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INTERNATIONAL PROTECTION OF
COMPUTER SOFTWARE

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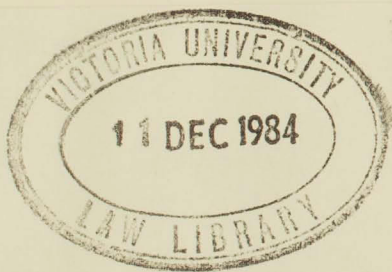
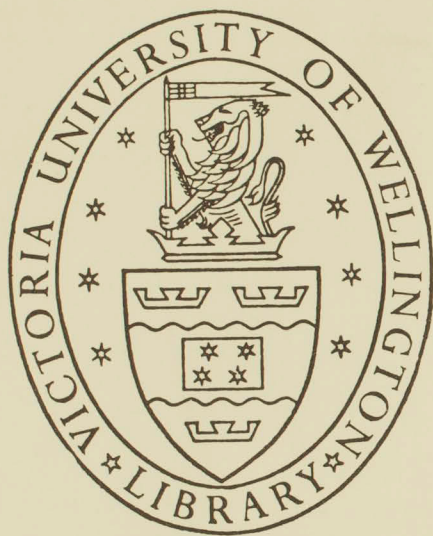
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FINLAYSON, C.F.

International protection of computer software.



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I. INTRODUCTION

In the last two decades, copyright has become one of the most contentious legal issues. Broadcasting, cable television, music, film and book publishing, and computers are increasingly becoming areas of vigorous policy debate. In particular, two major changes have occurred in copyright technology. Firstly, the profits to be derived from at least some copyright works have become very great: in consequence, there has been a greater tendency to copy without permission and, in turn, strong pressures have arisen to more effectively protect the interests of copyright holders. Secondly, the international dimension of both copyright abuse and protection has become greater. This is partly because of the general factors affecting much else in society - rapidity of communications, greater ease of movement; it is also because many of the new ways in which copyright material may be created have immediate international applicability.[2] A computer software program may be used as effectively in Paris as in Wellington.

In the 18th Century, when the first English Copyright Statute was passed, the literary community was only concerned with the printed word. The Statute of Anne 1709 went no further than provide protection for books. The 20th Century however has seen increasing technological change. First came the development of photography, then films, then radio and television broadcasting, and all of these required both national and international protection. Today there are numerous technological developments - satellite broadcasting, cable distribution systems, audio and video recording, reprography in all its forms, and computers - and the skills to link all these new manifestations of technology into vast multi-facility networks.

Writers are now referring to either the Second Information Age or what is called "second order technology". Copyright doctrine has now been confronted with the influence of second order technology, which are:

"New methods for reproducing and disseminating copyrighted works. Rather than merely enlarge the universe of copyrightable works, science is inventing, and the market system is distributing, new devices for recordation,

information transmission, and reprography (instantaneous reproduction of audio and visual material). This technology has greatly undermined the ability of copyright owners to control the distribution of their works; publishing has become easy, inexpensive, and anonymous. Strains in the application of copyright law are inevitable, for despite its technologically nurtured evolution, copyright still presupposes the existence of a well defined, discrete universe of publishers."[3]

The writer concluded that the Age of Gutenberg is in its twilight, and that the law must be prepared to respond in order to ensure both the continued creation of intellectual and cultural works and the availability of such works to the public.[4]

Where such technological change occurs, the law at the international and domestic level inevitably follows slowly after. When looking at home taping, Mihaly Fiscor of the Hungarian Bureau for the Protection of Human Rights made the following remarks:

"Quantitative changes developed into qualitative ones. The fundamental law of dialectics should be borne in mind when thinking about the affects of the technological revolution on copyright. The stages of development are fairly similar in many cases:

- a new way of using works emerges.
- there is neither a specific provision in the legislation nor a precedent in jurisprudence for this use (simply because it is a new one).
- if users (as well as the producers of the means necessary for such use) can find the slightest possible chance of interpreting the lack of a clear cut answer in copyright law in a way that makes free use possible, they base their practice on that.
- the possibility of a new use is more and more widely exploited. That boom is promoted also by the fact that the use is thought to be free.
- the fight begins for authors' rights and interests."[5]

This trend can be seen in the principal problem areas in the law of intellectual property today. The major challenges to the existing copyright system are:

(a) Reprography

Reprography simply means the production of copies of original materials. Whereas in earlier times this was virtually impossible, and accordingly was never really in issue, today in the Age of Wang and Xerox, reprography has become very much easier. It is particularly common in the case of both tapes and videos. The Courts of all countries have been faced with the problem of piracy, and the problem has become extremely serious in recent years. For example, the report of a taping survey carried out during January 1982 in Australia on behalf of the Australian Record Industry Association concluded from a sample designed to represent 74% of the Australian population, that during a period of 12 months an equivalent of 55.1 million LP's were taped either from records, pre-recorded tapes or from radio and television. At an average retail price of AUS\$8.00 per LP this represents AUS\$440.8 million per year.[6] Some countries are doing nothing to counter this challenge. Singapore, for example, is regarded as the World's more prolific producer of pirated audio cassettes. Indeed the Singapore market is nearly 100% pirated and exports of pirated products are estimated to be in excess of 100,000,000 cassettes per annum.[7]

Film piracy also is becoming a very serious problem. No sooner is a film produced than a pirated copy appears on the other side of the world. Return of the Jedi (Part 3 of the Star Wars Trilogy) is a good example. In the United States in 1983 it was the movie sensation of the summer. Its first week gross was a record \$45.3 million. However shortly after the launch of the film, a single 35 mm print in Columbia, South Carolina disappeared for 24 hours. Very soon pirated copies of this film were available world-wide.[8]

The pirating of books is also becoming an extremely profitable venture. Publishers are complaining of losing more than \$1 billion a year from pirate printers. The main centres of book piracy are Peru, the Dominican Republic, Syria, Lebanon, Pakistan and Taiwan with India, Malaysia, Singapore and South Korea close behind.[9] Many of these countries have no domestic copyright law and accordingly unauthorised publishing is not, strictly piracy until the books are exported. While India and Pakistan, among others, have copyright laws and have signed international agreements, they do not enforce them. The Malaysian Ministry of Education, for instance, recently refused to outlaw pirate books in schools, calling the pirates "benefactors of humanity".[10] And while piracy is rampant in Third World developing nations, it is not limited to those lands. Academic pirates in Holland and West Germany, for example, are posing a problem to publishers. A thirteen volume economics text which was pirated in West Germany made more than \$330,000 profit.[11]

