellate decision has yet appeared to test the interpretation of the statute.

Federal and state criminal statutes may have some deterrent effect on theft of technology but, in a most practical sense, prosecution of trade secret theft will not redress the harm. Large, heavily capitalized firms can sustain some loss by theft but when trade secrets or know-how are stolen from medium-sized or small businesses, criminal prosecutions offer empty comfort. The large firm can more readily absorb a loss by theft which in a small company would represent a substantial loss of business advantage. The criminal sanctions might be more effective for both large and small companies if they were combined with civil actions which may in addition provide injunctive relief or civil remedies. Criminal prosecution at either the federal or state level could be initiated if indeed a case of theft of trade secrets were found. Inherent difficulties of proof and limited relief which criminal sanctions offer narrow the

103. In re Vericker, 446 F.2d 244, 248 (2d Cir. 1971); United States v. Lester, 282 F.2d 750 (3d Cir. 1960); 12 MILGRIM, supra note 15, at § 1.10[2][A].
106. 12 MILGRIM, supra note 15, at § 1.10[1].
108. 12 MILGRIM, supra note 15, at § 1.10[1], n. 31.1.
109. Id.
applicability of criminal law to the most blatant cases of trade secret theft.

d. Tort Law Theories

Tort law theories of protection for trade secrets are typically based on the confidential relationship which exists between employer and employee.118 The owner of a trade secret may alternatively invoke tort actions based on breach of confidential relationship, breach of fiduciary duty, interference with prospective economic advantage or interference with contractual relations,111 and perhaps, the creative but hitherto untried area of invasion of the right to privacy.112

In complex technological fields of industrial development where highly trained specialists are employed in areas of sensitive research and development, the courts have recognized that there is a very subtle distinction between the individual, skilled competence of an employee and the proprietary interest in trade secrets of an employer.113 The confidential nature of the relationship is regarded as a shield to protect the employer from detrimental usurpation of privileged information by the employee.114 But the confidential relationship cannot be used to deprive the employee of job mobility or to hinder his ability to be gainfully employed.115

In California, the owner of a trade secret is also protected by a statute118 which provides that a trade secret developed by an employee is the property of the employer. The statute applies whether the trade secret was lawfully or unlawfully acquired117 and it could conceivably be extended to cover a broader range of trade secrets.118

e. California: Business and Professions Code

The regulation of unfair business practices in the United States

111. Browne, supra note 67, at 15.
112. Dessemontet, supra note 25, at 351-53.
is largely a concern of equity. California has specifically provided by statute that dishonest business practices and trade practices constituting unfair competition are illegal. Historically, the rationale used in protecting against unfair competition was that it would be unjust to allow one to profit from another's labor.

Unfair competition is a broad concept and there is no complete, definitive list of practices considered unfair. The standards are flexible and change as public policy changes. Protections advanced by the Business and Professions Code in California and by antitrust provisions discussed below in the context of federal and state antitrust law may be useful to the semiconductor industry. The utility may be limited to firms that can afford the time and money to engage in complex antitrust litigation.

f. Antitrust

Antitrust provisions of the Sherman Act forbid unreasonable restraints on interstate trade or commerce. The Clayton Act and the Robinson-Patman Act forbid price discrimination intended to lessen competition or establish a monopoly. Some forms of misappropriation of industrial know-how have been considered a form of dishonest competition which fall within the area protected by antitrust legislation. The conflict between the public nature of antitrust proceedings and the retention of secrecy in litigating a trade secret case is eased by the court's discretionary application of appropriate in camera protection. Liability under federal antitrust laws carries the heavy sanction of treble damages, attorney's fees and the possibility of injunctive relief.

In California, the Business and Professions Code contains two specific provisions designed to regulate antitrust activity: the Car-

119. Dessemontet, supra note 25, at 342-51.
127. Milgrim, supra note 15, at § 6.05.
and the Unfair Practices Act. The Cartwright Act is aimed at practices which would restrict trade, prevent competition or fix prices. Contracts drawn in violation of the Cartwright Act are void. The Unfair Practices Act bans discrimination by geographic region when the practice is intended to destroy competition. This act also prohibits below-cost sales, "loss leaders," secret rebates, threats, boycotts or intimidating tactics which are designed to eliminate competitive business. Both California acts provide for injunctive relief, treble damages and attorney's fees.

B. Legal Protection in Japan

1. Brief History of Trade Secret Law in Japan and Contrast with United States Law

In the middle of the 19th century, when Japan abandoned its isolationist policies, its domestic industry had not advanced beyond the level of cottage industry. Beginning with the 1885 Patent Monopoly Act, Japanese industry first sought to modernize itself by the importation and use without modification of Western technology and know-how. This initial period of development continued until about 1910. The next stage was marked by Japanese modification and improvement of the imported technology. The most recent development, which began around 1950 and continues to the present, finds Japan fully industrialized and undergoing rapid progress in domestic and imported technology. As a result, Japan not only has had to absorb the technology of industrialized nations and to develop indigenous industry, but also has been required to adopt ways of protecting trade secrets at home and abroad.

Japanese law is based on western European civil law and has been influenced by Chinese law and local customary law. In the decades since World War II, American law and business practices

136. Id. at 122.
137. Id. at 124.
138. Id.
have altered the Japanese legal climate.\textsuperscript{146} Japanese businesspersons dealing in the United States must comprehend federal and state systems as well as the Anglo-American reliance on judge-made case law. Conversely, Americans doing business with Japanese industry need to be aware that the Japanese legal system is structured around a Constitution and Codes (civil, civil procedure, commercial, penal and criminal procedure), as well as special statutes and regulations.\textsuperscript{144} The case law in Japan involving trade secrets is of limited value as precedent.\textsuperscript{142}

Two important influences on Japanese law are legal commentary and administrative guidance.\textsuperscript{143} Legal commentary consists of the writings and opinions of legal scholars, law professors and members of the judiciary. Such commentary is not technically a source of law but, absent positive law on a given point, the authority of legal commentary in Japan is considered compelling.\textsuperscript{144}

Administrative guidance, which has no precise counterpart in American law, is difficult to define precisely since it consists of both formal and informal influences exercised by any or all government agencies on business practice. Administrative guidance over persons and organizations is persuasive rather than coercive and its influence is particularly powerful in the area of foreign trade.\textsuperscript{146} Large companies frequently hire former government officials to insure a flexible liaison with various important administrative bodies (i.e., Ministries of Finance, Trade and Industry; Fair Trade Commission; Bank of Japan).\textsuperscript{148} The role of administrative guidance is to secure the cooperation of business and industry in the advancement of administrative goals. Failure to comply with the suggested "cooperation" sometimes reveals that guidance is something of an iron fist in a velvet glove.\textsuperscript{147}

\textsuperscript{140} Id.
\textsuperscript{141} Id. §§ 101[3]-101[5].
\textsuperscript{142} Lyon & Doi, \textit{supra} note 27, at 31.
\textsuperscript{143} Narita, \textit{Administrative Guidance} (from an article appearing in 4 Gendaiho 131-68 (1966), \textit{Law in Japan}, vol. 2 (1968) 45-46, as cited in Wise, \textit{supra} note 139, at §§ 1.01[7], 1.01[8] n. 66.
\textsuperscript{144} Wise, \textit{supra} note 139, at §§ 1.01[7], 1.05[1]. The role of legal commentary was especially important until recent times because court decisions did not include facts of the case or the court's reasoning in arriving at a decision.
\textsuperscript{145} Id. § 1.01[8].
\textsuperscript{146} Id. § 1.01[8] n. 67.
\textsuperscript{147} Stevens, \textit{Japan's Legal System and Traditions}, \textit{Proceedings of A.B.A. Nat'l Institute, Section of Int'l Law}, 1972, at 9, as cited in Wise, \textit{supra} note 139, at § 1.01[8], n. 67. Stevens notes: "The business which ignores a Government suggestion might find that its quota allocation for imported raw materials has been reduced; it might find that it cannot get the necessary legal permissions for foreign exchange remittance needed in its business; or it might be denied long-term Government financing for future expansions. . . ."
The absence of a significant body of case law in Japan is partially attributable to traditional reluctance to litigate: arbitration and negotiation are the preferred techniques in Japanese business and the prospect of litigation is regarded as the ultimate threat to business relations. Until very recent times, lawyers were not highly regarded and their presence at business meetings could seriously jeopardize the proceedings. A Japanese businessman would interpret the presence of a lawyer at a conference as the overt expression of a hostile intention to sue rather than the desire to have an advisor present at the negotiations.

A United States company which has been harmed by illegal activities of a Japanese competitor may wish to consider the remedies available in Japan to determine whether an action could be brought in that country. Two treaties signed by Japan and the United States permit citizens of foreign signatory nations the same access to Japanese courts, administrative tribunals and agencies to redress their legal rights. (These treaties are described infra in Section C.)

