royalty which, when paid, yields a paid up license.

One recent patented tool produced a significant cost savings even though the tool was low in cost. We felt that a through put royalty would be impractical, so we charged a fairly high percentage of the tool's sales price. At first our licensee said that it would be impossible to add a 10% royalty to the price and they would never be able to make any sales. During a few very good years, our licensees have been able to convince their customers and users of the tool that their price is not too bad even though it does include the premium royalty.

Some of you may be familiar with a recent U.S. Plywood case where an unusual royalty has established at $35 per thousand square feet of a specialized textured plywood product. I have no idea what the sales price of that product was, but I can imagine it was something less than $200 per thousand square feet. This $35 per thousand was established by the court as a reasonable royalty. It was probably the highest royalty that could have been imagined, but nonetheless the court found it to be reasonable. In this particular case, however, a small process improvement produced a textured plywood panel with great market acceptance. I recall years before trying to convince the U.S. Plywood people that $1.50/thousand was a reasonable royalty, but they refused to buy our process saying that no one deserves that type of a tribute even though there is a significant cost saving involved.

We have not been too successful in licensing know-how and patents involved in production processes where the licensee is a foreign party. In one case, this has involved the licensee-manufacturer in finding sublicensees to purchase the equipment line to manufacture the product using our process and know-how. This has caused difficulty in the amount of interference with our own operations involving training, reviewing the plans for the equipment designs and holding the sublicensee's hands during startup and receiving all the complaints afterward. I would say that in this area, there would have to be a lot more money involved before we could convince our operating group that the interference with their operation and the drawing on their key people, as well as the amount of foreign travel expense, is worth the effort.

Royalties are never scientifically determined. I recall a prenegotiation meeting with our technical, operating and law department people. Each man agreed that we would insist on a minimum royalty of seven cents. It wasn't until the meeting was well under way with the prospective licensee that it became clear that each of our representatives had a different basis for the seven cents. The technical man said seven cents per pound of chemical, the operating man said seven cents per ton of pulp and the lawyer thought it was seven cents per inch of width of product produced per hour. You're right — the licensee quickly remarked that seven cents was as high as he could go as they promptly accepted and picked the cheapest basis for the seven cent application.

**About the Speaker: Patrick D. Coogan is Patent Counsel, the Weyerhaeuser Company.*

Stanley Z. Cole

GENERAL SUBJECT — ELECTRON TUBE AND VACUUM DEVICES, ANALYTICAL INSTRUMENTS

by
*Stanley Z. Cole**

My comments are directed to licensing sophisticated scientific technology. This type technology in a licensing sense is understood to mean that each of the product, the invention, and the patent is of high scientific content.

Experience in this activity has been gained at Varian Associates headquartered in Palo Alto, California. Varian does about $200 million in sales and employs about 9,000 people. It has a number of manufacturing plants throughout the United States and a few in Europe and Canada.

The company functions through four substantially independent operating organizations and each has a distinct product mix.

Our largest group sells power and special purpose tubes, primarily for communications, industrial and medical applications. These include microwave tubes, tubes for radio and TV broadcast, and several types of X-ray tubes. We are also developing a broad line of solid state devices.

Our analytical instrument group sells products used primarily for chemical analysis, and various studies in the life sciences, including medicine. Products are also used to increasing extent in diagnostic medicine. Instruments include spin resonance and mass spectrometers, gas and liquid chromatographs, and several types of spectrophotometers.

Our information systems group makes minicomputers and computer systems as well as information

storage and retrieval systems using microfilm as the information medium.

A vacuum activity specializes in vacuum pumps, systems and instruments, as well as production equipment including leak detectors and coating systems.

Finally, our radiation division sells large numbers of linear accelerators used for cancer therapy.

Although physics and electronics are the primary technologies of our products and patents, we frequently work with complex mathematics and atomic physics.

We interface at all levels of the market, selling components into systems and selling total systems. We provide equipment on an OEM basis and we sell to the retail customer. We market to such diverse areas as directly to individual hospitals and to manufacturers of satellite communications sytems.