(b) Home Taping

This is another major issue in the copyright world, and one which has given rise to much litigation, especially in the United States. With home taping, a phonogram or videogram is either borrowed from a library, or a colleague, or, in some cases, from a shop, and then recorded onto a blank tape. Home taping differs from reprography, in that it does not necessarily contain the commercial element that exists with a pirate who reproduces and sells to the public infringing records and cassettes without authorisation. Private copying is normally without any concept of commercialism. It constitutes the non-commercial copying of phonograms and videos for personal use. It is now a very serious problem. Until recently it was over-shadowed by commercial piracy, although recent decisions in the United States have brought it to the forefront of the copyright challenges.[12]

The major problem with home taping which is facing the international and national communities is the need to persuade members of the public that home taping is theft. To date, such efforts have been unsuccessful.

(c) Recording of Live Performances

In recent years the illicit recording of concerts and other live performances has increased. The term given to such activities is "bootlegging".[13] Copies of the tapes are then offered for sale. As with piracy, this activity results in massive losses for either performers or those who have the right of taping. It would appear that in New Zealand there is nothing that can be done about bootlegging, as the Copyright Act 1962 does not cover the point. In the United Kingdom, as a result of an adverse decision by the Court of Appeal in RCA. v. Pollard,[14] Parliament promptly extended the English Copyright Act to cover such activities. Until New Zealand does the same, the decisions in Lonhro v. Shell Petroleum[15] and RCA v. Pollard[16] would appear to prevent protection in New Zealand.

(d) Computers

This paper is primarily concerned with the issue of the protection of computer software, and the response of the international community to this need. In particular reference will be made to:

(i) The Structure of the Two Copyright Conventions and Specialised Agencies of the United Nations that have an Interest in and a Responsibility for the Protection of Intellectual Property

The two specialised agencies are the World Intellectual Property Organisation (WIPO) which was estab-

lished soon after the Stockholm Revision of the Berne Convention in 1967, and the United Nations Educational, Scientific and Cultural Organisation (UNESCO). Because of its primacy in the intellectual property field, particular reference will be made to the constitution of WIPO. The ratification by New Zealand of the treaty establishing WIPO will also be examined.

(ii) Computer Software, its Nature and the Extent of the Problem of Computer Software Piracy

The paper will look at software, its importance in industry, the widespread copying of it, the desirability of the protection of computer software, and the best method of protection. These are questions that have caused much discussion at the national and international level, and while it is becoming more apparent that the copyright system is the more favoured form of protection, there are strong arguments in favour of a patent type system or even a completely new method of legal protection.

(iii) The Berne Convention, the Universal Copyright Convention and Computer Software

The Berne Convention for the Protection of Literary and Artistic Works was established in 1886 and is administered by WIPO. The Universal Copyright Convention is a product of the post Second World War years and is administered by UNESCO. Consideration will be given to the adequacy of protection of computer software under the Rome Act 1928 of the Berne Convention and the 1952 text of the Universal Copy-

right Convention. Any discussion on the protection of computer software involves looking at the definition of the term, a consideration of what formalities should be required before protection is granted, the length of protection afforded protected works, and the right of reproduction, adaptation and translation. In this section both the Berne Convention and the Universal Copyright Convention are considered in the form as ratified by New Zealand. Unlike Australia, New Zealand has not ratified the Berne Convention and the Universal Copyright Convention in the form as revised in Paris in 1971. The latest Berne Convention ratified by New Zealand is the Rome Act of 1928, while the latest text of the Universal Copyright Convention by which New Zealand is bound is the 1952 text.

(iv) The Work Done by WIPO and UNESCO Since 1971 on the Protection of Computer Software

Very few people have expressed doubts about the need for protection. The principal questions have involved the means by which such protection may best be given. WIPO has played a major part in this debate, both in proposing model national laws and a draft international treaty, and in providing a forum for a general discussion on the nature of the problems. In this context, the effectiveness of WIPO as a specialised agency of the United Nations will be considered. There have been some complaints that WIPO moves too slowly in devising answers to some important questions in the intellectual property field. Some commentators have suggested that firm recommendations should have been made by now for either an amendment to the Berne Convention, or for a specialist treaty. Throughout this discussion, the method by which WIPO consults

member states will be considered, and particular reference will be made to Australia.

(v) Protection of Computer Software in Australia

Following the decision of Beaumont J. in Apple Computer Inc. v. Computer Edge Pty. Limited[17] in late 1983, the protection of computer software has been a live issue in Australia. In the past few months there have been numerous very interesting developments which are worthy of consideration because they illustrate the importance of computer software in a developing society, the influences of international law and practice on domestic law, and particularly domestic law reform, and provide a very good guide to New Zealand which will be presented with the same problems as those faced in Australia in the not too distant future. The Minister of Justice confirmed this in a speech to the Copyright Association on Friday, 21 September 1984. The Australian example shows the close interaction between WIPO and UNESCO and national governments.

II. THE ROLE OF WIPO AND UNESCO IN THE PROTECTION OF INTELLECTUAL PROPERTY

A. INTRODUCTION

This Chapter examines the structure of the two copyright conventions and the operation of the two specialised agencies of the United Nations which administer them. Particular reference is made to WIPO, as that body has special responsibilities in the field of intellectual property. UNESCO has a far wider range of responsibilities than intellectual property protection, but nonetheless considers that it too has a role to play in the development of that field of law. For this reason WIPO has not taken over the administration of the Universal Copyright Convention.

B. DEVELOPMENT OF WIPO

The two major conventions administered by WIPO are the Paris Convention for the Protection of Industrial Property and the Berne Convention for the Protection of Literary and Artistic Works.