Under Japanese law, where contracting parties are of different countries and do not specify which substantive law is to govern, the court will apply the law of the offeror's domicile. Thus, if a Japanese corporation is the offeror in a contract with an American employee and no conflict of laws provision is expressed, a suit brought in Japan on the contract will fall under Japanese substantive law and Japanese contract remedies would apply (damages may be awarded and may be combined with specific performance or rescission).

2. Legal Protection Available

a. Constitution and Code

Japanese law protects property rights against confiscation without compensation by the state. By extension and implication, this same principle could be enforced against private persons who confis-
how.  156 This application of the law is possible despite the fact that know-how and trade secrets are not classified as property in the Japanese Civil Code.  157 The Code only recognizes rights in real and personal property, contracts and industrial property.  158

Trade secrets are not included in the statutory definition of industrial property  159 and the Civil Code does not deal elsewhere with intangible property.  160 If a trade secret is represented by some concrete object which is possessed illegally, then its owners may move to regain possession of the object or may seek injunctive relief to prevent threatened disturbance of their possession.  161 Since trade secrets and know-how are not always embodied in physical objects, it is difficult to secure injunctive relief for those particular trade secrets which are not identified in tangible form.  162 Trade secrets and know-how are described as “interests having a property-like character”,  163 and while they cannot be treated as property in the Civil Code, they can be protected under tort theories.  164 Few trade secret cases have been recorded in Japan but there is one which considers the question of trade secrets as “property”.  165 The court’s conclusion in that case was that they are not property per se but are something valuable like property.

The Japanese Commercial Code  166 does not recognize trade secrets as a protectible category of interests but a recent revision  167 of the Code establishes that “goodwill” may be regarded as an asset for accounting purposes. This provision has been interpreted to include know-how  168 which is not considered property but has value that must be included in a business inventory  169 and in a compilation of assets for income tax purposes. 170

156. WISE, supra note 139, at § 1.03 [2], [3].
157. Id. at § 1.03[3].
158. Id.
159. Yuhikaku, THE NEW LAW DICTIONARY 348 (1955), as cited in WISE, supra note 139, at § 1.03[7].
160. WISE, supra note 139, at § 1.03[3].
161. Id.
162. Funabishi, “Bukkenho” [Law of Real Rights], 18 HORITSUGAKU ZENSHU 16-19 (1962), as cited in WISE, supra note 139 at § 1.03[3].
163. “Zaisantaki hoeki,” in WISE, supra note 139, at § 1.03[4].
164. Id. Minrō (Civil Code) art. 709 (Japan).
165. Deutsche Werft Aktiengesellschaft v. Chuetsu Waukesha Yugen Kaisha, Tokyo High Court Decision, Sept. 5, 1966, 17 Kayu Minshu 769, 474 Hanrei Jiho (1967), as cited in WISE, supra note 139 at § 1.05[4].
166. Suōhō (Commercial Code), Law No. 48 of 1899, as amended.
167. Suōhō (Commercial Code), art. 285, para. 7 (Japan).
168. WISE, supra note 139, at § 1.03[4].
169. Id.
170. Id. §§ 1.03[6], 1.10.
b. Employment Contracts

Employees can be bound by express or implied contracts to honor the relationship of confidentiality between employer and employee.171 Breach of contract can subject the employee who wrongfully divulges trade secrets to an action for damages and even to injunctive restraints prohibiting competitive employment where use of the former employer's trade secret is contemplated.172

A fiduciary relationship between employer-employee may be recognized in an implied contract and, in addition, Japanese law extends the relationship of trust to the negotiation stage.173

c. Licensing Agreements

Patentable and unpatentable inventions, technical trade secrets and know-how are all interests which can be licensed to a Japanese party.174 Licensing, unlike outright purchase, is uniquely suited to the nature of trade secrets which often have optimum value when first developed and declining value with the passage of time.175 One major benefit of licensing know-how is that the licensee can acquire a process without investing the organization's time and money for research and development.176 A licensor frequently regards the license transaction as a way of avoiding litigation where employee mobility presents multiple opportunities for trade secret misappropriation and disclosure to competitors.177 By licensing the trade secret, the developer can recover some of the expense for research and development and at the same time protect against exposure and loss of secrecy.

License agreements, called "technological assistance contracts" in Japan, need not take a particular form, but must be in writing for purposes of validation by the Japanese government.178 Licenses may be exclusive or non-exclusive179 and extend usually

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171. Id. § 1.06[2].
172. Yugen Kaisha Forseco Japan, Ltd. v. Okuno & Diamatsu, Nara District Court, Oct. 23, 1970, 624 Hanrei Jiho 78, cited in Wise, supra note 139, at § 1.06[2]. Although two employees were enjoined from working for a competitor because of the court "specifically enforcing" a two-year covenant not to compete, Wise considers the case to be something of a landmark.
174. Wise, supra note 139, at § 1.09.
175. Zentner, Exploitation of Trade Secrets by Licensing, in ATTORNEY'S GUIDE TO TRADE SECRETS 81, 86 (C. Brosnahan ed. 1971).
176. Id. at 86.
177. Id.; Law Concerning Foreign Investment, Law No. 163 of 1950, art. 3, para. 1(3).
178. Wise, supra note 139, at §1.09[1].
179. Id. § 1.06[5].
from four to ten years.\textsuperscript{180} Although the scope of license agreements is far too broad to be treated here,\textsuperscript{181} we note here that licensing agreements can be drawn with express security provisions covering confidentiality of highly perishable know-how and employee mobility. Provisions may be made for preserving confidentiality within a geographic area and beyond the period of employment.\textsuperscript{182}

d. Criminal Law Theories

The Japanese Penal Code, adopted in 1907, is not one of the better developed criminal codes of the civil law countries\textsuperscript{183} nor does it compare favorably with most state codes in the United States.\textsuperscript{184} Even the proposed revision of the Penal Code\textsuperscript{185} contains no article expressly protecting against theft of industrial secrets. No provision in the Japanese Code corresponds to the Unfair Competition Laws of the German and Swiss Codes,\textsuperscript{186} good examples of modern civil law systems with statutes protecting against unfair business practices. As late as 1969, Japan’s Minister of Justice reportedly still did not consider a law prohibiting industrial espionage to be appropriate in the Code.\textsuperscript{187} In this context, Japan has a widely recognized reputation for tolerance of industrial espionage among its corporations.\textsuperscript{188} Unofficial sources estimate that some 10,000 commercial spies operate in Japan and that the Institute for Industrial Protection, a school specializing in industrial espionage techniques, has trained many of them under the sponsorship of corporate employers.\textsuperscript{189}

Despite the fact that no provision of the Japanese Penal Code specifically deals with trade secret theft,\textsuperscript{190} a measure of protection is afforded indirectly by some of its Articles.\textsuperscript{191} One article\textsuperscript{192} prohib-

\textsuperscript{180}. Id. § 1.09[2].
\textsuperscript{181}. See generally Woodward & Matsuo, Drafting License Agreements in Japan and in the U.S., in PATENT AND KNOW-HOW LICENSING IN JAPAN AND THE U.S., supra note 27, at 124-70.
\textsuperscript{182}. Wise, supra note 139, at §§ 1.09[23], [30][f].
\textsuperscript{183}. Id. § 1.04[1].
\textsuperscript{184}. Id. §§ 1.04[1], 1.01[4][d].
\textsuperscript{185}. Takeuchi, A PREPARATORY DRAFT FOR THE REVISED PENAL CODE OF JAPAN (American Series of Foreign Penal Codes, No. 8, 1961).
\textsuperscript{186}. Wise, supra note 139, at §§ 1.04[1], [17].
\textsuperscript{187}. Japanese Times, May 24, 1969, at 12, as cited in Wise, supra note 139, at § 1.04[17].
\textsuperscript{188}. Wise, supra note 139, at § 1.05[7].
\textsuperscript{189}. Id.
\textsuperscript{190}. Id. § 1.04[1].
\textsuperscript{191}. けいほ (Penal Code) arts. 222, 233, 246, 247 (Japan).
\textsuperscript{192}. けいほ (Penal Code) art. 134 (Japan).
its unauthorized disclosures by persons presently or formerly employed in certain sensitive professions.\textsuperscript{193}

