DEVELOPING NEW TECHNOLOGIES:

A CHANGING INTELLECTUAL PROPERTY SYSTEM.

POLICY OPTIONS FOR LATIN AMERICA

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NOTE ON METHODOLOGY

It is certainly impossible to contrive any set of policies that, applicable to the Latin American countries as a whole, would show to be a sensible approach towards the Intellectual Property protection of the newest technologies. Political, historical and economic differences render it impossible to apply the same policy in Brazil and Costa Rica, Mexico and Haiti.

On the other hand, it is possible to analyse the most recent trends in the Intellectual Property system taking into consideration that all SELA member states share to variable degrees an inability to produce or, in certain cases, even to emulate the technological results of the new times; an easy assumption is that all protection of those technologies will benefit directly only the more developed countries. As Stated Karen M.Ammes in a Note on the U.S.Semiconductor Chip Protection Act of 1984 (17 Law Pol'y Int'l Bus 395 (1985)),

"....if the Act succeeds in creating effective international protection for semiconductor chips, it will protect the U.S. position at the forefront of the semiconductor industry"

The author tried thus to perform an inquiry on the reasons of the Intellectual Property System, in which it regards to technological creations. In every instance, the spotlight was directed to the benefits that society may draw from the granting of patents, copyrights, etc, as it was always understood that those rights were not intended to be egotist, unjust privileges, but had features enjoyable by all on a somewhat equitable basis.

Therefore, the author refrains from pointing out what each country in Latin America should be doing. On the contrary, this study tries to expose what other countries are already doing to protect their interests in this field, in a way that is not necessarily akin to the assumed interests of Latin American Countries

Those analysts more used to statiscal and related data will notice the conspicuous absence of any figures of a such a kind in this work. As explained, the methodology adopted did not require such data and the author assumed that most relevant information

is already available to the reader from other sources.

In 1883 the oldest multilateral economic treaty still in existence was signed in Paris: the Convention on the Union for the Protection of Industrial Property. Together with the Berne Convention for the protection of literary and artistic works, dated of 1886, the former was to shape the International Intellectual Property System in the century to come.

After those treaties, patents and trademarks were turned into transnational legal institutions, necessary adjuncts to the market oriented economies, whereas the Right of Authorship ("droit d'auteur") patterned in the German and French legal tradition became the paramount standard for the protection of intellectual creations.

A relative stability and a growing universability were the main characteristics of such system: more and more countries became parties to one or both Conventions and even though the membership to those treaties was never all-encompassing, approximately the same objects were deemed as protectable under the various national legal systems

Within the Paris Convention, a series of limited agreements was devised to cover matters of less than universal interest, for instance, the protection of the "appelations d'origine", the establishment of an international trademark mechanism, the protection of designs, etc. Therefore, the text of the Convention allowed for ample room for both the legal systems following its minimal standards and those intended to comply with more complex requirements.

The main deviant legal institutions, as compared to the pattern of the Conventions, were the copyright system prevailing in countries of Anglo-Saxon extraction and the inventor's certificate typical of some States, the economy of which is non-market oriented. But even such institutions were eventually rendered compatible with the mainstream Intellectual Property System, either by creating a separate treaty environment where the different approaches could live together (the "Universal" Copyright Convention) or by establishing in each pertinent country parallel structures for patents and inventor's certificates

That rather stable treaty structure, however, was to be modified in the early sixties by new agreements necessary to deal with new technological fields not adequately

protected within the prior patent system.

The first important international agreement dealing on Intellectual Property after the two grandfather Conventions (1) was that establishing the International Union for the Protection of New Varieties and Plants (UPOV), signed since 1961 by 17 countries. The patent-like system then created in a supranational basis was taking into account the commercially meaningful developments occurred during the last decades in the agronomical technologies.

The rising of the new biotechnologies also led in 1977 to the execution of another general treaty, which notwithstanding its rather ancillary purpose (2) emphasises the role of the intellectual property in the development of new technical areas. Already signed by 18 countries (including both the U.S.A. and the U.R.S.S. but excluding Japan), the Budapest Treaty on the International Recognition of the Deposit of Microorganisms seems to be the advanced echelon of a new set of agreements required to extend legal coverage to biological inventions.

Some other probably interesting new proposals where not yet converted in actual International Agreements: the exercises held within the World Intellectual Property Organisation (WIPO) to discuss the advisability of a Software Treaty (3), for instance, had no issue to date even though new meetings have been convened on the related, but quite distinct, question of the protection of semiconductor chips. (4) When it is possible to point out international legislative initiatives as those lastly mentioned, as a rule much more commotion was already felt in the national level; by dedicating our preliminary remarks to the multilateral conventions and discussions, therefore, we tried to stress the importance of the new technological conquests for the changing of the Intellectual Property System.

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(1) Besides the limited compacts within the Paris Convention, it is to be noticed the existence of some minor general treaties (as an agreement on the recognition of scientific discoveries, another extending intellectual property coverage to recording artists, or a treaty on the protection of typographical signs, etc.) and many regional systems (Interamerican, European or African patent conventions, etc.). The Universal Convention duplicates to some extent the Berne Convention, but embodies the Anglo-Saxon concept of Copyright, as opposed to the Continental notions of a Right of Authorship.

(2) This treaty only deals with the international recognition of specialised institutions, capable of acting as depository of microorganisms; no provision addresses the substantive protection, if any, accorded to the pertinent biological inventions.

(3) Wipo's draft treaty - Doc. LPCS/II/3 (1983) Apparently due to the lack of U.S. interest, the discussions on the issue were dropped in July, 1985.

(4) wipo's Memorandum. Doc. LPCS/II/4

THE NEW OBJECTS

Since the creation of the first national patent system, in the XV Century, the idea of Intellectual Property is connected with the mechanical arts: a new machine, a more efficient tool, an improved lever are the easiest examples of a patentable invention. A new chemical compound is a more magical creation:

its utility is probably understandable, but not so its structure; even so, also there the patent was an early acquisition.

Industrial processes, on the other hand, are invisible elaborations; they are not things to touch and see, even though apparent through the disposition of apparata on a plant, or by means of a written procedure instructing how to combine some chemicals. The patent system was never worried about visibility or comprehensibility: processes, like products were almost instantly recognised as a proper patent object.

The patent only wants reproducibility, and only needs to know how the invention can e put into practice.