The Paris Convention was concluded in Paris on 20 March 1883, and was revised at Brussels in 1900, at Washington in 1911, at The Hague in 1925, at London on 2 June 1934, at Lisbon on 31 October 1958 and lastly at Stockholm on 14 July 1967. A further revision is currently under discussion.[18]

In this paper special attention will be paid to the Berne Convention. Before the development of the first treaties over a century ago, there was no customary international law of copyright.[19] The precursors of the first multi-lateral copyright treaty were a series of bilateral treaties applying only to the contracting parties.[20] The major problem with these treaties was that rather than providing an impetus for the harmonisation of law, they produced what Stephen Stewart Q.C. has called "a mosaic

of differing relationships"[21] which led away from harmony rather than towards it. The failure of the bilateral treaty resulted in the development of the multi-national treaties, the first and most famous of which is the Berne Convention. The preparatory work for this Convention was done at the 1882 Rome Congress of the International Literary and Artistic Association (ALAI).[22] The proposal for an international convention was adopted by a preparatory congress held some years later, again in Rome, which produced a short preliminary draft convention. Finally the Swiss Federal Council, after the drafting of the preparatory Acts, convened in Berne the Diplomatic Conference which, on 9 September 1886, ended its work with the signature, by ten countries, of the Berne Convention.[23]

In accordance with the then relationship between Great Britain and New Zealand, this country was automatically bound by its provisions. (New Zealand was also bound by subsequent revisions to the Berne Convention - the additional Act of Paris in 1896, the Berlin Revision in 1908, and the Berne Additional Protocol of 1914). This extension to New Zealand was as a result of the use by Great Britain of what was called "the colonial clause" in the original Convention.[24] By this clause, the effect of the Convention went far beyond the metropolitan territories of the contracting states, most of which were in Western Europe.

The structure of the Berne Convention is very important. Article One provides that members of the Berne Convention are to constitute a Union. This was to give effect to the hope of the founding members that the Convention would have a permanent character. The existence of a Union has several important implications. Firstly, the Union was universal from its inception, i.e. open to all countries. Secondly, once formed, the Union of Member States has an independent existence in that some countries may leave, while some others may join. The Union continues. Thirdly, the Convention is capable of periodic revision as a result of political and economic developments (one of which will be examined later).

Fourthly, the Union system enables member countries to define their copyright relations although their membership is at different levels of the Convention. Thus, a country joining the Convention can have international copyright relations with those countries which have ratified the Paris Act 1971 (e.g. France) and at the same time with countries which have only ratified the Rome Act 1928 (e.g. New Zealand).[25]

Reference has already been made to periodic revision of the Berne Convention. An example of this is the very important Rome Act of 1928. This revision is interesting in that a New Zealand King's Counsel, Mr S.G. Raymond of Timaru, attended on behalf of this country and played a notable part in the deliberations.[26] On 26 April 1928, shortly before the Rome Conference, New Zealand became a member of the Union in its own right, and from that time was entitled to be heard at any conference of the Union and cast its vote accordingly. Canada and Australia also joined at this time. In his report to the New Zealand Government, Mr Raymond referred to the advantages of the change of status:

- "1. The interests of New Zealand do not in all respects coincide with those of Britain, in whose wake it had followed. This was evident at one of the most critical and active controversies at Rome.
2. The cultural achievements of radiophony have already been so great, while its potentialities are so enormous, that a remote country such as New Zealand must, if it is to keep its place in the march of civilisation, be vigilant in keeping, so far as it can, the great discoveries of the radiophonic field free from domination by commercial and financial combines and associations.
3. A third reason arises out of the constitution of the Union. A decision of the Union and Conference must be unanimous. This applies as well to the alteration of an existing article in the Convention as to the adoption of a new one. The experience of the New Zealand delegation at the Conference of Rome in 1928 is that while, on the one hand, an interest (be it literary, artistic, industrial or financial) is virtually

unassailable once it is protected by an article of the Convention; on the other hand, a proposal for the bettering of the Convention, be the proposal ever so meritorious, has no chance of adoption if it conflicts with one of these interests. One adverse vote is enough and an adverse vote is not difficult to find for invariably the views of some country or another are found to co-incide - quite honestly, of course - with the interests adversely affected by the proposal."[27]

Mr Raymond also made reference to the accessions of the other Dominions and the result of their entry:

"The entry of the Union by Canada, Australia and New Zealand introduced an entirely new element - an element putting forward views considered as little short or revolutionary by some of the older members of the Union. Not that the Dominions were of great importance from the population stand-point. In that respect, although rapidly increasing, they are, and must for a long time remain, insignificant compared with the other densely peopled countries. The importance of their entry lies in the fact that at the Rome Conference the interests of the public - that great body of purchasers and consumers of copyright wares - were vigorously voiced by the Dominions for the first time in the history of international copyright conferences."[28]

The Rome Act 1928 was in effect a consolidation and development of the rights granted by the Convention. It was the first conference to deal with the development of the mass media. Provision was made for the exclusive right of broadcasting, which was limited by the rights of states to introduce compulsory licensing systems.[29] Most authors of texts or articles on the International Copyright Conventions write of the development after the Second World War of an increasing awareness of the rights and needs of Third World nations.[30] However the sentiments expressed by Mr Raymond K.C., coming twenty years before the Brussels Conference on 1948, may be seen as the first indication of a movement away from a convention based on the principles and aspirations of Western European copyright-producing nations. Mr Raymond saw the influence of the Dominions as providing a check to the movement towards

uniformity at the Rome Conference, particularly in the debate on radiophony. He said that Canada, Australia and New Zealand, "unfettered by the over-emphasised traditional respect for copyright-holders' rights, and unhampered by capitalistic interests, so powerful in the Councils of the Old World Countries",[31] succeeded in asserting the principle of home rule in radiophonic control. Such powerful language and independence of thought in a New Zealand representative at this stage of our nation's development is very surprising.

New Zealand was represented at the Brussels Revision of 1948, by Sir Harold Saunders, the Controller of Patents in England.[32] Since that conference, New Zealand representation at meetings of the Berne Union has been non-existent.

The Brussels Act has been said to mark the end of a period.[33] By this time, the structure of the Convention had been settled, a substantial number of states had by then joined the Union and membership extended to most parts of the world. It was at this time also that questions arose about how the Convention was to respond to new technologies, and to the relationship between the Berne Convention and the United States of America. Third World countries were also beginning to press for a simple convention with a lower standard of protection.