A criminal indictment for misappropriation of trade secrets poses problems because it is not clear when use of the term "property" as the subject matter of theft can refer to intangibles.\textsuperscript{194} Articles covering larceny\textsuperscript{195} and embezzlement\textsuperscript{196} do not adequately distinguish between theft of an intangible secret and theft of the document in which the secret is embodied. If any employee were to memorize details of a process and later transcribe them onto paper already in his possession, it is doubtful that he could be punished under Japanese criminal law.\textsuperscript{197} In \textit{Japan v. George Telenchef},\textsuperscript{198} a Japanese trade secret case charging larceny, the court appears to deal with the question of such intangibles as intellectual property, but the resolution is unclear. The defendant, owner of a detective agency, operated as an industrial spy and allegedly was hired by one company to steal trade secrets of a competitor. The trade secrets consisted of various documents and lists which the defendant and accomplices acquired and reproduced on the plaintiff's copy machine using plaintiff's paper. The defendant urged that trade secrets are intangible property not subject to larceny under the Penal Code.\textsuperscript{199} The court rejected this defense and held that the secret contents rather than the paper itself were stolen.\textsuperscript{200} As a result, at least one authority\textsuperscript{201} has speculated that it would be difficult for a Japanese court to find theft in a trade secret case that did not involve a tangible representation of stolen information.\textsuperscript{202}

Similarly, in \textit{Japan v. Himei},\textsuperscript{203} a conviction for embezzlement was handed down in an employee's misappropriation of industrial material and documents which were trade secrets.\textsuperscript{204} When the court recognized the value of the contents of the documents, it was willing to extend its interpretation of property subject to theft to include

\begin{footnotesize}
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  \item \textsuperscript{193} The professions listed in Keiho (Penal Code) art. 134 (Japan) are those of doctor, pharmacist, druggist, midwife, lawyer, defense counsel and notary.
  \item \textsuperscript{194} Wise, \textit{supra} note 139, at § 1.04[3][14].
  \item \textsuperscript{195} Keih\={o} (Penal Code) art. 235 (Japan).
  \item \textsuperscript{196} Keih\={o} (Penal Code) art. 252, 253 (Japan).
  \item \textsuperscript{197} \textit{id.} § 1.04[14][A].
  \item \textsuperscript{198} Japan v. George Telenchef, 7 Kakyu Keishu 1319, 419 Hanrei Jiho 14 (Tokyo Dist. Ct., June 26, 1965).
  \item \textsuperscript{199} Keih\={o} (Penal Code) art. 235 (Japan); See Wise, \textit{supra} note 139 at § 1.04[3].
  \item \textsuperscript{200} Wise, \textit{supra} note 139, at § 1.04[14][a].
  \item \textsuperscript{201} Id.
  \item \textsuperscript{202} Id.
  \item \textsuperscript{203} Id. § 1.04[14][b].
  \item \textsuperscript{204} Id.
\end{itemize}
\end{footnotesize}
trade secrets as well as the industrial materials and documents. 205

Both Telenchef 206 and Hime 207 involved Japanese citizens whose criminal convictions for larceny and embezzlement resulted from activities carried on within Japan. 208 Had they been charged with committing these crimes or with receiving stolen property, fraud or breach of trust outside Japan, they would still have been subject to prosecution in Japan 209 but the penalty under Japanese law would have been modified. 210

E. Tort Law Theories.

Article 709 of the Japanese Civil Code sets out the basic premise that intentional or negligent violation of the rights of another will give rise to an action for damages. 211 Misuse of trade secrets by unauthorized disclosure or by misappropriation can be redressed by bringing an action in tort. Few cases in Japan in the area of trade secrets or know-how have been decided as tort cases. 212 This infrequency of tort litigation is considered a contributing factor to the low damage awards which are granted in Japan. 213

The Law Prohibiting Unfair Competition 214 contains one clause 215 which prohibits giving misleading information about the “quality, contents, process, usage or quantity or goods”. Presumably, this clause could be applied to trade secret misappropriation cases but it has not been so used. 216

Japanese tort actions require the following:

(1) an intentional or negligent act; (2) an unlawful violation of

205. Id.
207. WISE, supra note 139, at § 104[14][b].
208. Kēhō (Penal Code) art. 1 (Japan); the Penal Code applies to citizens and noncitizens alike.
209. The following crimes committed by Japanese citizens abroad subject them to prosecution under the Japanese Penal Code: larceny (art. 235), embezzlement (art. 253), receiving stolen property (art. 256, para. 2), fraud (art. 246), breach of trust (art. 247).
210. Kēhō (Penal Code) art. 5 (Japan).
211. WISE, supra note 139, at § 1.05[1].
212. Id.
213. WISE, supra note 139, at § 1.05[8]. In a suit brought by American Cyanamid Co. against Nissan Chemical Industries, plaintiff asked for $277,788 in damages for patent infringement which had generated $2 million of melamine production. The Japanese court awarded 4% of the illegal production (some $79,795), an amount less than the potential royalties.
215. Id.
216. WISE, supra note 139, at § 1.05[6].
another's right; (3) legal capacity; (4) proximate cause; and (5) resulting damages.\textsuperscript{217} These tort elements can be applied to one who misuses trade secrets or know-how even if the tortfeasor did not know that he was violating another's rights.\textsuperscript{218}

Knowledge that harm would ensue is sufficient.\textsuperscript{219} This interpretation allows a plaintiff to proceed against a defendant who wrongfully acquires a trade secret as well as one who wrongfully appropriates a trade secret.

In addition to awarding damages, a court may issue an injunction\textsuperscript{220} ordering the defendant to cease violation of the plaintiff's rights.\textsuperscript{221} Failure to comply with an injunctive order in Japan will result in a penalty (money damages) but cannot result in imprisonment for contempt of court.\textsuperscript{222} Thus the impecunious party who fails to heed an injunction cannot be reached. Since few trade secret actions are brought in tort, the fact that injunctive relief is available in such cases may be of little consequence. In one case dealing with trade secrets, \textit{Deutsche Werft Aktiengesellschaft v. Chuetsu Waukesha Yugenkaisha}\textsuperscript{223} the court denied a provisional injunction because the suit was a tort and not a contract action. Judicial reluctance to give injunctive relief in trade secret cases and generally low awards in tort cases combine to discourage a foreign plaintiff from proceeding in tort in Japan where non-residents and aliens are freely permitted to bring suit.\textsuperscript{224}

\section*{f. Japanese Antitrust Theories.}

The Act Concerning Prohibition of Private Monopoly and Maintenance of Fair Trade\textsuperscript{225} (hereinafter referred to as the Anti-monopoly Act) was drafted using the Sherman, Clayton, Federal Trade Commission and Robinson-Patman Acts as models.\textsuperscript{226} The

\begin{table}
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\textsuperscript{217} Id. § 1.05[1]. \\
\textsuperscript{218} Id. § 1.05[2]. \\
\textsuperscript{219} Id. \\
\textsuperscript{220} MIMPÔ (Civil Code) art. 414(3). \\
\textsuperscript{221} MINJI SHÔSHÔ HÔ (Code of Civil Procedure) arts. 733, 734 (Japan); MIMPÔ (Civil Code) art. 414, para. 3 (Japan). \\
\textsuperscript{222} Wise, supra note 139, at § 1.06[4] n.10. \\
\textsuperscript{223} Wise, supra note 165, at § 1.05[4]. \\
\textsuperscript{224} Neither the Civil Code nor the Code of Civil Procedure distinguishes between citizens and non-citizens. MIMPÔ (Civil Code) art. 2 (Japan). Additionally, Japan is a signatory to the original Paris Convention of 1883 (Japan ratified in 1899) and its successor, World Intellectual Property Organization of 1967: both organizations provide for protection of intellectual property in international transactions, and members must offer the same protection to foreign members as they would to citizens of their own country. \\
\textsuperscript{225} Act No. 54, 14 April 1947 (source: App. I). \\
\textsuperscript{226} Ariga, Regulation of International Licensing Agreements under the Japanese Anti-
Anti-monopoly Act is designed to promote trade and to encourage free competition by prohibiting monopolies, unfair business practices and trade restraints. The original Act\textsuperscript{227} was stricter in its antitrust regulations than comparable American laws but later amendments following the post-war occupation period\textsuperscript{228} relaxed the severity of the Act.

The Antimonopoly Act can be applied to trade secret or know-how licensing agreements that attempt to establish territorial or export restrictions.\textsuperscript{229} The prohibition of unreasonable restraints of trade\textsuperscript{230} extends to technology and is thus inclusive of trade secrets and know-how. Again, as in other areas of Japanese law,\textsuperscript{231} the application of antitrust law to trade secret cases remains theoretical because no prosecutions have been brought under the Act.\textsuperscript{232}

C. Protection on the International Level

A survey of protections against unfair competition on the international level indicates that such protections are at best impracticable and at worst virtually illusory. The major obstacle to international remedies for private United States corporations or industries aggrieved by unfair foreign competition is the lack of private rights of action.\textsuperscript{233} Since actions can be undertaken only by governments in behalf of their injured constituents, it is first necessary to engage the government in the dispute. Then the private complainant must argue that the relief sought is in harmony with government policy regarding such disputes.\textsuperscript{234}

The following summary of international protections offers a basis for the conclusions that they provide limited practicability in resolving Silicon Valley’s complaints. The most promising of these protections may be the imposition of countervailing duties.\textsuperscript{235} The rationale for this inference can best be indicated after reviewing other possible protections.

