

party at the fabulous home of Bernardo Gomez Vega and his beautiful wife and daughters. They have to be the world's most gracious hosts. A cocktail party supreme hosted by AMPI at the Camino Real, a welcoming cocktail party at the hotel, and a gala dinner-dance-cocktail party banquet with mariachis, guitars, etc. Several other events were arranged for the ladies, including lunch at San Angel Inn and a tour of homes, and a Mexican style brunch at the hotel. Special thanks go to Björn Vadillo, President; Eduardo Correa, First Vice-President; Antonio Excalante, Second Vice-President; Jorge Juarez P., Secretary; Antonio Lorca, Treasurer; Oscar Becerril, immediate Past-President; and all the other members of AMPI, who were responsible for an outstanding program and superb hospitality.



Oscar M. Becerril

NEW TRENDS IN MEXICO FOR THE INFORMATION, LICENSING AND ADAPTATION OF TECHNOLOGY

*by
Oscar M. Becerril**

There are some very interesting facts about the present technological status of Mexico which are very little known to the rest of the world and which I consider to be of the utmost importance to you members of the Licensing Executives' Society, taking into consideration that you are deeply engaged in the transfer and licencing of technology all around the world.

Firstly, I would like to point out that there is a general tendency among foreigners to underestimate the capacity of Mexico to fully and intelligently analyze, select and even adapt a foreign technology prior to its importation into our country to be used in

creating certain products or services. There is a tendency to think that, if results are desired, our country must be forced to import what we call a "technology package", that is, a technology fully created and developed in a highly developed country and including the basic patented or patentable knowledge, the know-how, the basic engineering, the detailed engineering, the procurement of equipment, machinery and materials, the erection and starting of the manufacturing premises, the training of technical and non-technical personnel, and even full assistance in managerial and financial activities to secure that the working of the project will be successful. Let me say that nothing is more far from reality than this, as we shall see.

Secondly, and let me be very frank and honest in this respect, common and even highly trained people in highly developed countries tend to think that we Mexicans are still carrying feathers on our heads and dance around a fire to pledge for rain. Under the circumstances, Mexico is thought of as a country without the slightest opportunity of creating or developing technology of know-how of its own, and which therefore has nothing to offer in the technology market in the world. Let me say that this belief is also absolutely wrong and that it has not been fully realized that in Mexico nowadays more than 250 public and private research institutions are working and are being coordinated by the National Council of Science and Technology with the aim of trying to create a "low-scale" type of technology which may be competitively used in small or underdeveloped countries where the "large-scale" technology developed in highly developed countries is not useful because it requires a down-scaling of the commercial plants with the consequent economical disadvantages due to the very well known exponential downscaling factors which originate a higher plant cost per unit of product when the capacities are reduced.

Last but not least, I also wish to point out the fact that apparently the large countries have forgotten, when they bring technology and know-how into Mexico, that the national Mexican market is rather low in consumption as compared to that of the large countries which provide said technology. Said countries, however, besides not making any effort to adapt the technology to the low scale type of production which must be contemplated, do include restrictive clauses in the license agreements involved, which avoid the Mexican users of said technology either to conduct some research of their own to improve the same or at least to adapt it to their needs, or to try to increase their markets through exportation of the products or services generated by said technology on a competitive basis. Indeed it has been my experience that most of the license agreements executed between foreign concerns and Mexican users of imported technology contain clauses requiring that every improvement or modification of the basic information received by the Mexican user, will remain as a property of the foreign company providing the technology. This, of course, discourages further research and development and results in the creation of Mexican plants which are not

using an adequate technology for the low capacities permitted by a limited market. This, in turn, forces the Mexican users of this inadequate technology to ask the Mexican Government to close the borders thus originating a captive and protected market for these plants, which is highly detrimental to the Mexican consumers who must pay more for the products or services provided by said technology, and also to the international commercial relations because the Mexican Government is being forced to very frequently forbid the importation of products and services into Mexico on account of this single fact. In addition to this, the damage is completed by the incorporation, in the license agreements, of clauses forbidding the Mexican users to export the licensed products or services.