Article 2(2) establishes another important foundation of the Berne Convention. It provides that authors who are citizens of a Union country shall enjoy in another Union country "the rights which the prospective laws ... grant natives." [34] The alternative to this principle is to provide that the law of the country where the work is first published is to apply in the country where republication may subsequently occur (*lex originis*). This involves a Court of the land where republication takes place in the usual jurisdictional and choice of law tests, which is unsatisfactory as it means that a work in the country of republication could receive a far lower level of protection than a work first published in that

country, and thus subject to that country's legal protection. With "national treatment" the courts of the State where the act giving rise to the litigation occurs, apply their own law.[36]

In the context of "national treatment", two further comments should be made. The first concerns the provision of certain minimum rights which may be claimed in all Convention countries regardless of national legislation. If this were not the case, an imbalance of protection would be created. The second important gloss to the principle of "national treatment" is the requirement of "reciprocity". Thus the Paris Act of 1971 provides for protection of the work for fifty years after the death of the author, although some members may provide for a longer period, e.g. West Germany with seventy years. West Germany must provide at least fifty years protection to the works of New Zealand authors, but need not apply full national treatment of seventy years unless New Zealand has a similar provision in its domestic legislation (which it hasn't).

The other important structural feature of the Berne Convention is its lack of any requirement on formalities.[37] Although there may be formalities in the country of origin of the work, they may not be subjected to any other formalities which may be required in the country where protection is claimed. It is sufficient that their name be indicated on the work in the accustomed matter.

The administrative structure of both the Paris and Berne Unions continued unchanged until the 1967 Stockholm Conference of the Berne Union.[38] This conference was called for various reasons, but the establishment of the World Intellectual Property Organisation is regarded as its lasting achievement.

The Stockholm Conference in 1967 was divided into several committees, the work of Main Committee No. 5 being to examine the report for the establishment of the World Intellectual Property Organisation. The background to the establishment of the World

Intellectual Property Organisation is summarised in the following paragraphs of the report of Main Committee Five:

- "(1) When the Unions of Paris and Berne were set up in 1883 and 1886, they were provided with Secretariats whose functions, however, were limited: all that was involved was gathering information, carrying out studies in the field of intellectual property, making results of this work available to the members of the Unions, and preparing revision conferences. In accordance with the practice of that time, a government, in this case the Government of the Swiss Confederation, assumed the duties of administering the Conventions. Further, the Secretariats were placed under its authority, and it was entrusted with regulating their organisation and supervising their operations. The Swiss Government, wishing to make the administrative services of the Unions function as efficiently and economically as possible, later combined the two Secretariats, which thereafter became the United International Bureau for the Protection of Industrial, Literary and Artistic Property (BIRPI), under the responsibility of one Director. That situation has continued until the present.
- (2) After World War II, the member States of the Unions felt the legitimate desire to exercise a greater degree of influence on the development of the Unions and on the functioning of BIRPI. They, therefore, established advisory bodies, and particularly the Permanent Bureau of the Paris Union and the Permanent Committee of the Berne Union, which have met jointly since 1967 as the "Inter-Union Co-Ordination Committee".
- (3) It was this Co-Ordination Committee that recommended in 1962 that a study be carried out with a view to reforming the Unions and BIRPI and adapting them to the system of present day inter-governmental organisations.
- (4) The general features of the proposed reform are as follows:
 - (i) The Unions retain their complete independence in their own tasks; between revision conferences each Union is placed under the exclusive authority of the assembly of the member States of that Union.

- (ii) A new organisation, the World Intellectual Property Organisation (WIPO) is set up alongside the Union; all State members of a Union, and States that satisfy certain conditions indicated in the Convention, may become members of the Organisation. The Organisation is entrusted essentially with the co-ordination of the administrative activities of the Unions and the promotion of the protection of intellectual property throughout the World.
- (iii) The Secretariat of the Unions and of the Organisation is provided by a joint body, the International Bureau of Intellectual Property, which is a continuation of BIRPI."^[39]

The principal changes therefore were the creation of a separate assembly for each Union, consisting of its member States; the transfer of the supervision of the International Bureau from the Government of Switzerland to the Assemblies of the Unions, together with certain financial changes both in terms of the budget of the International Bureau and financial contributions. The main structural change proposed was the establishment of a new organisation which would:

"... be a framework for administrative co-ordination among the various Unions since they are served by the same International Bureau; and be a world wide forum for promulgating the principles of intellectual property mainly for the benefit of developing countries."^[40]

The new organisation was intended to be the focal point of all new world-wide efforts for maintaining, improving, and adapting the rules of international protection in the field of industrial property and copyright. This was regarded as essential if nations wished to ensure the safeguarding of protection to a specialised organisation which would devote all its attention to it.

Consideration is now given to the Convention establishing the World Intellectual Property Organisation:

(a) Name

Article 1 provides for the establishment of the World Intellectual Property Organisation. In Main Committee Five, there was some discussion as to whether the Organisation should be called "International" or "World". There was a preference for the latter term, particularly because it was considered that the new Organisation had a universal calling, and the Unions of Paris and Berne already comprised the majority of the countries of the World and extended over five continents.[41]

(b) Definitions

Article 2 contains a series of definitions. Particular reference is made to the definition of intellectual property.[42] The broadest possible definition is given. It contains a non-exhaustive list of the most important items to which the rights may relate, although it excludes scientific discoveries, including medical discoveries. There is no uniformity of protection for those discoveries in national legislation.

(c) Objectives

Article 3 is very important, as it sets out the objectives of WIPO. The first objective is:

"To promote the protection of intellectual property throughout the World through co-operation among states and, where appropriate, in collaboration with any other international organisation."

This objective encourages WIPO to work in conjunction with other international organisations, for the protection of intellectual property. Principally, this relates to agreements with the other organ of the United Nations charged with the protection of intellectual property, namely UNESCO. Particular reference will be made to an agreement between UNESCO and WIPO whereby in numerous fields, the two organisations work together to solve the problems confronting the international community.

The second objective is:

"To ensure administrative co-operation among the Unions."

By this objective the World Intellectual Property Organisation continues the administrative work of BIRPI, without in any way affecting the independence of both the Paris and Berne Unions from one another.[43]

(d) Functions

Article 4 lists the functions of WIPO to enable it to carry out its objectives. The first function is to promote the development of measures designed to facilitate the efficient protection of intellectual property through the world and to harmonise national legislation in this field.