\textsuperscript{227} Enacted March 31, 1947.
\textsuperscript{228} Especially, Amendments of 1949 and 1953.
\textsuperscript{229} Wise, \textit{supra} note 139, at § 1.07[3].
\textsuperscript{230} Act No. 54, 14 April 1947, at 2(6), 3.
\textsuperscript{231} See notes 183-189, supra.
\textsuperscript{234} See section V.C., \textit{infra}.
\textsuperscript{235} Id.
1. *The Trade Act of 1974*236

On its face, the Trade Act of 1974 and earlier legislation it amends appear to open a path to government action at the international level. The Act’s legislative intent includes the elimination of barriers to trade “on a basis which assures substantially equivalent competitive opportunities for the commerce of the United States,”237 the establishment of “fairness and equity in international trading relations,”238 and a provision for “adequate procedures to safeguard American industry and labor against unfair or injurious import competition.”239 To implement this legislative intent, the Act provides for: (a) authority for the President to negotiate tariff modifications,240 (b) Presidential authority, subject to Congressional approval, to reduce non-tariff barriers,241 and (c) protection of domestic interests and compensation for injuries suffered due to import competition.242

Among the Presidential prerogatives provided by the Trade Act is the authority to terminate, or grant partial termination of, a variety of trade agreements and to impose import surcharges.243 Authority for the exercise of these Presidential prerogatives was established even before the explicit provisions of the Trade Act of 1974. In 1971, the President partially terminated a prior agreement by raising duties ten percent and causing a partial reversion to previous tariff rates.244 In the case of *United States v. Yoshida International, Inc.*,245 the Court of Customs and Patents Appeals held that alteration of tariff rates was a valid exercise of authority delegated to the President.

The Trade Act of 1974 also provides for extensive consultation between the President and representatives of the private sector through the Advisory Committee for Trade Negotiations (ACTN), which is under the direction of the Special Representative for Trade Negotiation (STR).246 The STR has the rank of Ambassador Extraordinary and his second-in-command has the rank of Ambassad-

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243. *Id.*
These high ranks suggest the legislative intent that the private sector have strong liaison with the President through high-level spokespersons.

It may be observed, without drawing conclusions here, that if the semiconductor industry has in fact been injured by Japanese unfair competition and if the obstacles to inducing government action can be overcome, it would appear that the provisions of the Trade Act of 1974 are sufficiently sophisticated and versatile to offer ample opportunity for redress.

2. The General Agreement on Tariffs and Trade (GATT)

Although GATT has never been formally approved by the U.S. Congress, it has "provided the essential structure for international trade relations among most of the market economy industrialized world." GATT is more like an international treaty than an international organization, in that it establishes a common code of conduct in international trade. Since the conclusion of the Kennedy Round of talks in 1967, GATT's Secretariat has prepared a detailed inventory of non-tariff barriers to trade (NTBs) as an important step in negotiating their reduction or elimination. These NTBs are divided into five broad categories:

1) Government Participation in Trade (production and export subsidies, government procurement practices, state trading);
2) Customs and Administrative Entry Procedures (anti-dumping and countervailing duties, valuation for customs purposes, customs classification, consular formalities);
3) Standards Applicable to Imported and Domestic Products (safety and health product and testing standards, packaging, labeling, and marketing regulations);
4) Specific Limitations on Imports and Exports (quotas, discriminatory agreements, export restraints, licensing, price supports);

247. Id.
249. Jackson, The General Agreements on Tariffs and Trade, A Lawyer's Guide to International Business Transactions 41, 43 (W.. Surrey and D. Wallace eds. 1977) [the article is hereinafter cited as Jackson; the book hereinafter cited as Surrey]. From its appearance in 1947 until the Trade Act of 1974, GATT was the subject of six major negotiating rounds, the last of which was the Kennedy Round of 1967. The Trade Act stimulated the Tokyo Round.
250. D. Bowett, supra note 233, at 106.
5) Charges on Imports (prior deposits, credit restrictions on importers, border tax adjustments, variable levies).

Categories 1) and 2) include Japanese NTBs of which the semiconductor industry complains. GATT's own provisions have tried to set standards for recognizing and dealing with such practices but GATT also recognizes that they need attention in subsequent negotiating rounds.

GATT is poorly suited for individual action. A penetrating view of the lawyer's difficulties in using GATT to resolve private trade problems is expressed by Professor J. H. Jackson:

The lawyer dealing with private transactions usually faces GATT and the public law of international trade with some trepidation, principally because of the obscurity and the apparent complexity of the subject. One has to admit candidly that GATT has not been noted for its appreciation of the problems of law or the problems of lawyers. During most of its existence, the GATT Secretariat has not even had a legal staff. . . . There has been a common, although perhaps misconceived, notion that lawyers are not very useful or 'relevant' to problems of GATT. . . .

It is therefore not surprising to find, from time to time, legal inconsistencies in the GATT system. . . . Furthermore, some of the provisions of GATT have become outmoded. The difficulty of amending GATT is so great, however, that rather than amend it in order to bring the agreement into conformity with current practice, the inconsistencies between the practice and the original principles of GATT are, indeed, simply 'tolerated.' Private parties or their lawyers have generally not been given a forum in the GATT, as they have in . . . the International Monetary Fund and the World Bank. Yet, more and more it is recognized that the decisions that GATT makes or does not make . . . affect an enormous number of people.

Articles XXII and XXIII relate to dispute settlement. Article XXII requires that any contracting party must consult, when asked, with any other contracting party with respect to any matter affecting the operation of GATT. Article XXIII, entitled "Nullification and Impairment," refers to measures which may be taken against a contracting party who impairs the benefits of GATT

252. See generally, supra notes 1, 2.
253. For example, art. VI(1) deals with dumping, art. VI(3) deals with countervailing duties and art. XI deals with import quotas.
254. Jackson, supra note 249, at 43-44.
to another party. Since these articles are not models of clarity, we quote a succinct summary of their operation.

Complaints of non-observance of the Treaty or that benefits of the Treaty are 'nullified or impaired' are circulated to all members and a 'consultation' occurs in which not only the 'plaintiff' and 'defendant' Parties participate, but any other Party having an interest in the issue. Failing a satisfactory solution by these means a panel of conciliation is appointed by the Contracting Parties which makes recommendations. If these are not accepted by the 'defendant,' the Contracting Parties can authorize the 'plaintiff' to retaliate by withdrawing concessions from the 'defendant.' This has rarely proved necessary, and this points to the efficacy of this form of consultation under the pressure of the opinion of the membership as a whole. There is no further appeal from this adjudication by the Contracting Parties: a dissatisfied Party is left with the possibility of withdrawing from GATT. 256

The central question is the meaning of "nullification or impairment," since there is no opportunity for sanction or retaliation unless one or the other can be shown to exist. 257 But "[t]hese terms have been variously defined and may be so imprecise as to admit of no satisfactory definition," 258 so that parties claiming impairment of Treaty benefits are subject to the vagaries of imprecise interpretation.

On the whole, the machinery of GATT seems to offer meager opportunity to Silicon Valley's complainants for redress of alleged wrongs. It does, however, contain provisions for dispute resolution and it also provides a forum in which "the pressure of the opinion of the membership" can be applied to an offending party to the Treaty (here, Japan). In spite of its limited effectiveness, GATT may provide a recourse not found in other protective mechanisms on the international level.

3. The Antidumping Law of the United States

Dumping is selling a product in an export market at a price lower than that prevailing in the domestic market of the seller. 259 This practice often occurs where the seller or producer has a protected home market, which may be the result of government inter-

256. D. Bowett, supra note 233, at 135.
257. Jackson, supra note 249, at 50.
258. Id.
Two statutes regulate dumping in the U.S., the antidumping provisions of the Revenue Act of 1916\textsuperscript{261} and the Antidumping Act of 1921\textsuperscript{262} as amended. The first statute is an antitrust law imposing "heavy civil and criminal penalties for foreign producers who systematically attempt to drive their competitors out of business. Because of difficulties in its enforcement, this statute has been rarely used.\textsuperscript{263} The second statute, the "primary tool employed to prevent dumping. \ldots \textsuperscript{264} provides for the imposition of special dumping duties on imported goods sold in the U.S. at \textit{less than fair value} (LTFV) if a U.S. industry "is being or is likely to be injured, or is prevented from being established, by reason of importation of such merchandise. \ldots \textsuperscript{265}

The Antidumping Act does not require a showing of intent and therefore would be applicable to the alleged injuries suffered by domestic semiconductor producers without proof of misappropriation of know-how or of the Japanese Government’s support of its industry. The essential requirements of a cause of action under the Antidumping Act are sales at LTFV and injury to or prevention of the establishment of United States industry. Since the sequence and chronology of steps in a dumping case are elaborate and detailed, they have been relegated to appendix A. Perusal of these steps will readily reveal that redress through the Antidumping Act is less practicable than by other legal mechanisms reviewed here.