We spend about 7% of the sales dollar on research conducted in the operating groups and in a central research organization and the research tends to be high in scientific, inventive and patentable content.

Our objective today, is to discuss differences in licensing practice. Accordingly, I intend to consider certain common encounters or practices in our activities which are believed to be only occasionally present in most licensing situations.

For example, although university type inventions may come to the attention of anyone in a licensing situation, we probably consider more of these and enter license arrangements more frequently with the university scientist than companies known for other qualities.

We interface with the scientific community on several levels. Our products are sold, in large measure, to scientists. Our salesmen and marketing people invariably have engineering or scientific training and they are in contact with university scientists. University professors are used as consultants, while some of our employees teach part-time at universities. All these contacts at a high technical level result in licenses to Varian for further development and ultimate commerialization. Varian obviously profits from this kind of interchange, and we have made more than one professor very, very rich.

In a like sense, there are three areas experienced frequently while licensing high technology which I shall emphasize during the remainder of this talk. These are first, the use of experts, next the package type license, and finally, the royalty base for experimental, developmental or non-standard equipment sold by the licensee.

Experts

How does one negotiate a high science license?

In my first such negotiation the other party brought a contingent of people. Although the roles being played were not obvious, there were present businessmen, patent, and technical people.

Assisting me in these discussions were business, patent and technical experts.

What role did the businessman play?

First and foremost, businessmen know their business. When the business involves technically sophisticated equipment the businessman is likely to be sufficiently technically competent to engage in technical discussions when and if necessary.

The businessman who was assisting me is also a well known scientist. During the meeting, the businessmen engaged in technical talk at a level far beyond my comprehension in discussing the patent disclosures, their meanings and the meaning of the claims.

Additionally, his presence showed our company's serious attitude and our respect for the other party. Also, businessmen trust businessmen. No matter how well reputed the patent expert, he cannot speak to a businessman for a businessman.

Our technical man discussed technical aspects of equipment and of patents. He efficiently considered equipment manuals intelligently discussed circuit diagrams, and spoke the technical language to the expert representing the other party. The patents were considered and discussed in a similar fashion. Words in the claims were traced back into the specifications, the specification was related to the schematic representations and each technical expert was able to understand the other and in this instance, reach the same conclusion.

We all appreciate that understanding the other party's position and its reasoning is a way toward resolving differences. The technical expert can assist by communicating at technical levels and creating understanding for both sides.

It is not uncommon for the technical experts of both sides to engage in lengthy discussions and explanations to each other before there is understanding. Once this is achieved, the negotiation frequently moves quickly to a solution.

In my experience, technical experts in high science fields generally develop good working ability with patents. Mine have been good enough to seek guidance on patent law, but they generally know what the patents say and can with some guidance, speak to the meaning and coverage of claims.

I note that my prior experience was in the field of xerography and although typically large portions of each negotiating session was spent on technical matters, I cannot recall any negotiating meeting which included technical experts. In essence, in that situation, the attorney was also the technical expert. In the high science situation, the technical expert frequently extends himself, with agreement by the attorney, into some of the functions of the patent attorney. In such a role, he becomes almost an essential member of the negotiating team and as has been described, the businessman also sometimes plays this part.

Package Licensing

It is the premise of this segment of the talk that the technology in high science licensing is a sound basis to support the principle of package licensing. More specifically, courts have upheld package licenses entered into voluntarily where accounting practises are simplified. Automatic Radio Mfg. Co. v. Hazeltine Research, Inc., 339 US 827, 85 USPQ 378 1950; The Plastic Contact Lens Co. v. Geo. H. Buttfield, Sr. 151 USPQ 83. On the other hand, Justice has urged package licenses should be found illegal.

If one analyses high science licensing it is believed the practicalities of the circumstances compels the conclusion that package licensing is a necessary practice to enable the wheels of business to turn.

I would like to consider some typical situations that support this premise.