The "internationalisation" of intellectual property has already been referred to.[44] Computer software piracy is the same problem in France as in New Zealand. The difference is only one of degree. The harmonisation of national laws would therefore appear to be a necessity. It is promoted by experts other than those in WIPO (for example, Mr Denis De Freitas of the Commonwealth Secretariat, particularly on procedural protection).[45]

The second function of WIPO is to perform the administrative tasks of the Paris and Berne Unions, and the other special unions (for example, the Convention for the Protection of Producers of Phonograms Against Unauthorised Duplication of their Phonograms of 29 October 1971[46] and the Patent Co-operation Treaty).[47] This function provides a link with the second object of WIPO, that is, to provide administrative support for unions, though ensuring that their independence is maintained.

Thirdly, WIPO may agree to assume or participate in, the administration of any other international agreement designed to promote the protection of intellectual property. An example of administrative participation is provided by the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations of 1961, often referred to as The Neighbouring Rights Convention.[48] (The term "neighbouring rights" is defined by S.M. Stewart Q.C. in the narrow sense as covering only the rights of performers, producers of phonograms and broadcasting organisations. In the wider sense it may also cover rights similar to copyright, such as the rights of film producers in certain countries of the rights in first editions in books. These other rights are often referred to as "related rights").[49] This Convention is administered jointly by the International Bureau of WIPO, the International Labour Organisation (ILO) and UNESCO. This is because each of those three organisations has an interest in the protection of neighbouring rights.[50]

The fourth function of WIPO is to encourage the conclusion of international agreements designed to promote the protection of intellectual property. WIPO is also to offer co-operation to states requesting legal/technical assistance in the field of intellectual property. This is a very important function. Emerging Third World Nations, having a need for technological advancement, of necessity require national laws protecting intellectual property. WIPO, in conjunction with UNESCO, has done much work in this field, and in 1976 proposed a set of model laws

for developing countries known as the Tunis Set of Model Laws.[51] In these model laws both traditions of copyright law are catered for. Their phrasing is compatible with both the Berne Convention and the U.C.C. and the laws were acceptable to both the Anglo Saxon and Continental traditions. The report of Main Committee Five at Stockholm also suggested that such legal/technical assistance might also consist in WIPO's conducting seminars and training courses and the supply of experts.[52] The advisory function of WIPO was referred to by the Permanent Representative of New Zealand at the Office of the United Nations in Geneva in a memorandum to the Secretary of Foreign Affairs dated 11 December 1980 on the desirability of New Zealand membership of WIPO. He saw considerable value not only to Third World nations from such assistance but also New Zealand.

"[WIPO] is building up its technical assistance activity (about one-third of its budget is devoted to this purpose) and countries like Canada and Australia perceive advantage in participating in such activity. Assistance is offered under a WIPO umbrella, with the development of patent offices, and the training of patents officials, in and from developing countries. Australia has used this avenue in particular to develop contacts in ASEAN. Quite apart from the potential bilateral benefits, such donors see in this too a means of deflecting, or at least containing, some of the more "political" North/South pressures in the transfer of technology issue."[53]

A further function is the assembling and disseminating of information concerning the protection of intellectual property, the carrying out and promoting of studies in the field, and the publishing of the results of such study. Every month, WIPO publishes "Copyright" which provides information to all member states of the work done by the international community and states in intellectual property. It also contains articles by various specialist commentators, and proposals for the amendment of national laws which may be useful to law reformers of member countries. A similar publication called "Industrial Property" is published by WIPO on matters pertaining to that area.[54]

Another major function of WIPO is to maintain services facilitating the international protection of intellectual property and, where appropriate, provide for registration in this field and the publication of data concerning the registration. The Patent Co-operation Treaty of 1970 provides a good illustration of this function. One of its objects is to "simplify and render more economical the obtaining of protection for inventions where protection is sought in several countries".[55] The States party to this Treaty constitute a Union for co-operation in the filing, searching, and examination, of applications for the protection of inventions, and for rendering special technical services. WIPO provides the administrative support for this Union. Under the Patent Co-Operation Treaty a patent may be simultaneously registered in all member countries, thus removing the need for time consuming separate registrations required for each country. New Zealand has not yet ratified this Treaty, and the Commissioner of Patents had considerable reservations about joining the P.C.T. in 1981, although he did acknowledge that at some stage in the future New Zealand would need to join P.C.T.[56] The Treaty was ratified by the United Kingdom on 24 October 1977, and Part II of the Patents Act 1977 (UK) enacts provisions which meet the United Kingdom's obligations under that Treaty.

Finally, there is the general function empowering WIPO to take all other appropriate action to carry out the obligations of the Organisation.

The administrative and consultative functions of WIPO will be illustrated later when the recent initiatives in the computer software field are examined. Particular reference will be made to the Australian situation, and consultations between WIPO and the Australian Government, and between the Australian Government and interested parties, on specific measures for the protection of computer software.

(e) The Organs of WIPO

Structural reforms introduced by the Treaty establishing WIPO are significant. The preliminary report on the new organisation said that it would serve two purposes:

"One of them is to constitute the framework of a co-ordinated administration for the various Unions; the other is to constitute a framework for the general promotion of the protection of intellectual property throughout the World, even in countries which are not yet members of the Paris or Berne Unions." [57]

(i) General Assembly:

Article 6 establishes the General Assembly, which is the supreme organ of the Organisation. It has numerous functions, one of which is to appoint the Director-General of WIPO upon the nomination by the Co-ordination Committee. The General Assembly reviews and approves the reports and activities of the Co-ordination Committee, as well as of the reports of the Director-General concerning the Organisation. It is also the task of the General Assembly to agree to the administration of international agreements and to approve the measures taken to that end by the Director-General. The General Assembly consists of the States, members of any Union, which belong to the Organisation. Each State has one vote, irrespective of the number of Unions to which it belongs. The General Assembly must admit to its meetings, as observers, States members of the Organisation which are not members of any of the Unions.

(ii) The Conference:

The second organ of the Organisation is the Conference, which is established by Article 7. The Conference consists of all States members of the Convention. It exercises the functions allocated to it by the Convention. The Committee saw several functions for the Conference.[58] Firstly, it was to constitute a forum for an exchange of views in the field of intellectual property between all members of the Organisation, whether or not they belong to any particular Union. It was proposed that the Conference would be a forum in which States which were not members of the Unions could examine the desirability of their adherence to such Unions. It was expected that the contacts which States outside the Unions had with the International Bureau and with States members of the Unions would sooner or later convince them that, by becoming members of the Unions, they could promote their own development.