4. \textit{The Countervailing Duty Law}\textsuperscript{266}

The Countervailing Duty Law is the name usually ascribed to section 303 of the Tariff Act of 1930 as amended by the Trade Act of 1974.\textsuperscript{267} This law permits the imposition of a special duty on dutiable imported goods if their production, manufacture, or export has been supported "directly or indirectly" by means of a "bounty or grant" bestowed by a government or other entity.\textsuperscript{268} The Secretary of the Treasury has responsibility for the Law’s administration.\textsuperscript{269}

\begin{footnotes}
\footnote{260. \textit{Id.}}
\footnote{261. 15 U.S.C. § 72 (1978).}
\footnote{262. 19 U.S.C. §§ 160-73 (1978).}
\footnote{263. Clubb, \textit{supra} note 249, at 95-104.}
\footnote{264. \textit{Id.} at 90.}
\footnote{265. 19 U.S.C. § 160(a)(1978).}
\footnote{266. 19 U.S.C. § 1303 (Supp. 1978).}
\footnote{267. Feller, \textit{Countervailing Duties,} \textit{SURREY,} \textit{supra} note 249, at 123 [hereinafter cited as Feller].}
\end{footnotes}
This law is designed to countervail the trade advantage afforded foreign producers over United States' competitors, as a result of bounty support. The circumstances under which a countervailing duty will be imposed depends strongly on whether a "bounty or grant" has been bestowed upon the manufacture, production or export of the challenged product.

"Bounty or grant" is not defined in the statute or implementing regulations. In a 1919 decision relating to an earlier countervailing duty statute, the Supreme Court interpreted this phrase as follows:

The statute was addressed to a condition and its words must be considered as intending to define it, and all of them — 'grant' as well as 'bounty' — must be given effect. If the word 'bounty' has a limited sense, the word 'grant' has not. A word of broader significance than 'grant' could not have been used. Like its synonyms 'give' and 'bestow' it expresses a concession, the conferring of something by one person upon another. And if 'something' be conferred by a country 'upon exportation of any articles, or merchandise' a countervailing duty is required...

Another interpretation of the legislative intent was expressed in a 1936 Attorney General's Opinion:

It is plain from the statute itself that it was intended to anticipate as inclusively as possible all practices and devices which might be resorted to or invested to circumvent it by obscuring or concealing their purposes as bounties or grants. The history of the Act fully corroborates its purposes to make impossible its evasion by indirection or disguise.

Administrative determinations of the phrase may offer the most reliable indication of its current interpretations since few decisions imposing countervailing duties have been challenged in court by importers and the Treasury Department's determinations have been upheld without exception. But a comprehensive history of past determinations is difficult to recover. Prior to 1974, the administrative practice was to publish only affirmative countervailing duty orders, so that trade supports not constituting a "bounty or grant" are difficult to document. Nevertheless, nine "general cat-

270. Feller, supra note 267, at 123.
274. Feller supra note 267, at 125.
275. The Trade Act of 1974 requires publication of all subsequent decisions in the Fed-
categories of direct and indirect bounties or grants” that have been the subject of countervailing duty orders can be discerned:276

(1) Direct Payments (premiums, bonusses, cash payments to pro-
ducers related to export sales). This type of payment was the basis for orders against almonds from Spain in 1959,277 French tomato paste in 1968,278 and tomato products from Greece in 1972.279

(2) Preferential Income Tax Treatments (preferential tax rates on export income, accelerated depreciation allowance for export production assets, special deductions for export-related expenses, and deferral of tax on export earnings). Preferential income tax treatment was the basis for an order against Michelin tires from Canada in 1973280 (special accelerated depreciation) and consumer electronic products from Japan in 1975 (tax deferral).281

(3) Excessive Rebates of Indirect Taxes (rebates or drawbacks of indirect taxes on products in excess of taxpayer’s original payment or liability). This category was the basis for upheld countervailing duty orders against sugar imports from the Netherlands282 and flour from Germany.283

(4) Rebate of Secondary Indirect Taxes (rebates of taxes paid on purchases not directly related to manufacture or sale of the product). Rebates on overhead items such as office equipment and documentary stamp taxes were bases for countervailing duties on steel products from Italy between 1967 and 1973.284

(5) Price Support Programs (maintenance of domestic prices while selling to exporters at lower than world market prices from government supplies). Such programs were a basis for an order against sugar-containing products from Australia in 1958.285

(6) Export Loss Indemnification of Special Insurance Programs (governmental risk-sharing in export trade). Imports of Danish butter were countervailed in 1935286 on the basis of variable Danish
license fees on U.S. imports that varied with losses incurred in exporting to the U.S.

(7) **Exchange Rate Manipulations** (more favorable exchange rates on foreign currency earned on export sales than otherwise applicable). Countervailing duties against imports from Germany in the 1930's\(^2\) and against wool tops from Uruguay in 1953\(^3\) were based on such manipulations.

(8) **Preferential Financing Terms** (subsidies for finance costs, favorable credit terms for investments in machinery, preferential export credit). A special Nova Scotia low-interest-rate loan to establish two Michelin tire manufacturing plants was the basis for a countervailing duty action in 1973.\(^4\)

(9) **Other Subsidies for Specific Production or Distribution Costs** (preferential transportation rates, government sales at lower-than-market rates, free or reduced-rate export promotional service). Such subsidies were the bases for actions against German rolling-mill products in 1926\(^5\) and Japanese consumer electronic products in 1975.\(^6\)

This broad range of devices that were considered "bounties or grants" may encourage the United States semiconductor industry to petition for countervailing duties should it try to redress the advantage gained by bounties. Although a complaint of unfair trade practices based on bounties is not related to unfair practices based on misappropriation of know-how, the former may be a more effective claim for relief. The last case cited above,\(^7\) where export promotional assistance provided by the Japanese External Trade Organization was considered a "bounty or grant" within the meaning of 19 U.S.C. section 1303, supports this contention.

The administrative procedure for the imposition of countervailing duties is simpler than that required for antidumping duties. Countervailing duties are mandatory if a bounty or grant exists.\(^8\) Anyone may file a petition for countervailing duties "setting forth his belief that a bounty or grant is being paid or bestowed and the reasons therefore. . . .".\(^9\) Any U.S. manufacturer, producer, or wholesaler of similar merchandise may contest a determination that

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292. Id.
a bounty or grant does not exist and an importer may contest the imposition of countervailing duties in the United States Customs Court.\textsuperscript{295} Petitions are filed with the Commissioner of Customs or any District Director of Customs. If a petition contains sufficient information for a \textit{prima facie} case, an investigation will be initiated and notice published in the Federal Register. The Secretary of the Treasury must make a preliminary determination of a bounty or grant within six months of filing a petition.\textsuperscript{296} The preliminary determination is published in the Federal Register\textsuperscript{297} and interested parties may submit written comments. A final determination must be reached and published in the Federal Register within twelve months after filing.\textsuperscript{298} If the final determination is affirmative, countervailing duties are imposed on the subsidized goods on or after the date of publication.\textsuperscript{299}

5. \textit{Private Actions}

The international protective mechanisms reviewed above require intervention by government officials. Protective redress through private action is very limited. Two possibilities are (1) the provisions of the Treaty of Friendship, Commerce and Navigation (FCN) Between the United States and Japan of April 2, 1953,\textsuperscript{300} under which Japanese courts enforce U.S. arbitration awards, and (2) the reciprocal access to foreign courts under the equivalent provisions of the FCN\textsuperscript{301} and of the convention establishing the World Intellectual Property Organization (WIPO).\textsuperscript{302} (This convention again modified the oft-revised Paris Union Convention of 1883.)