For the patent was never intended to be a scientific tool: it was created to substitute the older trade secret as a means to protect an economic value, particularly important face to the competitors. The Jacobean Statute of Monopolies of 1601, understandably in a time where the lack of alternate technologies granted extraordinary economic advantages to whomever knew how to do anything a new way, both considered the patent a monopolistic instrument and absolved it from such a sin for the novel industries it encouraged.

The blessings of the laws enacted since 1710 to support literary, artistic and scientific creations were however directed to other purposes. They did not try to favour any industry; much to the contrary, their intention was in part to free the authors from the excessive power of the printing entrepreneurs, in part to pay homage to the moral value of the intellectual ingenuity.

The Anglo-Saxon tradition stressed the former intent (wherefore the notion of copyright), while the French and (to a lesser extent) the German legal systems tended to emphasise the latter through the concept of a Right of Authorship.

According to the legal doctrines prevailing since the early years of the new "Intellectual property" laws (1), the patent statutes were deemed to protect the utilitarian substance of the technological inventions whilst the copy or authorship rights covered the form, not the substance (even less the utilitarian substance) of the respective creations. Therefore, the industrial utilisation of any invention functionally equivalent to a patented one was prevented under the law, even when the teaching of the patent is freely employed in any intellectual, scientific or, generally, non-industrial purpose.

The authorship and copyright laws, on their side, could never oppose to any work functionally equivalent to the protected ones: as a matter of principle literary, artistic or scientific creations are not functional beyond their expressive intent. Such works were produced to express ideas, concepts or sensations all of which are legally free from property; as remarked Hegel:

"...the purpose of a product of mind is that people other than its author should understand it and make it the possession of their ideas, memory, thinking, etc...Now to what extent does the new form which turn up when something is expressed again and again transform the available stock of knowledge and in particular the thoughts of others who still retain the external property in those Intellectual production of theirs, into a private mental property of the individual reproducers?... Thus copyright legislation attains its end of securing the property rights of author and publisher only to a very restricted extent..." (2)

To sum this up, patents were deemed to grant a property on the substance of the intellectual creation (or to be precise, on the utilitarian substance of it) whereas the property issuing from the authorship or copyright laws was restricted to the external expression of such creation. In any case, the intellectual content of creations was considered free from legal property restrictions.

In this context it is obvious the need for an objective test of utility, which might identify an intellectual creation as a proper subject for a patent. All the national legal

systems adopted either by direct statement or by collateral restrictions to patentability the requirement of industrial utility, which is approximately described in a rather phaenomelogical fashion as the ability to affect the states of Nature (3) Therefore, no statute accepted as patentable inventions consisting in purely mental constructions, like rules of games, investment schemes, etc. (4)

Thus the applicable test was whether the creation was capable to make tangible things heavier or lighter, softer or harder, acid or mild, stable or explosive. It was a simple, even if imperfect standard: the intellectual power to affect the tangible world was liable to be protected, but as in the Hebrew chorus of Verdi's Nabbuco, the thought should be free to fly on its golden wings.

By the mid XIX Century, probably as a result of improved transportation technologies, the protection of trademarks became a internationally accepted need. Now property was sought for names and figurative signs, attached to the products of a business activity whereby the quality of the goods (and later the excellency of the services) could be publicly communicated.

The ownership of words and symbols was not held to detract from the general freedom of thought or speech. Within the stringent limits of its commercial purpose, a trademark could derogate from the semiological principle that the link between a thing and its symbol is conventional, as it became a matter of legal relationship.

Even if the trademark owner was not forced to use it in connection with his trade, no one else was allowed to call his own wares by the reserved name.(5) Therefore, the trademark remains an arbitrary sign in regard to the thing designated, except that someone acquires under the industrial property laws an exclusive right to designate which things shall attach to which signs within a field of commercial activity.

Since the days where a trademark was simply used to teach the faraway buyer which industrial or merchant was responsible for the quality of the product much thing

changed. A trademark turned into a value in itself and advertising investments created a trademark quality that has not always much to do with the good or service; it was therefore the first of the intellectual property rights in which the actual object of protection was sheer investment.(6)

The necessity of protecting the industrial design creations caused some further conceptual elaboration and much embarrassment. The national legal systems did not settle even today in an uniform method of protection, with significant variations since the use of copyright to a patent, including "sui generis" approach and dual or multiple coverage.

Even tough the problem of design inventions is not a new one (France had special laws forbidding copy of the patterns of its National manufactures very early in the history of intellectual property) the legal art was never able to tackle the problem adequately , probably because of the inherent duality of those creations, partly aesthetic and partly industrial. They are not pure works of the mind, nor their purpose is simply expressive; they are utilitarian works, although unable to comply with the standard test of industrial utility.

A tapestry design, used as pattern for a thousand copies is no more capable of affecting the states of the Nature than a book can melt a block of steel or an opera cause the acidification of wine. But it is industrially reproducible, in such a way to enhance the decorative properties of an useful object; its utility is to lend beauty to usefulness.

If the legal status of the design creations was never definitively settled on an international basis, it is rather surprising how fast the breeder's rights found international (but not general) consensus. From 1921, when a pioneering Czech statute created a trademark-like protection, through 1940, when the first actual breeder's protection law was enacted in Holland, until 1961 when the UPOV was created a comparatively short 40-year span. However, the new Intellectual Property right required a conceptual revolution of sorts to insert its rules within the framework of the prior law.

For such reason, a study of that rather obscure though important intangible right may help us to understand the peculiar defies posed by the new technological objects to the

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(1) The concept of "intellectual property", so reminiscent of the legal notions embedded in the Code Napoleon, was evidently never entirely compatible with the English notions of a patent as a kind of monopoly or of a copyright as an exclusive reproduction right, but was generally accepted to describe the general field which we are addressing to.

(2) Philosophy of Right , par. 69

(3) Cochrane v. Deenes, 94 U.S. 780

(4) Utility and usefulness are quite different legal concepts in Patent Law: for most statutes it is indifferent whether the invention is handy (useful in the everyday sense) or utterly uneconomical.

Industrial Utility as a concept could be also employed to distinguish the purpose of the mechanical arts (or of chemistry, including the conventional organic chemistry) from the results of the biological sciences or technologies outside of the conventional organic chemistry. But the Paris Convention (Art. I Par. 2o.) specifies as remaining under its coverage wines, grain, fruits, cattle, etc being therefore quite clear in defining as industrial even the results of agricultural techniques. Already in the mid XIX Century patents were being issued to straight biotechnological inventions.