If an area being developed in a high science company is new and rather basic, the work tends to generate sizeable patent portfolios, particularly in early stages. Additionally, competitors don't take an interest until the products have proven their worth or the developer has made a market. If the opportunity is provided to another to enter the field through a license, a royalty for a group or package of patents tends to be the only practical technique to use. In this case, usually a license under a group of patents must be obtained to bring products to the market and the royalty rate for the product is likely to be impractically high if a rate set for each patent must be paid in respect to the ultimate product.

Another typical case is where there are three or four companies throughout the world with products in the market and the market is small. This is very common for high technology products in high technology markets. Although each company's products may have individual qualities, since all tend to serve a relatively small market, they all overlap in certain technological aspects and this tends to continue to be the case with the passage of time. In this case, how do you license when the prospective licensee is using more than say six patents — more than twelve patents? Further, it is recognized that this type usage of the other parties patents will continue for years. Again, in this situation, whether it be for prestige or the need to offer a full line of products to the market place, a license on a patent by patent basis doesn't offer adquate design freedom unless it is so expensive as to price the licensee out of the market. In this respect, it should be noted that royalty rates for this form of licensing can and should be set at higher figures than is the case for high sales volume products. If the rate for improvement patents is set at 3% per patent, are there likely to be many willing licenses at 18% if six patents are used — or is it less anti competitive to set a 6% rate for a package of patents.

We, of course, have granted licenses of individual patents and of packages. Most frequently however, the prospective licensee states its preference for a package. In addition, we find licensees on a patent by patent basis eventually seek to convert to a package.

Consider for example a licensee with a license, including a number of patents, each with its own royalty rate. As new equipment comes to market, or as new patents issue renewed questions occur concerning infringement.

The next problem to face is how to break this news to the existing paying licensee without ruffling feathers and then what to do about it.

Having overcome this last hurdle, either the licensor must carry the burden of showing use of additional patents and in such event, the licensee should make available equipment and co-operative personnel. If the licensee is to carry the burden of showing patents aren't being used, again equipment and personnel from both sides must be made available.

In the high science field, one tries to avoid buying and studying equipment since one unit might typically cost a $100,000 and it would cost multiples of this amount to analyze and fully understand its operation.

Instead, experts, technical and patent, visit back and forth and discuss details of the equipment and the patents.

Thereafter, conclusions are reported in considerable detail. Here again, let me remind you we are considering very complex equipment having high scientific content. Therefore, a review of the type described is likely to require from two to four weeks of high level technical manpower annually for each party.

When one or two patents are added annually to those previously licensed the parties quickly appreciate that the only practical solution is a package type license. Here again, price is a motivation. But a significant factor is the technology.

However, if one foresees these events the relationship is best started with a package license. This after all, is the most effective way toward competition. In essence, competition and lower prices are more likely if the parties avoid major annual expenditures in the process of molding a "pretty" license document which is created through tediously testing each patent against each product periodically.

Although we have many licenses for single patents, or for single simple products and a few patents, in my opinion when dealing with typical high technology areas there is a need in many cases which is best satisfied, using old fashioned horse sense, by package licensing. The horse sense approach may be likened to a rule of reason in dealing in complex technologies.

Royalty Base

My final topic is accounting for experimental or developmental or non-standard units.

This subject is of interest since the nature of our technology is such that the licensor and licensee recognize that such products are likely to be delivered by the licensee under the license and that a royalty should be paid. It therefore deserves coverage in the agreement. The problem essentially is how does one set measureable standards in a legalistic sense to avoid disputes and to assure appropriate royalty payments.

An example of language that might be used is taken from an actual agreement.

It reads:

ARTICLE VI

DEVELOPMENT CONTRACTS

6.1 VARIAN and each sublicensee of VARIAN, to the extent permitted under the sublicensee granted to it, shall have the right to make and proceed with development contracts for the development of methods and apparatus involving use of the Licensed Method and Apparatus. The term "development contract" as used herein is defined as meaning any contract (or purchase order) involving (a) the development of new

or modified operating techniques or methods, and/or (b) the designing of special (i.e., nonstandard) apparatus and/or (c) the construction and sale of special (i.e., nonstandard) apparatus.