The FCN provides that: “Nationals and companies of either Party shall be accorded national treatment . . . with respect to access to courts of justice and to administrative tribunals and agencies . . . in all degrees of jurisdiction, both in pursuit and in defense of their rights.”\textsuperscript{303} The equivalent provision in WIPO states that: “Nationals of any country of the Union, shall as regards the protection of industrial property, enjoy in all other countries of the Union

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\textsuperscript{300} 4 U.S.T. 2063, T.I.A.S. No. 2863.
\textsuperscript{301} Id. art. IV (2).
\textsuperscript{303} Supra note 300.
the advantages that their respective laws now grant . . . to nation-
als; . . . consequently they shall have the same protection as the
latter . . . of their rights. . . . "304
These reciprocity provisions allow United States companies access
to the Japanese courts. That foreigners are reluctant to use Japa-
nese courts for resolution of trade secret disputes should elicit no
surprise after reading section B above. The unfair competition pro-
visions of the Paris Convention have never been applied to Japanese
trade secrets or know-how litigation.305 As for claims based on
"industrial espionage" in particular, no Japanese law directly regu-
lates this (apparently flourishing)306 activity in Japan.307
In addition to the provisions of the FCN treaty that require the
courts of each country to honor arbitration awards rendered in the
other, both the United States and Japan are parties to the United
Nations Convention on the Recognition and Enforcement of Foreign
Arbitral Awards of 1958.308 Although our research has not disclosed
any Japanese cases that refer to the Convention, it is regarded as
one of the "winds of change which are sweeping over the whole
province of public international trade law."309
The Convention does not limit arbitration to commercial dis-
putes, but requires only that the award be one "arising out of differ-
ences between persons, physical or legal."310 Some of the other provi-
sions that characterize its scope and applicability indicate, that:

(1) Contracting States are obliged to recognize arbitration agree-
ments in writing concerning a subject matter capable of settlement
by arbitration.311
(2) Contracting States are obliged to recognize arbitral awards as
binding and to enforce them in accordance with the rules of proce-
dure of the territory where the award is relied upon.312
(3) To obtain enforcement, the claimant need only furnish appro-
priate copies of the award, the original agreement, and, if neces-
sary, translations.313

If the claimant satisfies (3) above, then he is entitled to recognition

305. Wise, supra note 139, at § 11.05[6].
307. Wise, supra note 139, at 82-3.
308. 21 U.S.T. 2517, T.I.A.S. No. 6997; see also, K. Ryan, supra note 251, at 340.
309. K. Ryan, supra note 251, at 342.
310. Id. at 341.
311. Id.
312. Id.
313. Id.
and enforcement of his award unless the respondent can prove one of the following five circumstances:\textsuperscript{314}

1. The Agreement was not valid due to incapacity of the parties, or not valid under the law of the country where the award was made.
2. The awarding party was for any reason unable to present his case.
3. The dispute did not fall within the terms of the arbitration agreement.
4. The arbitrators or the procedure were not in accordance with the terms of the agreement or with the law of the country where the arbitration occurred.
5. The award is not yet binding or was set aside or suspended under the law in the country where the award was made.

The enforcing country may refuse to recognize and enforce the award on two grounds which do not require proof by the awarding party:\textsuperscript{315}

1. The dispute is not capable of settlement by arbitration under the law of that country.
2. Recognition or enforcement would be contrary to the public policy of that country.

These private action mechanisms, reciprocal access and arbitration, may be more direct than those discussed earlier, but they may also be more difficult for Silicon Valley complainants to invoke. The first suffers from the characteristics of the Japanese legal system governing know-how and trade secrets that make litigation difficult (as discussed in section B above). The second requires an agreement to arbitrate, which may not be possible to obtain or may require as much government intervention as the other mechanisms available at the international level.

**IV. APPLICATIONS TO SILICON VALLEY'S COMPLAINTS**

The alternative theories for the protection of know-how explored in preceding subsections A through C were discussed as a preliminary step in the analysis of the complaints voiced by Silicon Valley's semiconductor industry. Just as is the case with complaints brought to an attorney by a distraught client, the first step in seeking a remedy is to distinguish those elements which are legally ac-

\textsuperscript{314} Id. at 341-42.
\textsuperscript{315} Id. at 342.
tionable from those which are not. In the case of Silicon Valley, the distinction is difficult to make.

A. Allegations, Remedies and Credibility

Complaints appearing in unofficial publications\(^{316}\) allege industrial espionage,\(^{317}\) theft of trade secrets, disparate tariffs favoring Japanese semiconductor imports to the United States over U.S. exports to Japan (twelve percent versus six percent),\(^{318}\) dumping, Japanese prohibition against using foreign components in its telecommunications monopoly\(^{319}\) and Japanese government subsidy of its semiconductor industry.\(^{320}\) If any of these allegations can be proved, then an appropriate legal remedy can be found.\(^{321}\) Criminal law and tort law can be used in cases of industrial espionage or theft;\(^{322}\) presidential action under the Trade Act of 1974 could be invoked for disparate tariffs and import prohibitions;\(^{323}\) the Anti-dumping Law can provide a remedy for dumping tactics;\(^{324}\) the Countervailing Duty Law is directly applicable to the problem raised by Japanese subsidies.\(^{325}\) But closer inspection of the industry's complaints coupled with reasonable skepticism casts doubt on their total credibility.

The strident tone which characterizes the complaints reveals the anger and frustration of the Silicon Valley semiconductor industry. The emotional nature of the complaints suggests that they should be carefully scrutinized to separate the elements of industrial lobbying from the substantive elements which might constitute grounds for legal action. Although some substantive elements may be supported by fact, a close reading of the complaints provides several reasons for suspecting that the industry is pleading primarily for governmental protective measures.

First, Silicon Valley's assertions to the contrary, the Japanese product may in fact be superior.\(^{326}\) If so, its effectiveness in market

\(^{316}\) FORTUNE, supra note 1.
\(^{317}\) Id.
\(^{318}\) Id. at 78.
\(^{319}\) Id.
\(^{320}\) Id. at 75.
\(^{321}\) Id. Allegations of other activities such as "aggressive" requirement or purchase of small semiconductor companies to disguise "advanced engineering listening posts," may not justify charges of unfair competition, but indicate further questionable business practices.
\(^{322}\) See Section III. A.4-6., supra.
\(^{323}\) See Section III. C.1., supra.
\(^{324}\) See Section III. C.3., supra.
\(^{325}\) See Section III. C.4., supra.
\(^{326}\) FORTUNE, supra note 1, at 78 (indicates superior testing and reliable production); at 79 (Japanese manufacturers may "be first with a production-quality 64K memory chip
competition would not be the result of unfair practices by the Japanese. In that case, the complaints simply reflect the distress of an industry unable to keep pace with foreign competition unless its government takes action in its behalf.

Second, it is not necessary to attribute the market advantages enjoyed by Japanese semiconductor products to unfair trade practices. Even if the Japanese product were not superior, it is easily imaginable that its price advantage in the U.S. market may be due to other well-known factors affecting price such as the favorable cost of labor, balance of trade and currency exchange values.\textsuperscript{327}

Finally, in spite of all the references to industrial espionage\textsuperscript{328} and misappropriation of semiconductor know-how, up to the time of this writing, no legal action has been initiated against a Japanese offender for such practices in the semiconductor industry, where they are reportedly rampant.\textsuperscript{329} There are, however, a few such cases in other technical industries.\textsuperscript{330} The fact that the United States semiconductor industry has undertaken so little litigation against the Japanese in spite of the many complaints about industrial espionage and know-how misappropriation, invites consideration of three possible explanations. (1) Silicon Valley has not been severely damaged by trade secret violations. (2) Violations of trade secrets by Japanese competitors do give them an unfair advantage, but difficulties in proving misconduct make litigation impracticable. (3) The purpose of publicizing trade secret violations is directed toward a goal different from preventive or remedial action against such violations—perhaps redress of other injuries. From the facts available, the third explanation is the most plausible. The second, however, should also be considered. Therefore, putting aside the difficulties in proving misconduct, some features of remedial and preventive measures available for violations of trade secrets should be recalled before considering the most promising course of action appropriate for other grievances. The efficacy of a given protective mechanism will naturally depend on the facts in the case at hand.

On the Japanese industrial front, the law of trade secret protection is still in its infancy. Similarly, Japanese tort and criminal law
have not developed sufficient legal foundations on which a foreign plaintiff may rely for prosecution of trade secret misappropriation. Moreover, the expense, language barrier and cultural differences discourage a foreigner from litigating in Japan.

On the domestic front, the industry can combine several measures to effect better prevention than any single mechanism can provide. For example, carefully drafted employment contracts with those privy to trade secrets may be combined with continuous record-keeping on employees who have access to trade secrets and with restriction of such access to the smallest possible number of people. The employment contracts can indicate clearly what information is to be kept secret and other obligations between employer and employee that are to be respected. The agreements can also include appropriate partial restraints (such as non-competition after termination of employment), provisions for severability and for periodic review and revision of additional trade secrets to be kept in confidence.

A business that uncovers evidence of practices subject to possible criminal, tort, antitrust or antidumping actions may undertake litigation despite the cost in time and money because of its deterrent effect on other potential offenders. By its reputation for vigilance, an industry that vigorously pursues those engaged in illegal practices may afford itself a degree of protection to trade secrets.

On the international level, protection against trade secret violations is primarily remedial, dependent on government policy and more appropriate to the larger category of unfair competition. For example, the Trade Act of 1974 appears to offer a reasonable opportunity for the semiconductor industry to protect itself against unfair import competition. In order to invoke the protection of the Act, however, the industry must first secure the attention and cooperation of the Advisory Committee for Trade Negotiations. This Committee, which serves as liason between the private sector and the President, may then persuade him to exercise his authority to impose surcharges on imports or to negotiate tariff modifications on behalf of disadvantaged United States trade interests. Another type of remedy, the exertion of political pressure in an international forum may be available through GATT.