(5) The modern trademark is not obligatory in connection with the designated product: it may be disregarded by its holder whenever he so thinks fit - except in the few countries as for instance, Hungary where a trademark means a product of a set, mensurable quality, it being legally forbidden to use the name or symbol in goods or services not fulfilling the standard. On the other hand, a number of countries impose upon the trademark owner an use requirement, namely that the mark should be employed regularly in connection with a business activity, irrespective of the quality or characteristics of the marked product.

(6) Some authors have remarked that the building up of a trademark by means of massive advertisement has much in common with the construction of a character in a novel; in both cases only sometimes the result is a "roman a clef" bearing any resemblance to reality.

PLANT VARIETIES AND INTELLECTUAL PROPERTY

In 1930 the patent legislation of the United States was altered in order to allow the patenting of new plant varieties reproduced through asexual means - thus excepted all seed reproduced varieties. (1) According to the relevant legislative history, the choice of the asexually reproduced breeds as the beneficiaries of the new protection was due to the fact that at that time only they fulfilled the minimal homogeneity and stability conditions required for a patent .

Therefore, those plant varieties were admitted to the general Patent environment and submitted to all their rules, with some stated exceptions: contrary to what happens with any other invention, the varieties were not subject to a written disclosure of the content of the new art, which should enable an average man of art to reproduce the patented item. Under such law the patent report must simply identify the variety and not its technological cause.

Outside that requirement, no other special condition was imposed to obtain the patent: it was required that the protected item should be an invention resulting from human ingenuity and not a discovery of a natural growth; the variety should be new as any mechanical invention, it should display the same non obviousness and no deposit of the variety with a specialised institution was provided for.

On the other hand, the exclusive right comprised not only the commercial and non-commercial reproduction of the plant as well as the sale and even the use of it (2), therefore much exceeding the scope of a regular patent.

In the following forty years the Plant Patent was rarely used except by ornamental plant growers ; in 1970, when a Plant Variety Protection Act was voted in the Congress, the UPOV model was chosen instead of the traditional Industrial Property standard.

What happened since the first U.S. Plant Patent of 1930 was the upsurge of the new agricultural technologies, the protective necessities of which were not compatible with the old Patent System. By 1961 the model of some European legal systems

(beginning with the model law of 1940) was already deep rooted in a way that could be generalised in a International agreement, wherefore the new Convention signed at that date, the UPOV.

The UPOV is distinguished from the Paris Convention for a series of provisions, which are to be uniformly followed by the substantive legislation of the various member countries besides the usual rules of national treatment, priority, etc.

Those general rules have as their effect the creation of an entirely new kind of technologically-oriented Intellectual Property right in great part opposed to the traditional ones.

To begin with, the UPOV don't require that the protectable matter be an invention. As it was stated, only man-made creations are reputed to be patented under the Paris Convention standards: discoveries of natural properties or things are not patentable, however useful may them be.

Therefore, the applicable concept is the economic utility and not industrial utility (3).

On the other hand, the concept of novelty that even though not defined in the Paris Convention is universally understood - in connection with regular patents - to be a purely intellectual quality (4), receives under the UPOV a different treatment. The various national legislations may adopt (and some have effectively adopted) the notion of economic or rather commercial novelty instead of any cogniscive standard. For instance, the Swiss Law reads on the matter the following:

"The fact that a variety is generally known shall never affect its novelty except if at the time of filing it had been under the due permission from the person who obtained the variety (or the latter's successor or representative), commercialised in Switzerland or, if for more than four years, also abroad (5)."

When the new legislations under the UPOV are examined, another aspect becomes apparent: once more, the new system is contrary to the Paris Convention by empowering the breeder to restrain the exportation of the protected variety to countries where the similar protection exists, notwithstanding whether the seed or plant has been legally acquired under the pertinent law.(6)

This last characterist of the UPOV, added to what was pointed out before strikes the mind as revealing a new kind of object that requires a new kind of protection. For inventions and works of intellect were protected till then for the information they convey, which required ingenvity, time or money to produce; there would not be any reason to restrain the exportation of a product to another country albeit without protection while the information that would enable any qualified manufacturer to reproduce the item is available in the art (including the teachings of respective patent itself).

But this new object has an objective reproducibility beyond the knowledge: as a rule it is not required to have any information about a seed to obtain a crop. (7) In other words, the ability to reproduce such biotechnological items has nothing to the with technology itself: as living objects they took the reproduction task on themselves.

That explains the further requirements of the plant breeder's laws: the variety must be distinguishable from other generally known varieties by some agrotechnical criteria; the various singular examples of a variety must display a set of homogeneous characteristics that may cause to identify them as a variety; and such distinguishing and homogeneous characteristics must be stable through the subsequent reproduction or propagation phasis. (8) In brief, the variety has to have the intrinsic agrotechnical qualities required to enforce an exclusive right of reproduction without affecting the legitimate interest of third parties and the public.

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(1) Townsend-Purnell Act, 35 U.S.C. par.161-164 (1976)

(2) 35 U.S.C. par.163.

(3) In the concept of industrial utility there is implied the concept of invention: not only it is required that the creation has the ability to affect the states of Nature but also that it must be a creation and not a discovery of something already existing in Nature. The patent invention in its classical model must depart from man to reach the Nature and not otherwise. See Doc. Ompi BIOT/CE/I/3 par.42.

(4) The fact of being unknown face to the existing Art.

(5) Swiss Law of March 3, 1975 , Sec.2 par.5 . The Spanish

Law of June 10, 1977 (Art. 43) took a more conservative turn by stating that the novelty is broken either by publication or by commercialization; the French law of June 11,1970 chose the classical approach to novelty.

(6) UPOV Convention Art.5(A). German law, sec 15,4. Under the Paris Union Legislations, most probably the exclusive rights under the patent would no go so far.

(7) The VPOV system does not provide for the protection of the breeding methods or processes,which may come sometimes under the regular patent laws.

(8) It is a well known fact that the investment in many agrotechnical products may be better protected by their inability to reproduce or propagate keeping homogeneous and distinguishing characteristics: at each few generation a new seed must be acquired from the breeder to obtain the set quality. The lasiest example in this contextis corn seeds.

PATENTS AND BREEDER'S RIGHTS

Under the Paris Convention the granting of a patent usually requires the fulfilling of six different conditions. (1) In first place, patents are only granted for inventions, that is to say,men-conceived methods of solving a technical problem; then these methods must be not publicly known before in such a way that they should be deemed not novel.