It was also anticipated that the Conference would be the supreme organ for all legal-technical assistance matters. A triennial program of assistance to developing countries was therefore to be established. This is of some importance. The proposals for the Treaty indicated that such a function would require the Conference to ascertain the needs of developing countries in the field of intellectual property, and that assistance would take the form of fellowships, seminars, expert missions and advice in the framing of intellectual property laws and the establishment of industrial property offices.[59]

The WIPO Convention, by the inclusion of specific references to the needs of developing countries,

shows the extent to which the international community had noted the needs of Third World countries. At its formation Berne was principally a Western European Convention. It was only after the Second World War that the needs of Third World Nations were recognised. WIPO is directly concerned with giving assistance to those nations. It is only the new structure that can ensure that these countries receive the assistance they need. This is recognised by Andre Kerever, a member of the Commission de la Propriete Intellectuelle (France) who saw a risk under the old system of the Berne Convention drawing into its Western European nucleus.[60]

The third function of the Conference is to establish a budget every three years. The budget is used to finance the program of legal-technical assistance and to cover other expenses. The Conference is also competent to adopt amendments to the Convention. Finally, like the General Assembly, it is to determine which states or organisations will be admitted to its meetings as observers.

(iii) Co-Ordination Committee:

The third of the organs of WIPO is the Co-ordination Committee established by Article 8, which is both an advisory organ on questions of general interest and the executive organ of the General Assembly and the Conference. It has several functions, the first of which is to give advice to the various organs and the organisation on matters of common interest to two or more of the Unions or to one or more of the Unions and the organisation, in particular on the budget of expenses common to the Unions. It also prepares a

draft agenda of the Assembly and the Conference, and a draft program and three yearly budget of the Conference. It is responsible for the approval of the annual budget and program on the basis of the triennial programs and budgets drawn up by the General Assembly and Conference. The outline of proposals on structural reform culminating in WIPO saw the Co-ordination Committee as working with the General Assembly in being the organ for administrative co-ordination among the Unions.[61]

(iv) International Bureau:

Article 9 establishes the International Bureau of intellectual property which is to be the secretariat of WIPO. It is a simple continuation of BIRPI, even in its designation, which remains the International Bureau. The establishment of the Bureau of the Paris Union and and Berne Union in 1893 has already been commented on.[62] Until WIPO however the unification had no legal basis in the treaties. The WIPO treaty gave to the Bureau a legal basis which was comparable to that of other inter-governmental agencies, and which gave it a legal capacity indispensable in its dealings with the United Nations and other international organisations. The International Bureau is directed by the Director-General, who is the chief executive of the organisation. It is not necessary for the Director-General to be a national of a State member of one or more of the Unions or member of the organisation.

New Zealand's representative at Geneva, in his report to the government (referred to above), commented on the pivotal role of WIPO as an umbrella organisation

for patents and copyrights. He referred to the "reasonably dynamic Secretariat" which he saw leading the agency into a wider and useful role as a clearing house for co-ordinated information on new technological and related developments.[63]

The Convention establishing WIPO may appear to have created an overly bureaucratic structure. The report of Main Committee Five acknowledged the development of many organs, but stressed that this reflected a legitimate desire to safeguard the independence of each Union. Nonetheless each organ has a clearly delimited field of responsibility and competence. The preliminary report considered that the organisation or its organs would not affect the independence of the Unions.

"The General Assembly's role would be mainly advisory and limited to matters of co-ordination. Revisions of the texts of the Convention of each Union would be prepared by the interested Union itself and decided by the separate revision conference of that Union. Development of the Unions, by means other than the revisions, would be a matter for the Unions themselves. In none of these respects could the proposed new organisation play any role. Nor is there any danger that the organisation could, in the future, trespass on the jurisdiction of the Unions since any amendments to the Convention establishing the new organisation would have to be first and separately adopted by both the assembly of the Paris Union and the Berne Union." [64]

(f) Other Administrative Provisions

Other articles in the Convention are the standard ones for international bodies and cover such matters as headquarters [65],

finances[66], privileges and immunities[67] and membership.[68]

c. INVOLVEMENT OF UNESCO

UNESCO's involvement in this field stems from its administrative supervision of the Universal Copyright Convention. By the end of the nineteenth century the Berne and Paris Unions were well established, and provided an effective framework for the protection of the categories of intellectual and industrial property existing at that time. The Berne Union Convention was the first multi-lateral copyright agreement. It was followed by several Pan-American Conventions - the Montevideo Convention of 1889, the Mexico City Convention of 1902, the Rio de Janeiro Convention of 1906, the Buenos Aires Convention of 1910, the Caracas Agreement of 1911, the Havana Convention of 1928, and the Washington Convention of 1946.

Before World War Two, some states were members of the Berne Convention, others were party to one or other of the Pan-American Conventions, while others had not yet acceded to any international instrument for the protection of copyright. Attempts were made in the late 1920's to unify international copyright when the Assembly of the League of Nations invited the League's Council to engage in consultations and make studies that would promote the international unification of copyright laws.[69]

The major problem with the Berne Convention was the failure of the United States to join it. There were several reasons for this. Firstly, the United States would not adhere to the explicit protection of moral as well as the economic rights of authors. (Moral rights stem from the fact that the work is a reflection of the personality of the creator, "just as much as the economic rights reflect the author's need to keep the body and soul together".[70] It has its origins in French Law, whence it found

its way into the Berne Convention. The three basic moral rights are droit de divulgation, droit de paternité and droit de respect de l'oeuvre).[71] Secondly, the Berne Convention contained no formalities provisions, whereas United States copyright legislation required a system of registration;[72] and thirdly Berne provided for a copyright protection of fifty years, whereas under the old law in the United States copyright lasted for a term of twenty-eight years from the date when it was first secured. During the last (28th) year of the first term, copyright was eligible for renewal for a second term of twenty-eight years. (A sweeping change brought about by the 1976 Copyright Act (USA) was the adoption of the international norm governing the duration of most copyrights - the life of the author, and an additional fifty years after the author's death).[73] It was thus apparent at the end of the Second World War that every effort had to be made to bring the United States into the international copyright community.