You will clearly see from the above facts that this type of licensing of technology from the highly developed countries towards the scarcely developed countries like Mexico, constitutes, I may say, a rather vicious practice, because on the one hand said technology has been developed for a very large scale production and must be downscaled to render it apparently useful for the low scale production permitted by the rather restricted markets of the small countries, thus being an inadequate technology under these conditions and, on the other hand, the prohibition to export contained in the common type of license agreements, does not permit the Mexican users of said imported technology to expand their markets in the hope that the large scale technology provided may serve their purposes. If this practice continues, we may be sure that the Mexican Government will very likely impose by decree a rigid control of license agreements, which might be detrimental also to foreign concerns engaged in the licensing and importation of technology and know-how into Mexico.

Now, for one thing it is a very well known fact that after about 80 centuries of a rather static productivity in all the countries of the world, the so called "industrial revolution" triggered the growth of some of said countries — less than 10 to be precise — to such an extent that the apparent equilibrium was disrupted. This led us to a situation where six countries of the world generate — and apparently consume — more than 60% of the world production, whereas more than 100 other countries generate — or consume — less than about 3% of said production.

If we validly assume that the gross national product of the countries represents an index of their capacity to consume, we can group the countries of the world into several categories. Assuming that the gross national product of the United States of America represents 100%, the following groups of countries can be formed: A first group formed by the United States and the Soviet Union, the latter with around 60% of the gross national product of the former. A second group of highly developed countries each representing more than 10% of the market of the United States, namely, France, Japan, Germany, the United Kingdom and Italy, in that order, which jointly represent about 60% of the United States but with 50% more population. The third group of countries is formed by

five countries of intermediate development which individually represent from 3 to 10% of the United States as to potential market, namely, Canada, India, Australia, Brazil, Mexico and Spain, in that order, jointly representing a little over 20% of the gross national product of the United States but with four times more population. Sixteen other countries have potential markets representing from 1 to 3% of that of the United States and jointly representing under 20% of the United States with around two times more population. Finally, 104 countries are individually considered to have well under 1% of the potential market of the United States, altogether representing around 15% with seven times more population. — Dreadful, is it not?

I apologize for having brought about this statistical information, but my only purpose was to properly determine the rank of Mexico among the countries of the world. You will see from the above that Mexico is twelfth in the world as to gross national product and, consequently, as to its potential market for consuming products and services, as well as technology.

In other words, Mexico is a country which requires and will continue to require the importation of technology from the highly developed countries of the two first groups mentioned above, but is a country which requires technology suitable to be used competitively and efficiently at low capacities. This means that if the highly developed country does not provide a technology thusly adapted, Mexico has to adapt it if efficient results are desired.

Adaptation of technology to the Mexican requirements is a problem to which several Mexican and foreign institutions are directing their efforts. The adaptation problem has been divided into two main areas, namely, the educational which includes first the development of a suitable method or system for adapting technology to low scale production from the information provided by the large scale production technology extant in the highly developed countries, and the teaching of said method or system to students in the different areas of engineering; and the provision of suitable pilot plant scale laboratories where the adapted technology can be worked out in order to obtain all the technical information to be transferred to a commercial plant having the suitable low capacity required by our country.

The Mexican Institute of Chemical Engineers jointly working with the National University of Mexico, Chemical Engineering School, has already worked out such a theoretical method or system for adapting foreign technologies. This method, which has been called "Theory of the Basic Modules", has been developed in terms of the chemical engineering field, but it contains such basic and fundamental principles, that no doubt engineers will be quite able to apply it to other fields.