Most countries require that this novelty should be qualified : the method, although unknown,must not be obvious to an average man learned in the pertinent art (other countries also demand that the novelty should be relevant face to the prior art). On the requisite of industrial utility we have already dealt extensively; but nothing has been said hereinbefore about the condition of reproducibility nor about the quite related condition of repeatability.

In fact,those last two requirements are rarely if ever, mentioned as such in the patent laws. As for conventional inventions, the condition of reproducibility is identified with the requirement of sufficiency of report (and is thus provided for in the statutes): the creation must be described in the written report with such sufficient detail that a man with an average knowledge of the art might replete the problem-solving steps. In the plant variety protection laws, where the report has an intent of distinguishing but not of providing a verbal analogous of the protected object, the fulfilling of the condition of reproducibility is sometimes assured through the depositing of a specimen in an institution.

As for the repeatability requirement, which might be stated as the ability of an invention to solve the technical problem to which it is applied each time it is so done, it is liable to be confounded with its subjective counterpart,the reproducibility condition. The stability requirement of the breeder's rights laws is a quite similar requirement.

According to an UPOV study (2), the protection offered to a plant variety is both less extensive and less demanding than that provided for regular inventions.

A breeder is not required to show any qualified novelty of the variety (nor any novelty whatsoever in the sense of the patent system); the industrial utility is assumed. On the other hand,the exclusive right issuing from the plant variety laws is restricted to the reproduction-intending commercialization: the farmer may (provided that he is technically able) freely employ the seed in his own fields or to use the new generations of the plant as source for seeds; the only thing he is not allowed to do is to sell the seeds as such.

Also the production of new varieties on the basis of the protected growth is irrestrict, except if the new kind requires the reiterative use of the prior variety; furthermore, the results of the agricultural exploration of the variety (the crop) are as rule, free from any control.

What results from that comparison is the notion that a different balance was sought between the interests of the introductor of a new variety and the public. In the conventional patent system the balance of interests lays on the exchange of an information therefore unknown for an exclusive, temporary right to reproduce the thing or employ the process under the patent.

The new balance does not emphasize information but availability of the self-reproduced product. It places the intellectual property concept in its barest minimum: the ability to reproduce a good is a capital good itself and deserves legal protection exactly due to such reason (3).

(1) A seventh one is the requirement that the invention should not be a statutorily forbidden matter as in some countries are the pharmaceutical creations.

(2) Doc. UPOV (A)/XIII/3

(3) This concept was already found exactly as stated in Hegel, Philosophy of Right, op. cit, loc. cit.

THE NEW BIOTECHNOLOGIES

The conceptual and legal elaborations resulting from the plant variety issue somewhat prepared the Industrial Property system for the gene-splicing revolution that should follow.

Many of the aspects never before questioned (the notion of reproducibility is an egregious example) were first introduced by the breeder's right laws.

The problems related to the plant varieties were solved, however, outside the regular patent system and many economic and legal reasons induced the utilisation of the Paris Convention structures for covering the new products and processes born from the more recent biotechnologies. (1)

To attain such purposes it was necessary to review the various patent laws to check their compatibility with the new technological object, beginning with the Paris Convention itself. As already mentioned, the Convention statedly covers the field of biotechnology, even though no country is obliged to do the same within its national laws. (2) Once it is found that the pertinent national legislation does not prohibit the patenting of biotechnological items by any clear, direct provision, therefore, it is necessary to analyse each case to confirm whether the matter for which the protection is sought is actually an invention. (3) In the US Supreme Court case of Chakrabarty (4), which for the first time accepted the patenting of a microorganism in that country, the main issue was whether the pseudomonas (a petroleum-eating microorganism intended to act as antipolluting device against ocean oil spillages) was

a creation of man. Was it found in nature or was it actually as invention?

No straightforward prohibition to biotechnological inventions existed in the U.S. on the eve of the Chakrabarty case, but a number of countries exclude from patenting animals, plants or more rarely, living matter. (5) Other countries denies patentability to the essentially biological processes for the production of animals and plants.

But as it was already seen, in many of those countries a parallel legislation ensures the protection of varieties of plants themselves, what in most cases preempts the issue

of the process patent for the same growth.

There seems to be no intrinsic opposition between the patent system and the living matter: it is something that a country may chose to accept or reject according to its economic or technological policies. Even during the judicial discussions on Chakrabarty the question was only analysed to see whether the existence of a specific legislation for plant variety meant that the general patent laws were unable to cover living matter (it was felt that such assumption was not correct). The denial of patent protection to essentially biological processes,on the other hand, does not result from any specific rejection of such inventions but only signals that such processes are not repeatable or reproducible as requisite under the patent laws. (6)

Under such laws,the inventor must provide in the patent report data to enable the intellectual reproduction of the invention; by the disclosure of such report at the statutory time limits there is an expansion in the state of art. In biotechnological inventions sometimes a product can be copied (or repeated, to employ the more adequate term) without any intellectual apprehension of how the result was attained; the state of the industry may be expanded there with without affecting the state of art.

Before the new developments of biology, the essentially biological processes could never be described in the required detail to allow for the creation of a model of the process at stake; the state of art remained untouched by the novel process and in many cases not even the repetition of the same effect was achieved with manageable certainty.

Except for the very few cases where a full and complete report may be written, those biological processes stay immune from patenting under the regular patent system. Similar reasons would prevent the patenting of biological products as for example, microorganisms. (7)

Under the law of a growing number of countries it became acceptable that the deposit of the microorganism in an institution can be effected in lieu of a description of a living matter, which in the circumstances would be no more than sheer poetry. Repeatability alone seemed enough in those frontiers of technical knowledge.

Even though the issue is being subjected to an ongoing examination at the pertinent international fora, it seems possible to conclude that the protection of biological

inventions will lead to a new balance of interests between technological inventor and the public, as it happened with the plant variety system. This is most probably the task for the years to come .

(1) Biotechnology was defined by the World Intellectual Property Organisation as encompassing: "All the technological developments concerning living organisms (including animals,plants and microorganisms) and other biological matter" Doc.WIPO/BIOT/CE/I/3.

(2) Bodenhausen, Guide to the Paris Convention, BIRPI,Geneva,p.26.

(4) Diamond v. Chakrabarty, 447 U.S.303 (1980)

(5) No legal system but maybe that of the U.R.S.S. accepts exclusive rights on animals.