B. A Japanese Reply and Its Implications

A Japanese perception of the Silicon Valley complaints should aid an evaluation of their legal merits and appropriate action for
them. One of the Silicon Valley newsletters summarizes a reply
by H. William Tanaka, spokesperson for the Electronic Industries
Association of Japan, to several of the charges against his govern-
ment’s policies and his industry’s practices. Some of his responses
are:

(1) [The level of U.S. semiconductor imports from . . . Japan] may
be due to the inadequacy or absence of domestic supply,
technological obsolescence of competing domestic products, mar-
ket forfeitures and delayed market entries resulting from conserva-
tive corporate investment and product planning decisions . . .

(2) The technological and marketing lead that U.S . . . . firms have
maintained in ultra-miniature semiconductor circuitry . . . is be-
yond any serious challenge from foreign competitors . . . U.S.
firms are expected to account for nearly two-thirds of all transis-
tors, integrated circuits, and other solid state electronic compo-
nents that will be sold in world markets this year . . .

(3) U.S. semiconductor manufacturers have consistently captured
a large share of the Japanese market . . . [30 percent of the Japa-
nese market is accounted for by imports of which the U.S. accounts
for 18 percent directly and 9.6 percent through third country sub-
sidiaries]. Thus U.S.-based multinational corporations account
for about 90 percent of all ICs [integrated circuits] imported by
Japan . . .

(4) Japanese exports to the U.S. in 1976 totaled $18 million or less
than 2 percent of the U.S. IC market . . . Japanese imports of ICs
manufactured by U.S. companies are seven and one-half times
more than Japanese exports to the U.S.

(5) [The claims made by U.S. industry spokesmen that the Japa-
nese Government subsidizes exports of ICs by making special long-
term low-interest loans available from the Ex-Im Bank of Japan
are untrue.]

(6) The Japanese Government does fund, in part, research and
development of basic VLSI technology used for computers, . . . In
light of the fact that U.S. computer technology as well as semicon-
ductor technology was developed largely under U.S. Federal Gov-
ernment R&D and procurement funding, and the further fact that
Canadian, French, and West German Governments also subsidize
semiconductor R&D, the claim of unfairness suggests that a double
standard of fairness is contemplated, one which applies to Japan
and another which applies to all other countries.

332. Id.; see also D. Hoefler, MICROELECTRONIC NEWS with Manager’s Casebook (with
Manager’s Casebook, April 8, 1978).
(7) [The disparate tariffs imposed by Japan and the U.S. are] . . . irrelevant to multinational U.S. products . . . in spite of the tariff, U.S. semiconductor exports to Japan have exceeded and continue to exceed Japanese imports to the U.S. . . . The contention that the higher tariff paid by the U.S. manufacturers is an effective barrier to sales is refuted by U.S. industry experience in Europe . . . Despite the Common Market . . . rates of about 17 percent, U.S. manufacturers have still captured an estimated 80 percent of the . . . market.

Tanaka’s reply argues that the problems besetting our semiconductor industry are the result of its own corporate policies which have allowed its Japanese competitors to make minor inroads into the United States market.

Although this interpretation should be taken with a grain of salt, a reasonable person evaluating the relative merits of the Silicon Valley complaints and Tanaka’s reply would at least question the severity of a Japanese threat to the U.S. semiconductor industry. One may even conclude that the complaints are little more than political lobbying for government aid in acquiring a still larger share of an already preponderant portion of a profitable pie.

Tanaka makes no mention of misappropriation of know-how and acknowledges his government’s support of semiconductor technology. If his failure to mention misappropriation is a recognition of such behavior, then the suitable remedies are those summarized above. If the government support acknowledged by Tanaka can be deemed a “bounty or grant,” then the appropriate remedy would be a countervailing duty designed to balance the disadvantage which such a subsidy imposes on United States industry. The imposition of countervailing duties would be directly responsive to the complaints of the semiconductor industry. Moreover, the complaints about unfair competition appear more credible if based on government subsidy than if based on claims of unactionable or unprovable industrial espionage. Accordingly, the prospects for per-

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333. E.g., Item (2) ignores the alleged trend which points to Japanese domination if not checked; item (3) refers to 90% of Japanese semiconductor imports attributable to U.S., but does not indicate what it would be if imports were not regulated; items (3) and (7) refer to multinational U.S. corporations ignoring smaller U.S. corporations which may be damaged more seriously by the policies alleged.
334. FORTUNE, note 1 supra.
335. See item (6) in text accompanying note 332 supra.
336. See section III. A.A., supra.
337. See item (6) in text accompanying note 332 supra.
338. See notes 272 and 273 supra.
339. See notes 266 and 267 supra.
340. See text accompanying notes 330 and 329 supra.
suading the United States government to assess countervailing duties deserve further discussion.

V. PROSPECTS FOR COUNTERVAILING DUTIES
AND ZENITH v. UNITED STATES

A. Inferences Based on Earlier Petitions for Countervailing Duties.

Some indication of the prospects for a successful petition for countervailing duties may be inferred from the "nine general categories" summarized in section III. C.4. above. The most promising among them are "Direct Payments" and "Other Subsidies for Specific Production or Distribution Costs" (categories (1) and (9) in III C.4.). From these categories, it can be argued that the admitted Japanese government support for the R & D costs of its semiconductor industry constitutes a "direct payment related to export sales" or a "subsidy for a specific production cost" (namely, research and development).

B. Zenith Radio Corporation v. United States

On June 21, 1978, in the case of Zenith v. United States the U.S. Supreme Court affirmed the decision of the Court of Customs and Patent Appeals upholding the Secretary of the Treasury's rejection of a petition for assessment of "countervailing duties on various consumer electronic products exported from Japan to this country." The Court summarized its views on the purpose and applicability of countervailing duties, which left open the possibility that financial support by a foreign government for R & D costs of products exported to this country constitutes a "bounty or grant." The issue in Zenith was:

... whether Japan confers a "bounty" or "grant" on certain consumer electronic products by failing to impose a commodity tax on those products when they are exported, while imposing the tax on the products when they are sold in Japan.

Zenith alleged that Japan had bestowed a "bounty or grant" by "remitting the Japanese Commodity Tax that would have been imposed had the products been sold within Japan." The Court

341. See Feller, supra note 267, at 123.
343. Id. at 2443.
344. Id.
345. Id.
affirmed the Treasury Department's position "that the nonexces-
sive remission of an indirect tax is not a bounty or grant within the
meaning of the statute."\textsuperscript{346} (There was no dispute over "the nonex-
cessive nature of the remission or the indirect nature of the tax")\textsuperscript{347} The Court reviewed the history of construing indirect tax rebates as "bounty or grant" and affirmed the longstanding construction that such rebates constitute a bounty "only to the extent that the remis-
sion exceeded the taxes otherwise due."\textsuperscript{348} (The decision is in accord with those in "general category (3).")

The opinion contains several statements that are relevant to
the prospects for construing government support of R & D as a
"bounty or grant":

(1) [The purpose of the statute] is relatively clear . . . and is
confirmed by the congressional debates: the countervailing duty
was intended to offset the unfair competitive advantage that for-
eign producers would otherwise enjoy from export subsidies paid
by their governments.\textsuperscript{349}

(2) The theory underlying the (Treasury) Department's position
was that a foreign country's remission of indirect taxes did not
constitute subsidization of that country's exports. Rather, such
remission was viewed as a reasonable measure for avoiding double
taxation of exports — once by the foreign country and once upon
sale in this country.\textsuperscript{350}

(3) [Quoting from Udall v. Tallman, 180 U.S. 1, 16 (1965), quoting
Unemployment Compensation Commission v. Aragon, 329 U.S.
143, 153 (1946)] when faced with a problem of statutory construc-
tion, this Court shows great deference to the interpretation given
the statute by the officers or agency charged with its administra-
tion. "To sustain [an agency's] application of [a] statutory term,
we need not find that its construction is the only reasonable one,
or even that it is the result we would have reached had the question
arisen in the first instance in judicial proceedings."\textsuperscript{351}

These quotes support the argument that the Japanese receive an
unfair competitive advantage through bounties in the form of finan-
cial support of research and development contributing to increased
exports of semiconductor chips to the United States. The advantage
appears to be of the type which "the countervailing duty was in-

\textsuperscript{346} Id. at 2444.
\textsuperscript{347} Id. at 2444 n.9.
\textsuperscript{348} Id. at 2451.
\textsuperscript{349} Id. at 2448.
\textsuperscript{350} Id.
\textsuperscript{351} Id. at 2445.
tended to offset.” In such cases, “The Secretary of the Treasury must levy a countervailing duty ‘equal to the net amount of such bounty or grant’ upon importation of the product into the United States,” and his interpretation is given “great deference”((3) above). Therefore, domestic manufacturers can petition the Treasury Department to impose a countervailing duty. In arguing for the duty, the industry can contend that although nonexcessive remission of indirect taxes on exported consumer products can be rationalized as a “reasonable measure for avoiding double taxation,” no such rationalization seems applicable in support of R & D costs for semiconductor components.