It is not my intention to describe this method in detail and perhaps it will suffice to say that it is a theory intermediate the "Transport Phenomena" and the "Unit Operations" of chemical engineering, whereby a complete process can be outlined as a sequence of basic modules, namely, storage of

materials, handling of materials, physical or chemical transformation, separation and control. Each of said modules can be separately analyzed by using a simpler mathematical tool than that used in transport phenomena, but with a higher abstractional level than that required for unit operations. For instance, if we recall that in Mexico labor is about four times cheaper than in the United States, and electrical energy and capital investment about twice as costly, then perhaps when analyzing a "separation module" an automatic centrifuge can be advantageously replaced by a smaller manual centrifuge instead of a downscaled automatic one, or even perhaps a plurality of filter presses could be used, since labor is of secondary economical importance. This is how this thing works, very broadly speaking but, simple as it may seem at first sight, it has taken a large amount of effort from several of our outstanding scientists, sponsored by the Mexican Institute of Chemical Engineers and by E. I. duPont, Mexican branch.

This theoretical research to find a national method for adapting technology without the obviously detrimental downscaling which has been customary up to the present date, has been considered by some foreign institutions as a very serious effort toward a scientific method for adapting technology generated for other needs and, as a very important step to fully develop this novel theory, several members of the Washington University of St. Louis Missouri held a series of meetings with members of various Mexican institutions including the Mexican Institute of Chemical Engineers, the National University of Mexico, the National Politechnical Institute, the Ibero-American University and the Mexican Government represented by members of the National Council of Science and Technology. A number of very interesting papers originated from these meetings, but unfortunately they are not available to the public as yet. Nevertheless, the above will show to you that very important efforts are being made in Mexico to avoid the importation of "technology packages" which imply the importation of technology and know-how which are generally unsuitable to the Mexican requirements.

In connection with the provision of suitable laboratories having sufficient facilities to erect complete pilot plants to work out either a novel technology fully developed in Mexico or to adapt an imported technology to the Mexican low scale requirements, I am proud to inform you that, out of the 250 public and private institutions for research and development which I mentioned at the beginning of this informal lecture, at least 15 or 20 can easily offer this type of services at the pilot plant level.

Just to mention a few, the chemical engineering schools of the National University, of the Politechnical Institute, of the Latin American University and of the Monterrey Technological Institute have very complete chemical engineering and electrochemistry laboratories where pilot plants of almost any chemical process industries or electrochemical industries could be easily worked out. On the other hand, the National Center of Technical Industrial Teaching has very complete installations for pilot plant research in the

mechanical, electrical, metallurgical, mining, electroplating and surface treatment fields. This will give you a birds eye view of the present capacity of Mexico in connection with research and development. I would like to mention, however, some very important technological contributions of Mexico which are very well known at the international level, or which are of sufficient importance to deserve a special mention in this lecture. For instance, there is the technology for the manufacture of sponge iron, a substitute of pig iron manufactured without the need of coal, which process was developed some years ago by the Mexican metallurgical concern Hojalata y Lámina, S.A. The Mexican Petroleum Institute has recently developed a new generation of catalysts for the catalytic cracking of petroleum fractions; a novel process for demetallizing petroleum fractions; a process for desulfurizing natural gas and petroleum; and some novel technics for drilling oil wells. The Mexican Institute of Technological Research of the Rank of Mexico has created a novel technology for processing corn and wood. A novel and quite efficient process for the manufacture of different types of papers from sugar-cane bagasse has been developed by the Mexican concern Industrial de San Cristóbal, S.A. A new low capacity and highly economical method for the obtention of rubber anti-degradants such as substituted dihydroquinolines has been developed by Industria Química Ameyal, S.A. Finally, if we consider the art of building, I think that Mexico is a leading country in the world, especially in the field of foundations for buildings.

Dealing now with the engineering phase of a project, I must say that in Mexico there are about 20 or 25 engineering firms, some of which are quite capable of working out all the basic engineering and the detailed engineering of said project. All of them are of course quite capable and qualified to carry out the detailed engineering of a project, as well as the procurement of equipment and materials, so as you will see, occasionally we will require to import the basic engineering, but we will never require to import detailed engineering services or the like.

All the above remarks will lead us to the conclusion that there is indeed a new trend in Mexico as to the importation, licensing and adaptation of technology, which can be summarized as follows:

First, Mexico does not want to import the so called "technology packages" and, instead, would like to import only certain parts of said packages. We are perfectly aware of the fact that the more we grow, the more technology we must import. But we want to import only what we need, and what we need is not indeed a technology package, but only parts of said package which are not available in our country.