(6) Doc. WIPO BIOT/CE/I/3 por.42

(7) See Doc.UPOV (A) XIII/3 PG.31

SOFTWARE: A TOUGH MATTER

A player piano sounds as it is directed by the pierced paper rolls: the multiple pins of the metal roller read the tiny holes where the music was translated into instructions for the machine; and the keyboard reacts accordingly. The same kind of method enabled a weaving machine to follow a pattern already in the XVIII Century; similar procedures governed cams and other like instruments well before any electronic computer was even anticipated . Therefore, programming a machine to perform variable tasks is nothing new in the history of technology; these programmes were not considered as a problem within the Intellectual Property System. In a much quoted decision, the U.S.Supreme Court found in 1908(1) that no copyright attached to player piano rolls, because the translation of the music in mechanical movements by means of the instruction contained in the piercings was not intended to be read by the human eyes; a certainly keen but amusing conclusion. But an entirely new question arose when the electronic computer age enabled a programme to instruct another programme to perform some tasks in a machine. The player piano rolls could be actually deemed to "utter only work" as John Hershley wrote in its famous dissent to the conclusions of the U.S. Congressional Commission on new Copyright issues (2); but the nature of the work performed now through the computer programme was in most cases much more complex than the mere mechanical pressing of keys on a keyboard.

Programmes that interact with other programmes permit to go beyond the mechanical univocity of the player piano rolls: one piercing, one note. Depending on the programming context, one instruction may be translated to the electronic machine in multiple ways according to various syntaxes. This complex tapestry of instructions, capable of interacting consisted in the first man-made immaterial machine of the History. The symbolic appearance of such immaterial machines together with the inability of the patent laws to assure exclusivity to the developers of softwares induced to the tentative employment of the copyright as a form of protection. In the mid-sixties the U.S. Copyright Office was already accepting filings of software works,although refusing to confirm whether the item filed was actually under the

protection of the copyright laws.

The statutes and courts only began confirming that option by the late 70's. The Microcomputer Era rendered it impossible to keep on protecting softwares on the basis of trade secret and contract schemes as it was the prevailing practice before that; while hardware was by far the most expensive item in computer systems and only a relatively small number of users (almost all corporate) was in the market, the pressures for an exclusive protection (3) was not felt so strongly.

For computer programmes are, like plant varieties, copy-prone products. Except for complex and mostly ineffectual protective schemes,programmes are liable to be copied easily (in fact they are conceptually destined to be copied though not for commercialization). Once microcomputers entered into market by the tens of millions,the demand for exclusive protection grew together with the added exposure to the new buyer with whom no contractual or confidential relationship was meaningful : programmes were now being sold in supermarkets like sausages.

No one, however was actually confident that the copyright system was the most adequate mechanism for protecting software. Since the 1969 Galbi-IBM proposal (4) (five to ten years' protection with mandatory registration),the advisability of a new kind of intellectual property is being extensively discussed throughout the world. Andre Lucas, in his outstanding 1985 book, (4) remarked that the creation of computer software is markedly different from the classical industrial invention to the extent that it does not result in transforming or reducing a subject matter into another state or thing (5).

Being expressed in symbols of various kinds resulting in intangible effects, the computer programmes could not be easily covered by the patent laws of any country were the notion of industrial utility was embedded. No state of the (physical) nature was affected by its utilisation except in the few cases when the programme was employed as a part of an industrial system controlling mechanical, electric or chemical apparata; incidentally, the first U.S. patent on computer software (6) was granted precisely in a industrial context: the programme governed the opening of a value following sundry sensorial data.

Even though the physical effect requirement is progressively dispensed with in

the very few countries where programmes are patentable,most laws statedly or impliedly void the patenting of software on the argument that rules,games and mental processes in general are unprotectable under such system. Furthermore, the high standards of non-obviousness applicable to other technological creations are not compatible with most software inventions: much more perspiration than inspiration is required in the making of a programme.

On the other hand,the prevailing industrial, or more properly economic, purpose of software creations seems to distinguish it from the scientific,literary or artistic works usually considered as being copyrightable matter. Therefore,as Professor Lucas puts it in a rather paradoxal expression,software is an abstract industrial creation.

To follow a more practical line of reasoning, neither copyright nor patents fulfil the software owners' needs nor comply with the general interests of the public. The inventive level or novelty in a software creation is usually much lower than that required for granting a patent: since the US Supreme Court decision in the Diehr case (7) allowing for certain software patents, a relatively small number of applications have passed through the stringent standards applied generally by the US Patent and Trademark Office.

On the other hand,copyright protection only covers actual copying. A developing doctrine states that every utilisation of software within a computer constitutes copying,therefore encompassing use and copy of software under the same rules.

However,using the basic concepts of a programme to create new programmes does not infringe the principle that copyright covers expressions and not ideas. This disadvantage has not prevented copyright becoming the most common form of protection used nowadays in the developed countries.

From the standpoint of the public interest,as opposed to the software developer's interest, copyright seems to be an excessive and unreasonable form of protection, totally unbalanced in favour of the software owner. The very long term of protection,the form of acquiring the right (in most countries without any registration requirement) and the moral rights issue seem to weight against the use of copyright as a consciousnable form of protection.

Under the moral rights principle, in force in many civil law jurisdictions, the titleholder to a copyrighted work may withdraw an already sold or licensed work from publication, irrespective of prior commitments to buyer or licensee, eg in Brazilian Copyright Law,Art 25,IV.

Furthermore,a literary or artistic work-designed legislation does not provide for the legitimate needs of the community, as, for example, compelling the software owner to work his right in the country under pain of revocation or compulsory licensing. The development of a few,locally produced computer industry could be impaired if the foreign software owner could prevent adaptations of an existing library to the new hardware product.

Thus the complexity of questions involved has rendered the issue an extremely taxing problem for legal practioners and technicians alike. Basically, the question has been approached in the developed countries as one to be solved by stretching as far as possible the existing legal structure.

The developments in the USA,as shown in he Diamond case and in the 1980 amendments to the copyright law (8), and in many other countries, consisted in declaring software as patentable or copyrightable matter, disconsidering its peculiar nature and problems. Amazingly, in the matter of semiconductor chip protection the U.S.A. took the opposite stand.

The trade secret protection, formerly extensively used, has not shown to be adequate to all the requirements of a consumer-product software age.

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(1) White-Smith Music Pub.Co. v. Apollo Co., 209 U.S. 1 (1908)

(2) National Commission on New Technological Uses of copyrighted Works (CONTU), created by P.L. 93-573 (December 31, 1974)

(3) Neither contracts nor trade secrets provide exclusive protection; only patents and to much lesser grade, copyright may so protect a technology.