After World War II, UNESCO inherited the functions of the International Institute of Intellectual Co-operation (IIIC). (This body, a specialised organ of the old League of Nations, had in pre-war days researched the possible unification of international copyright laws). In 1947 at its second session held in Mexico City, the General Conference of UNESCO resolved that UNESCO should, with all possible speed and with due regard to existing agreements, consider the problem of improving copyright on a world-wide basis.[74] From 1947 to 1951, several expert committees met in turn to prepare the draft convention, and this was submitted to the Intergovernmental Copyright Conference held in Geneva from 18 August to 6 September 1952. The Conference adopted the Convention.[75]

New Zealand did not send a representative to the Intergovernmental Copyright Conference at Geneva in 1952. Mr Alister McIntosh, then Secretary of External Affairs, did however arrange for a statement setting out observations on the text of the preliminary draft to be sent to that meeting, and asked that it be circulated.[76]

Reference in particular is made to Article XV of the Protocol, to which the New Zealand Government took exception. (This was the proposed Berne Safeguard Clause, which was included to allay the fears of the member States of the Berne Union that the new Convention would undermine the Berne Convention by offering wider international protection on a lower level and have the members of the Union to leave Berne and join the new convention instead. This meant that no member of Berne could leave the Union and then ratify the new Convention. Any member of Berne may leave it by denouncing the Convention, but that State could not subsequently ratify the Universal Copyright Convention and claim the protection of the U.C.C. in countries of the Berne Union. The reference by New Zealand to Article XV refers to the Article XV of the Programme Text, which finally became Article XVII). New Zealand objected in particular to Article XV, Clause 2:

"The principle is discriminatory and would have the effect of keeping the present members of the Berne Union within that Union for an indefinite period. If such a provision were to be made by amendment to the Berne Convention, it would require the consent of every party to that Convention. By the indirect method proposed, countries of the Berne Union wishing to join the Universal Copyright Convention would have no alternative but to accept an alteration in their position under the Berne Convention. In other words they would be denied their existing right of refusing to accept an amendment to the Berne Convention." [77]

There is a limited exception to Article XVII in the case of developing countries. The effect of it is that by a unilateral declaration notified to the Director-General of UNESCO that a country regards itself as a developing country it can withdraw from the Berne Union and confine itself to membership of the Universal Copyright Convention for the protection of their copyright interests.

Like the Berne Convention, the Universal Copyright Convention is based on the principle of national treatment treatment for both foreigners and nationals. [78] Protection shall be the same as

the State concerned accords to works of its own nationals first published in its territory. Each contracting State undertakes to provide for the adequate and effective protection of the rights of authors and other copyright proprietors in literary, scientific and artistic works, including writings, musical, dramatic and cinematographic works, and paintings, engravings and sculpture.[79] Each contracting State must ensure that its domestic legislation guarantees that the national treatment referred to in Article II is not below the level of "adequate and effective" protection. If it is below that level, it must amend its legislation.

Article III is a very important feature of the Convention. It exempts foreign works protected by the Convention from all formalities with the exception that they must bear a copyright notice containing three elements:

- (a) The symbol C;
- (b) The name of the copyright proprietor; and
- (c) The year of first publication.

Article III however provides that any member state can require formalities for the "acquisition and enjoyment" of copyright in respect of works first published in its territory or works of its nationals whenever published.

Stephen Stewart Q.C. calls this one of the key provisions of U.C.C.:

"To appreciate its importance one has to remember that in some jurisdictions a copyright is viewed, as a patent is in all jurisdictions, as a right which either only arises or can only be enforced if certain formalities, e.g. registration and deposit, are complied with. The United States and some Central and South American countries as well as Spain have such systems. As these countries could not be expected to alter their laws - at least not immediately - to ratify the Convention, a compromise had to be found, which amounts in fact to a derogation from the principle of

national treatment and enables these countries to ratify without altering their law."[80]

When giving the Eighteenth Annual Jean Geiringer Memorial Lecture on 17 November 1980,[81] Stewart referred to the question of formalities and the distinction between the Berne and Universal Copyright Conventions which prevented the United States joining the Berne Union. To overcome the problem he suggested a separate protocol inserting the U.C.C. formalities clause into the Berne Convention.[82] Nothing has yet been done in that regard. Nonetheless, it would appear to be the one matter requiring resolution before the United States can become a member of the Berne Union, the other matters having resolved themselves.

Article XI of the Convention sets out the administrative provisions. An intergovernmental copyright committee was established with the following duties:

- "(a) To study the problems concerning the application and operation of the Convention.
- (b) To make preparations for periodic revisions of the Convention.
- (c) To study any other problems concerning the international protection of copyright, in co-operation with the various interested international organisations, such as the United Nations Educational Scientific and Cultural Organisation, the International Union for the Protection of Literary and Artistic Works and the Organisation of American States.
- (d) To inform states party to the UCC as to its activities."

The creation of the Universal Copyright Convention has been described as "a signal event in the evolution of international copyright conventions"[83] in that it overcame the obstacles represented by certain clauses of the Berne Convention, and enabled the USA to subscribe to a system of international copyright by a multi-lateral convention, accessible to all countries, including the

countries of the Berne Union. It does not intend to put a new agreement in the place of existing agreements but aims to provide a basis and method of conciliation between countries differing widely in civilisation, culture, legislation and administrative practice, and sometimes having conflicting interests.[84]

A comment on joint WIPO/UNESCO activities has already been made. Co-operation between those two organisations has in recent years been both considerable and profitable. This is the result of an agreement between the two agencies signed in 1974.

D. AGREEMENT BETWEEN WIPO AND UNESCO[85]

At the time of the formation of WIPO, it was acknowledged that UNESCO had by its very nature a role in the development of international copyright law. It was never anticipated that UNESCO's role would be taken over by WIPO and that the UCC would also be administered by WIPO along with the Berne and Paris and subsidiary Unions. Nonetheless, the new organisation was expected to be the centre of all new world wide efforts for maintaining, improving, and adapting the rules of international protection in the field of industrial property and copyright.