C. Governmental Redress in General

Consideration of prospects for imposition of countervailing duties raises the question of governmental policy toward redress for United States industries injured by foreign competitors who have the “unfair” advantage of their government’s encouragement of exports. This question in turn raises more general ones concerning the appropriate level of governmental involvement by the United States on behalf of its industry. This note is not the place to analyze these important questions.

The policies of the United States government on international business are the subjects of endless controversy. Even in the narrow context of the semiconductor industry’s allegations, a multitude of credible assertions can be made that would result in a multitude of conclusions on what government policy should be.

An attempt to formulate policies that would eliminate Silicon Valley’s difficulties without causing substantial injury elsewhere may be a temptation to the foolhardy, but is too speculative for analysis in legal terms. A concise but penetrating summary of the political, economic and diplomatic ramifications of countervailing duties appears in a note analyzing the Zenith case in the Court of Customs and Patent Appeals. The following excerpt should indicate the care with which assertions about governmental policy, even when restricted to the single consideration of countervailing duties, must be handled.

The Zenith decision raises some basic questions for the structure of international trade. First, although countervailing duties are imposed to offset export subsidies by a foreign government, this

352. Id. at 2442.
353. Id. at 2448.
does not necessarily mean that trade distribution and resource allocation will be returned to optimal efficiency. Second, as the *Zenith* court stated, the use of countervailing duties is one of the bargaining chips "in a game played by governments on a world stage." Countries, in setting their foreign policy, need to assess whether the imposition of countervailing duties in order to garner strength for trade negotiations is sufficiently efficacious so as to warrant the costs necessarily imposed on other sectors of the economy. Third, the effectiveness of countervailing duties may be offset by subsidies that are more subtle than cash payments and tax rebates to the export industry. Finally, export subsidies and countervailing duties raise the issue of the extent to which the domestic commercial policy of any nation should be held accountable for its effects in foreign countries. The Court of Customs and Patent Appeals is neither expected nor authorized to resolve these major policy issues. It is the Congress, along with the Secretary of the Treasury and the United States tariff negotiators, who must evaluate the need and efficacy of the countervailing duty as an economic tool, and who must state clearly for importers, import competitors, and the courts in what circumstances a tax rebate constitute a bounty or a grant.

VI. CONCLUSIONS

Many different protective mechanisms, both preventive and remedial, are available to the owner of a trade secret. Each protection has only limited applicability to the multitude of complaints sounded in Silicon Valley. For any specific wrong, however, one or more preventive measures may be highly effective and one or more remedies may redress the resulting injury if the allegations can be proved.

Preventive measures are available primarily under contract law. Remedies are available by private actions under state and federal laws governing intellectual property. To a lesser extent similar remedies are available in Japan.

Additional remedies may be available through government actions on the international level, particularly against unfair trade practices alleging the involvement of the Japanese government.

The accessible facts form at best a hazy picture of the actual grievances troubling the domestic semiconductor industry. The haziness may be the result of unduly restricted information or of the difficulties in proving allegations of misconduct and obtaining relief through litigation. We note the dearth of cases charging wrongful acquisition of semiconductor know-how in spite of the specificity, variety and stridency of the publicized complaints.
If Japanese government subsidy of VLSI research and development can be considered a "bounty or grant" within the meaning of the Countervailing Duty Law, then a powerful protection for the industry could be sought through the Commissioner of Customs by petition for the imposition of a countervailing duty. In its discussion of countervailing duties on consumer electronic products, the recent Supreme Court opinion in *Zenith* left open the question of whether government support of industrial research is a "bounty." Strong arguments that the admitted support of industrial semiconductor research by the Japanese government constitutes a "bounty or grant" within the meaning of the Countervailing Duty Law, has a good chance of justifying the imposition of a countervailing duty.

355. See note 23 and text accompanying note 332 supra.
356. See text accompanying note 332 supra.
Appendix A

The following chronology of a typical dumping case\textsuperscript{357} shows the difficulties which face a lawyer representing a semiconductor producer who claims injury due to sales of Japanese products imported to this country and sold at LTFV. Administrative responsibilities in a dumping investigation are split between the Treasury Department and the U.S. International Trade Commission (ITC). When a complaint is received from a U.S. producer, the Customs Service of the Treasury Department carries out the required investigations and the Secretary determines whether LTFV sales have occurred and, if so, the amount of the dumping margin. If such a margin is found, the case is turned over to the ITC to determine whether the LTFV sales are injuring or threatening injury to a particular industry. If injury is found by the Commission, dumping duties are assessed.

(1) Complaint by U.S. producer:\textsuperscript{358} The producer notifies the Commissioner that a foreign producer is selling in the U.S. at LTFV. The information provided with the complaint must include a description or sample of the foreign merchandise, the name and country of the exporter, ports of entry into the U.S., evidence that a U.S. industry is being injured, and data on home market sales prices indicating LTFV sales.

(2) Customs Service Procedure:\textsuperscript{359} The Secretary of the Treasury has 30 days to decide whether to initiate a formal investigation or to close the case. If there is “substantial doubt” about injury to a U.S. industry, the complaint may be referred to the ITC, which then has 30 days in which to determine whether there is sufficient indication of injuries. If possible dumping and possible injury are found, the Customs Service will start a formal investigation after notice is published in the Federal Register. The Secretary of the Treasury then has generally six months to make a preliminary determination of LTFV sales. If LTFV sales are found, notice is published in the Federal Register and the Secretary orders the “withholding of appraisement” for the merchandise entered after that date or entered (but not liquidated) up to 120 days prior to publication of the notice of initiation of the investigation.

(3) Withholding of Appraisement:\textsuperscript{360} The Customs Service will release goods arriving at U.S. ports to the importer under bond without making a determination of the duty payable on the goods

\textsuperscript{357} This chronology follows the lucid description in \textit{Clubb, supra} note 240, at 358.
\textsuperscript{360} Clubb, \textit{supra} note 259, at 98.
until the Treasury Department has decided on the existence of dumping. If the decision is affirmative, antidumping duties will be determined and imposed on the goods. The bond required for release of goods during withholding of appraisement must be sufficient to cover the value of the goods, any ordinary duties payable, and additional antidumping duties which may be payable. This bond which must be posted for each shipment arriving after receipt of Notice of Withholding of Appraisement can be quite large. The cumulative amount of the bond can add appreciably to the final price of the goods and may be more than some weakly capitalized importers can manage. The withholding period is usually three months, but the importer or foreign producer may request an additional three months during which additional information may be presented to Treasury in order to reverse the preliminary dumping finding. If the Secretary makes an affirmative finding of dumping, the case is then referred to the ITC for injury determination.

(4) ITC Proceedings: The ITC has three months in which to determine whether “an industry in the U.S.” has been or is likely to be injured or is prevented from being established as a result of LTFV sales. The ITC will normally hold a formal hearing about half way through the course of its investigation during which interested parties, usually groups of domestic producers and importers may present evidence and limited cross-examination is permitted. The central questions to be decided are the standards of injury and the determination of which “U.S. industry” has suffered harm. Currently, the de minimis standard suffices: if any member of the industry “has lost more than an immaterial amount of sales to the LTFV imports, it is enough to justify an injury finding.” At the conclusion of its investigation, the Commission issues a finding of injury or no injury and reports it to the Secretary of the Treasury. The findings are accompanied by opinions of the Commissioner and are published in the Federal Register.

(5) Duty Assessment by Customs Service: When the Secretary receives notice that the ITC has found injury, the case is sent back to Customs Service for determination of the dumping duties and the past entries subject to these duties. The duty is the differ-

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362. Clubb, supra note 259, at 101. The definition of “U.S. Industry” seems flexible and is the subject of considerable controversy. In various cases harm may be found for a single company or for 100 companies; it may refer to a region or may include the entire country. See J.J. Barcel6, Antidumping Laws as Barriers to Trade — The United States and the International Antidumping Code, 57 CORNELL L. REV. 491 (1972).
363. Id.
ence between the fair value of the item and the LTFV price for which it was sold. After two years, Customs will consider a request to revoke the dumping finding if the foreign manufacturer's price has been high enough so that no dumping duties were payable.

(6) Judicial Review:364 Importers may challenge the determinations of the Secretary and U.S. claimants may challenge negative determinations in Customs Court. A challenger must submit written notice to the Secretary within 30 days after publication of the determination and the Secretary must then publish notice of the challenge in the Federal Register. Within 30 days of notice of intention to contest, an action may be initiated in the U.S. Customs Court.