(4) E Galbi,Proposal for the Protection of Computer Programmes,17 Cop Soc.Bul 280,1970.

(5) La Protection des Creations Industrielles Abstraites,Andre Lucas,Lib Techniques,1975.

(6) Cochrane v Deenes,94 US 780.

(7) Diamond v.Diehr,450 US 175 (1981).

(8) PL 96-517,94 STAT 3028-29;December 12,1980.

A MATTER OF CONVENIENCE

However,all that considered,most countries adopted copyright as the legal system for protecting software,even when an alternate patent title is also available,as in the United States. Not all those countries have done it willingly: the Brazilian case makes a good story.

Choosing the middle way - neither patent nor copyright - seemed to be the Brazilian final stand as regarded the protection of computer software. A bill submitted to the Senate on November 1, 1984 was a clear indication of this: it protected software owners against copying, but went further by preventing the unauthorised use the of software,for instance,in the employment of a programme to feed hardware other than that originally allowed, or by the sale of the copy to a third party. (1)

On the other hand,the proposed legislation granted an 15 year term of protection,a much shorter period than that provided by the copyright laws (but of the same extension of a Brazilian patent),and proposed a rather complex compulsory licence mechanism both on the grounds of relevant national interest and plain non-working. At the end of the term of protection,the software (in source code) was to be published and entered into public domain.

Such Brazilian bill followed to some extent the December 1983 proposal by the Japanese MITI (2), which similarly advanced short periods and compulsory licensing. A 1983 study of the French Patent Office (3) also proposed a "middle way" protection but as an alternative to the other forms of protection already in force as was proposed in the 1978 WIPO Model Law for software (4).

The November 1984 Bill,which the author, as representative of the Patent Office,has helped to draft was then expected to be the most significant contribution to the future law.

The Bill provided for one encompassing form of protection in lieu of copyright and patent protection; the protection was acquired by registration,but trade secret protection was assured to unregistered software, and self-destruction or

cryptographic means are allowed. Unregistered software was generally subject to all obligations imposed on registered software,except publication.

Under the proposal,the legislation covered both programme and ancillary documentation as well as its derivative works even though the exclusive right was restricted to programmes and its versions.

Brazil,Japan and France could never have the legislation of their choosing; WIPO abandoned its projects of a "middle way" form of protection. After spending a long period brooding over MITI's proposal,Japan enacted (in 1985) an amendment to her regular copyright law,which falls into line with the legislation of other developed countries.

France in July 1985 done the same, introducing in her copyright law a set of provision designed to protect software, whereby an Anglo-Saxon approach rather than her traditional "droit d'auteur" was the result. By the same time,a WIPO meeting on the protection of software was dismissed on the conclusion that there was nothing to discuss as copyright was deemed to be enough.(5)

It seems to be a curious coincidence that on the same month that the Brazilian bill was submitted to the Congress (October,1984) the American President sanctioned into law the new Trade and Tariff Act,one of the titles of which contains a pronouncement of the Congress stating formally that all countries should adopt the copyright system to protect software lest they should be the target of severe US retaliations. If it is probably a real coincidence face to the of the Brazilian bill, no doubt whatsoever exists that the Act was intended to strike preemptively the MITI's (Japanese) draft,as it actually did. On September 7,1985, President Reagan announced he has ordering the commencement of proceedings against Brazil on the basis of Section 301 of the Act. On August 26,1986 The Brazilian National Council of Informatics (CONIN) advised the President of Brazil that a "modified" copyright legislation was the correct way of protecting software; the Executive proposal that reached the Brazilian Congress late December made references to the copyright law as providing the grounds for the protection,otherwise unespecified.

Why it happened so? One simple answer was provided by Michael S.Keplinger, an U.S.Official in charge of negotiating with the Pacific Basin countries the

enactment of copyright laws agreable to the American interests (6): it is better to have an International system based on the imperfect copyright than nothing; in the future a new,specific system could be devised as an enhancement of the existing standards of protection.

The Intellectual Property System must really be international,if it should stay along; this issue will be dealt with in a further section. However,it seems that broader perspectives,well beyond the field of intellectual property,inspires the U.S.Government in this point,in connection with which it has been acting as leader of the other industrialised countries.

Anyway,the options taken in this issue are quite difficult to understand by those accustomed with the older Intellectual Property notions applicable to technological issues. Changing strategic interests rather then changing technologies seems to be the explanation.

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(1)Senate Bill No. 260/84 by Mr.Virgilio Tavora,Diario do Congresso Nacional of December 4,1984,p 4814

(2) Information Industry Committee,Industrial Structure Council,Protecting Software. Interim Report,December 1983 (unpublished).

(3) Vers une protection des logiciels Informatiques. 100 Revue de la Propriete Industrielle 380, 1984.

(4) WIPO's Model Provisions on the Protection of Computer Software, 1978.

(5) An Australian court decision against the copyrightability of software was overcome at this same time by a new statute accepting the American standpoint. The

rebellious Australian courts have recently counterattacked by finding that only the creations following the law were protectable.

(6) 1986 Computer Law Institute, New York, Sep. 18 ,1986

SINFUL PIRACY, HOLY BARRATRY

Making a semiconductor chip (so the American Congress was told in 1983 (1)) takes years of research and costs up to one hundred million dollars; but in some months an industrious copier may be able to duplicate the item, at a cost around US$ 50,000.

Something should be done to protect U.S. industry against such pirate competitors.

But Patent Law once more had shown to be ineffectual : "The circuits, however, are generally well known and thus unpatentable ... The development of a new mask work is unlikely to satisfy the standard of invention" (2)

Moreover, the trade secret is also unavailable, for the valuable technology - the chip design - was quite apparent in its silicon wafer; and copyright was denied because chips are useful articles with no identifiable artistic feature and, which condition is required if the item is utilitarian. (3) Software was held to be copyrightable under the 1980 amendments to the U.S. Law, and many softwares reside in chips, forming the so-called firmware; but even when recognised the copyright in the software, the chip design was excluded (4). The explanation is that software always conveys information, thus falling without the notion of utilitarian object, whereas a chip may be used to processing automobile carburators, vacuum cleaners, etc.

The U.S. Congress could simply revoke that requirement, as it had already adapted the copyright Law to cover software; but it has done much more and created a sui generis form of protection (which it has outlawed for all other countries in regard to software). The reason for this different treatment was easily understandable: chosing a sui generis approach would save the United States from the trouble of granting national treatment to all foreigners under the Universal Copyright Convention(4).