Second, we do not want to import technology and know-how obtained from commercial plants requiring a downscaling procedure without any adaptation to render it useful under the conditions of the Mexican market. There is a very important tendency toward the importation of information of prior stages such as the pilot plant stage, or even the laboratory or so called "table stage", so as to enable our technicians to work out the adaptation of said technology through

the use of the new theoretical principles mentioned above. Or perhaps we would sometimes prefer to receive the basic information contained in a Mexican patent with the addition of certain basic know-how, in order to develop and adapt said information to the Mexican needs.

Finally, we would prefer to receive this technology and know-how through license agreements not containing unduly restrictive clauses such as those forbidding exportation of the licensed products or services; those stating that every further development or improvement of the received technology will be the property of the owner of the basic technology and know-how; and those which designate the sources of equipment and materials. In the first instance, you will realize that the Mexican users of technology will have to be contented with a highly restricted market which cannot be expanded to more efficiently use said technology; in the second instance, it is more than obvious that further research and development of the imported technology will be discouraged and perhaps breaching of the license agreements will be encouraged; and in the third instance, Mexican users of imported technology do not see any reason for this type of restrictions, inasmuch as these stages of a project can be perfectly well carried out in Mexico at a much lower cost and with exactly the same efficiency.

Gentlemen, this is the message that I would very much like you to carry to your respective countries, since I feel that it represents the present trends adopted by many of the Mexican manufacturers, and of course it represents the desires of the Mexican Government which I feel must be earnestly taken into consideration by those who are engaged in the transfer and licensing of technology and know-how.

Thank you very much for your kind attention.

**About the Speaker: Mr. Oscar M. Becerril was born in Orizaba, Ver., Mexico on August 21, 1926.*

He completed in Apizaco, Tlax., Mexico his elementary and secondary studies. He completed his preparatory and professional studies at the National University of Mexico in Mexico City.

He obtained his Chemical Engineering degree at the National University of Mexico on October 24, 1949.

From the year of 1946 through the year of 1955 Mr. Becerril worked in different Mexican industrial concerns in the fields of metallurgy, iron and steel, rubber and plastics, alkalies, fertilizers and in the field of engineering and erection of chemical plants.

From the year of 1949 to 1958 he was contracted as a full time consultant by Banco de Mexico, S.A., Department of Industrial Engineering, during which period he acquired a vast experience in many fields of Mexican industry and he was fully trained in industrial engineering and economical aspects of Mexican industry.

From the year of 1958 to 1964 Mr. Becerril was actively engaged as an independent technical advisor of practically all the patent law firms in Mexico.

From the year of 1964 to 1968 he established his own office for practicing in the Industrial Property

field under the firm name Olivares & Becerril, which firm was exclusively engaged in Industrial Property matters. From 1968 on, he established his own patent law firm under the name of Becerril & Becerril which is also exclusively dedicated to Industrial Property matters.

He is an active member of the following professional associations:

Mexican Industrial Property Association (AMPI)

National Mexican Group of AIPPI

Interamerican Association of Industrial Property (ASIPI)

United States Trademark Association (USTA)

Mexican Institute of Chemical Engineers (IMIQ)

Mexican Chemical Society (SQM)

Mr. Becerril is presently President (Chairman) of AMPI (Mexican Industrial Property Association) and was the first Vice-President of said association from 1970 to 1971. He is presently member of the Organizing Committee for the XXVIII Congress of AIPPI. He is a technical and legal advisor of Vallejo Industrial Association (AIV) in Industrial Property matters.



Antonio Davalos O.

LEGAL PROTECTION OF TRADE SECRETS IN MEXICO

by

*Antonio Davalos O.**

Because of the eminently technical age in which we are living, the concept of know-how acquires every day more importance in the economic and juridical fields in all countries. Progress is constantly being achieved in the industrial field, and there are numerous requests by enterprises all over the world for information regarding said achievements. It is, therefore, important to establish an appropriate regime containing pertinent norms for protecting the rights of