6.2 Development contracts as defined in section 6.1 hereof shall not be subject to royalty payment; provided, however that any equipment made, sold and delivered in connection with such contracts shall be subject to the royalty specified in Article III, section 3.2 hereof. Net sales for purposes of royalty calculation shall in such event be the cost of material and direct shop labor involved in making the apparatus, plus a factory and general overhead factor equivalent to that being used in pricing standard apparatus made by VARIAN pursuant to this agreement or by the particular sublicensee involved in such transaction.

The greatest problem that can arise with this approach is confusion in respect to particular industries as to what elements are included in cost labor and overhead. However, if this problem is recognized, it is one that is easily solved with the assistance of accountants who can fairly designate those costs which would normally be appropriate in connection with such developmental type contracts in the particular industry. Obviously, a mark up is a matter for negotiation, and can also be added.

Many other approaches are possible. For example, a lower royalty can be applied against the full cost of the development contract. A dollar royalty amount ($10 non-standard product) or a royalty schedule can be used.

Other clauses have been used in agreements, for example:

A. Royalties shall be paid on a base which is the fair market value of the equipment delivered. My research shows that fair market value is not a valid standard since it has no defined meaning.

   Black's Law Dictionary collects definitions formulated by various courts at various times. All definitions listed are simply variations on the theme of the first definition given: viz., The price at which a willing seller and a willing buyer will trade. Montrose Cemetery Corp. v. Comm. of Internal Rev. 105 F.2d 238 at p. 242.

   Many of the cases where the phrase "fair market value" is defined involved the Commissioner of Internal Revenue as one of the parties. One such case provides the interesting definition: viz., The amount that would *in all probability* have been arrived at between an owner willing to sell and a purchaser desiring to buy. Karlson v. U.S., 82 F 2d. 330 at 337.

   In Am Jur 2d, the concept of "market value" is discussed in connection with DAMAGES and also in connection with SALES. Both sections discuss the problem of determining a "market value", but in every case discussed there is the underlying presumption of the existence of a *market*. Factors such as the cost of transporting an item to its nearest market are discussed in connection with the determination of the price that will be realized at the market; but the discussions invariably use an existing market as their frame of reference. In a number of cases, courts have accepted evidence of:

   1. The original cost (including the value of the materials and labor going into the production of the item involved), or
   2. The cost of reproduction or replacement, based upon either the actual cash outlay or the value of the labor and materials necessary for reproduction.

   as determinative of "market value". (22 Am Jur 2d, Section 149, p. 217) Annotation: 12 ALR 2d 919, S4; 12 ALR 2d 923, S5.

B. Including the value in net sales based on the estimated selling price in small quantities, I would suspect you can get as many different answers to this standard as you can get people to do the computation.

C. Including in the base for royalty computation an amount at which licensee would have sold such licensed apparatus to another, if licensee had made such sales. Such amount shall be computed and determined in the same manner as licensee's selling price of other apparatus of the same class.

   Here again, I would be concerned about the meaning of "if licensee had made such sales". For example, if the product was made in a model shop does one have to reprice it for a production facility, etc.

   It is noted that distinctions can and should be made between developmental or experimental units and non-standard units.

   The message is still the same. Simply, if the situation is likely to arise use a standard which is definitive in a legalistic sense for the appropriate case.

**About the Speaker: Stanley Z. Cole is Director, Patents and Licensing, Varian Associates.*

LES PLACEMENT COMMITTEE

Jobs anyone? The services of the Placement Committee are available to applicants looking for positions in the licensing field. Please send your resume (five copies preferably) to the Chairman of the Placement Committee:

John L. Sniado
Director, Patents and Licensing
Kennecott Copper Corporation
161 East 42nd Street
New York, New York 10017

Companies or firms looking for licensing personnel are invited to send their requirements in confidence to the Chairman of the Placement Committee at the above address. The Placement Committee matches the resumes received with the requirements of the various available openings. Resumes that appear to meet the requirements of any available openings are then forwarded for consideration.