A purely national system, asking for reciprocity to assure protection to foreigners, seemed the best choice; predominance for the American industry, not cooperation in the works of intellect was the intent.

The Semiconductor Chip Protection Act of 1984 (5) as the first example of protection of this new object has already found a close copy in the Japanese Law on the same matter, which entered into force on January, 1986 (6).

Some other countries, even not having any such legislation, were granted interim protection under special proclamations, provided that they behave well and hurry up with similar statutes: EEC countries, Australia, Canada and Sweden were the happy beneficiaries.

But the more interesting aspects of this law, from the standpoint of this analysis, is again that the technological product at stake is singularly lacking of ingenuity. According to a statement included in the Senate Report:

"A chip may be the product of millions of dollars and thousands of hours effort, but it is the result of hard work, not invention" (7)

The invention itself was probably the idea of using processed silicon wafers to substitute the transistors that did the same job before; the making of each specific chip is merely the mechanical, if tiresome, result of long known formulas.(8)

Making a chip requires approximately the same creativity one employs to fill an income tax return - perhaps even less. Aside from those amusing comparisons, what results from the new laws is the notion that the Intellectual Property System is now being used to protect investment and not technology; all the prior reasoning on the protection of technological creations was at last disposed of.

This conclusion is further supported by the treatment accorded in the 1984 Act to the issue of reverse engineering.

At least in theory all knowledge implied in a patent is available to the public, and therefore in this context reverse engineering is unapplicable; but in the matter of trade secrets the analysis of a product to know how it is made is commonplace and highly regular. Even in the case of copyrighted software, it might be argued that reviewing the technological concepts implied in the programme to see how the result were attained is a perfectly allowable procedure: copyright only protect form, not substance.(9)

But no Intellectual Property Law has regulated, reverse engineering as a specific

limitation of the rights of the owner. Provided that the new product is not entirely identical to the one subject to the reverse engineering, and that the mask work (the pattern used to manufacture chips) is not a straight copy, the result of the reverse engineering is allowable as now infringing. There is only one further requisite, which exposes naked the actual purpose of the new Intellectual Property legislation : the new manufacturer must evidence that the realised a considerable expenditure of time, effort and money (10). No showing of creativity, novelty or scientific ingenuity is requested.

On the other hand, the U.S. Chip Act displays some other very interesting features. To begin with, protection results from registration and the fulfilling of some peculiar conditions; the creation of the mask work is not enough to ensure copyright as it happens with literary or artistic creations.

The requirement of originality imposed on the chip submitted to registration does not follow the usual copyright standard, which requires simply that the item must be more than a simple copy; but the slight amount of novelty requested stays very far from the novelty condition under the patent laws.

The same problem is once more approached when the statute denies protection to functionally dictated forms: if the particular design has a technical purpose (for instance, saving silicon or enhancing speed or higher frequency response) this aspect is only protectable trough the regular patent system. (11) It seems to be very clear that this new legislation is not intended to cover technology in the same way as the patent laws do. Chips, software, books and trademarks are things easily copied, and its legal treatment is felt to be necessarily similar. Apparently, the time is coming where all legal diversities presiding those rights shall melt into a general commandment to add the Moses' original ten: Thou shalt not copy thy neighbour's doing.

As we shall see, the new tables of law are already being cast.

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(1) Sen.Rep. No. 425, 98th Cong. 2d. sess. 4.5

(2) Karen A.Ammer, op. cit., p. 400

(3) The copyright Office notwithstandingly had already accepted some utilitarian objects on the basis of Mazer v. Stein, 347 V.S.201 (1954). There is no specific design protection in the U.S.A.

(4) Apple computers v. Franklin Computer Corp. 545 F. Suppo. 812 (E.D. Pa. 1982), rev'd., 714 F. 2d. 1240 (3rd. Cir. 1983) .

(5) H.R.Rep. No 781, 98Ch. Cong. 2nd. Sess. 2n.2. National Treatment under the conventions is to assure to foreign beneficiaries identical rights as compared to nationals.

(6)17 U.S.C. par. 901-914

(7)Law 60-43 of May 31, 1985. see. Industrial Property, Sep. 1985, text 1-001. This law does not require reciprocity and assures national treatment.

(8)Another problem alleged against patentability of chips is the time-consuming procedure, slower than the pace of the art.

(9)"The line drawn between uncopyrightable facts and copyrightable expressions of facts serves an important purpose in copyright law. It provides a means of balancing the public's interest in stimulating creative activity against the public need for unrestrained access to information." Miller v. Universal City Studios Inc., 650 F.2d 1365, 1371-72 (5th.circuit, 1981). An extensive examination of all problems related to reverse engineering within U.S. law (but applicable to other systems) may be found at reverse engineering computer software, by Brooks and Burk, in Computer Software and Chips 1985, vol. I p.677-803. Whelam Associates, Inc. v. Jaslow Dental Laboratory, 609 F.Supp. 1307 (E.D. Pa. 1985) Aff' - Slip opinion 3d. cir. August

4, 1986 to 85-1358 seems to modify the whole concept of ideia - expression in software copyright, concluding that reverse engineering should be curbed.

(10)Semiconductor Chip Protection Legislation in the USA and Japan, Richard H.Stern, in the proceedings of 21st. Biennial Conference of The International Bar Association (1986).

(11)Richard Stern op.cit. , at p.4 House Rep., at foot note 49. Sen. Rep. at p.6

ALL THINGS INTELLECTUAL OUGHT TO BE INTERNATIONAL?

In a most keen analysis of the Industrial Property System, Edith Penrose(1) remarked that a patent system must be international to be effective. If in a country a patent as granted for a novelty the industry benefited with the right will have the opportunity of recovering the prior research expenditures by means of the exclusivity under the patent, the result shall be a higher price than what will amount the cost of imputs plus average profit level; probably, as it was shown by Vaitsos in connection with the pharmaceutical industry, much, much more.(2)

If a neighbouring country, however, denies patent protection to the same product or process (provided that its industry is capable of utilizing the novelty),its consumers will benefit from the new technology at competition prices; a better situation therefore, than the consumers of the country where the invention was made; moreover, to recoup the costs or to enhance the profit margin the patentee will probably try to extract from his exclusive market what he is losing elsewhere.

The conclusion thus,is that in a purely national system the country investing most in technology will be the more injured in its world competitive power,as the general prices would tend to be higher, social pressures more demanding and the domestic market less flexible. This may be easily extended to the effect of copyright on technological products,as software.

Penrose also noted that, even if the patent system must not be purely national, it can be and historically has been nationally limited to some countries. For long years, Switzerland (already a member of the Paris Convention) refused to grant any patents although her nationals abroad could get protection for which was denied in their own country; and persisted doing so until her industry reached an internationaly competitive level.(3)

In fact, in most cases the technical inability to exploit an invention was a much better deterrent than any patent system; but to keep exclusive export markets without

technical capability even there a patent was desirable.

In the case of copy-prone technologies, this barrier is almost non existent; even small, backwards countries can copy a computer programme. This, countries where the denial of adequate patent protection was never felt as crucial may recently become the target of the industrialised countries (mostly American) offensive in favour of an elaborate copyright protection.

After the July, 1986 GATT meeting in Uruguay, it seems that the discussion of Intellectual Property, service and technology issues within the framework of the agreement will be unavoidable. The historical frontiers that separated trade in physical goods and trade in intangibles are apparently liable to disappear in the next few decades.(4)

What this approach could bring to the Intellectual Property System now in existence? The answers seems to be easy: interconnecting the conventional GATT mechanisms with the parallel structures till then regulating trade in intangibles and Intellectual Property should lend the most industrialized countries and added punch while negotiating protection for the new technologies and for exports of service and investment.

The assumption is that a new division of jobs will necessarily occur among the developed countries and the rest of the world in the near future. The now industrialised countries shall progressively turn their economies to the lighter sector leaving to other countries the smoke stack role but keeping the financial and technological reins that ensure world leadership.(5)

The tendency may be read in the historical series to trade balances of the United States: investment and service income substituted export income all over the 60's and 70's; invisibles took over. In the case of physical goods exported, the much higher evaluation as compared with earlier years showed that the technological content tended to grow on an almost geometrical proportion.

If such forecast is to become true, a very efficient international legal structure must be built in order to fit the flow of technology and services to the new scene.The unhappy event that most new technologies are copy-prone probably

made this requirement a very urgent one.

By bringing Intellectual Property to GATT, the developed nations are setting the scenery for a bargaining exercise where access to their markets would be liable to be traded for free flow of hi-tech products and invisibles. The "My data processing services for your canned manioc" kind of bargain could be implemented within this enlarged GATT.

Those Latin American countries, the economies of which must be geared to exporting in order to solve their credit unbalance, are particularly exposed to that bargaining strategy.

The immediate access to a larger buyer market may seem to be a fair price for the establishing of an enhanced. Industrial Property System, capable of ensuring the protection of the new technologies or the market share for trademarked items of foreign sources.

In this context, the position of Latin American countries seems to be a very difficult one. The developed nations have determined that for attaining a new division of economic roles the enhanced protection of Intellectual Property is an absolute necessity; and as it was seen this conviction may be well justified under the Intellectual Property theories.

Evidently, the attitude of each Latin American country regarding the GATT or other similar initiative will depend on the kind of role such state envisages as his in the predictable future.

For those countries that foresee an active role as producers of technology or large consumers of technology products in the years to come,it would seem to be advisable to follow the Swiss example, which otherwise was also the choice of many industrialised countries for some technological fields or for some limited periods.(6)

On the other hand, other countries may find it wiser to take profit of the general development of technology in the industrialised world. The technology itself have been causing the shortening of the periods of technologic diffusion:more and more people enjoy from technical advances introduced just a few years or months before in other countries.

In any case, the negotiations within GATT will probably take their time, too much time for the interest of the hi-tech industry states; they shall be most probably exerting bilateral pressures on Latin America to ensure faster changes in the regional Intellectual Property scene. What will they be requesting ?

According to a document prepared by the Intellectual Property Committee of the U.S. Chamber of Commerce(7), the shopping list seems to be a huge one:

b) All countries should be subject to an international review of their legislation and practice; developing countries shall enjoy a period of grace to adapt their legislations, which would not exceed two years.

c) WIPO would be in charge of technical assistance programmes to developing countries.

d) Patents had to be issued for any new invention, including pharmaceuticals, plants agrochemicals, food,biotechnology and software;terms shall not be less than 17 years from grant.

e) Importation has to be deemed working the patent for purposes of compulsory licensing.

f) A minimum 5-year period has to be accorded to trademark owners to begin or resume working; no requirement like joint marking with local trademarks may be imposed.

g) Three dimension trademarks have to be registered.

h) Trademark licensors are not to be required to provide technology or products to licensees.

i) Copyright must be assured to software, data bases and any newer or emerging form of expression; compulsory licenses must be only granted in the most extreme cases; no registration or other formality should be required to the full enjoyment of the rights.

j) Trade secrets must be protected as personal property, without term of duration. No disclosure must be imposed except in case of public health or safety,

even then under appropriate assurances of further non disclosure.

l) Integrated circuit layout designs must be protected in addition to every other Intellectual right for at last 10 years. No compulsory licensing to be allowed.

m) Licenses are not to be dependent on Government approval.

Those demands are clearly excessive: not even the U.S. legislation, that is probably the most liberal, could provide all this - as the document itself avers when discussing copyright.

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(1) La Economia Del Sistema International de Patentes. Ed.Siglo XXI,1974. Mexico.

(2) Constantine Vaitsos: Patents Revisited. Pacto Andino, 1971.

(4) Since its first draft, the General Agreement included trademark provisions,which notwithstanding were mostly disconsidered face to the much more complex and probably efficient Paris Convention system.

(5) This prospect is stated, with eventual qualifications, in every yearly report sent by the U.S. Executive to Congress on the State of Union since 1981.

(6) In connection with pharmaceutical patents, only after having ensured an adequate market share the developed countries (with the exception of the United States) included full protection in their legislation. From 1919 to 1949, the United Kingdom ceased to grant such patents;West Germany begun granting them

by 1967, Switzerland by 1978, Italy by 1980.

(7) Basic Framerwork of a Gatt Arrangement on Intellectual Property, December 18, 1986. aceutical patents, only after having ensured an adequate market share the developed countries (with the exception of the United States) included full protection in their legislation. From 1919 to 1949, the United Kingdom ceased to grant such patents;West Germany begun granting them by 1967, Switzerland by 1978, Italy by 1980.

(7) Basic Framework of a Gatt Arrangement on Intellectual Property, December 18, 1986.