A primary task of WIPO is to work in with other international organisations to ensure that protection is effective. Article 13 of the establishing Convention gives WIPO the power to enter into such agreements. When general working agreements have to be concluded with other organisations, the Director-General must seek the approval of the Co-ordination Committee before they can be secured. However in the case of agreements governing co-operation in particular cases (for example, to provide specific assistance to a given State) the specific approval by the Co-ordination Committee is not required.

The 1974 agreement between WIPO and UNESCO provides that while continuing to respect the other's competence in all fields of mutual interest, each organisation agrees to carry out its responsibilities in such a way as to avoid unnecessary duplication. Co-operation and co-ordination extend to carrying out studies, organising meetings, preparing publications and according technical assistance to members States, and in particular developing countries. The agreement between the two organisations also provides for a full and prompt exchange of information and documents concerning matters and fields of mutual interest, and reciprocal representation on meetings that are of interest to both organisations. This agreement replaced the earlier agreement between the International Bureau and UNESCO dated 1950.[86]

E. NEW ZEALAND AND WIPO

Article 14 of the WIPO Convention concerns membership. The usual public international law provisions are to apply, i.e. signature without reservation as to ratification, signature subject to ratification followed by the deposit of an instrument of ratification, or deposit of an instrument of accession.

The report of Main Committee Five commented that it would be incorrect to allow a State member of a Union to accept the WIPO Convention without having ratified, or acceded to, the administrative provisions of either the Stockholm Act of the Paris Convention or that of the Berne Convention.

"Moreover such a possibility would not be in the interests of the States themselves, since a State member of a Union which had acceded only to the WIPO Convention would be unable to be a member of the Co-ordination Committee because it could not be a member of the executive committee of the Paris or Berne Union. For this reason Article 14(2) requires that, when accepting the WIPO Convention states members of a Union must simultaneously accept or have already accepted the administrative of the Stockholm Act of the Paris Convention or the Berne Convention. If they are

parties to both Conventions, it is sufficient for them to have ratified or exceeded to the administrative provisions of the Stockholm Act of one of them."[87]

On 14 March 1984 the Government of New Zealand deposited its instrument of accession to the Convention establishing WIPO, and that Convention entered into force three months later.[88] In order to join WIPO however, changes to the administrative sections of 1967 Stockholm Act of the Paris Convention were required. Instruments of accession to those sections were also handed to WIPO's Director-General on 14 March.[89]

The length of time that it took New Zealand to become a full member of WIPO is both surprising and disturbing. The New Zealand Patent Office's attitude about joining WIPO was quite clear and had been settled since 1973. That was that New Zealand should join. On 4 December 1973 the Commissioner of Patents wrote to the Secretary for Justice:

"It is my view that New Zealand should accede to the administrative provisions of the Stockholm Act (but not the technical provisions) and to the WIPO Convention. I wish to give further consideration to the technical provisions of the Act but this need not delay the above recommended action. In other words New Zealand should, pursuant to Article 20(1)(a) accede to the Stockholm Act but pursuant to paragraph (b) it should declare that its accession shall not apply to Articles 1 to 12."[90]

In a letter to the Secretary for Justice on the 28th January 1981, the Commissioner of Patents referred to that passage of his predecessor's letter dated 4th December 1973 and commented:

"Over the ensuing years I have made several attempts to discover why no action was being taken on the above recommendation but was only told that "there was no pressure to join". It would appear that pressure now exists."[91]

Several months earlier the permanent representative of New Zealand at the office of the United Nations at Geneva prepared a lengthy

Memorandum on New Zealand membership of WIPO. He argued that serious consideration ought to be given to New Zealand membership. Mr O'Brien referred to the fact that New Zealand was one of a very small handful of countries that were parties to two main constituent conventions (Paris and Berne) but not members of WIPO. He commented that given the changes that occurred since his earlier Memorandum on the same topic in 1975, it was surprising that WIPO had not figured in the re-assessment of how New Zealand's interests might best be furthered.

"Its aim and functions are squarely in line with many of the areas where New Zealand now sees an interest ... In our view, however, membership of WIPO would not necessarily imply taking up a definite position on such matters as the form of mechanism by which New Zealand imports technology; rather it would help inform the debate and give us a somewhat wider influence on the international aspect of the various questions. WIPO's relevance is most marked in industrial matters, but it also serves an increasingly important role in discussions on issues connected with agricultural trade in its broadest sense. We see both the instituting of UPOV in New Zealand's recent signature as being indicative of the underlying changes - both in the subject matter and relevance of WIPO, and (more importantly) in the perception by client groups in New Zealand of the relevance of international agreements in underpinning our expanding trade network." [92]

Mr O'Brien also referred to the need for protection as New Zealand moved further into energy-based development. [93]

While he acknowledged the importance of the constituent conventions which represent the juridical basis for the rights and obligations of their members, Mr O'Brien referred to the need for development of a co-ordinated overview given the increasingly complex and political technological development. He referred to the distinction between the constituent conventions and WIPO which is the concern of both those authorities as well as those charged with broader policy (and political) responsibilities. By staying out of WIPO, O'Brien argued that New Zealand was denied the full capacity to view developments over the entire sweep of technology develop-

ment and its constituent patent and copyright ramifications, as a co-ordinated whole. As such New Zealand was not plugged into WIPO's growing role as a co-ordinated information clearing house.

It appears that Australia and Canada had from time to time urged upon New Zealand the desirability of membership. O'Brien notes that in 1980 New Zealand was one among only four nations - together with Iceland, Lebanon and Madagascar - which belonged to Paris and Berne but not to WIPO. New Zealand was the only developed nation which was a member of one or more of the various constituent conventions but not a member of WIPO, and O'Brien commented on the unusual company New Zealand was keeping - countries such as Costa Rica, Guatemala, Panama and Thailand.

Some emphasis was given to the benefits to Canada of joining WIPO:

"... the prime reason why Canada joined WIPO was in order to obtain the broad overall view in co-ordination of the various parts (i.e. conventions) to which they already belong. Broad horizontal co-ordination, as distinct from limited vertical co-ordination, is in the Canadian view now indispensable given the decidedly political character of the whole transfer of technology. In practical domestic terms the Canadians noted too that within Canada a number of different departments handle the diverse technical issues in question, ranging from protection of copyrights to the protection of new plant varieties and Canadian participation in WIPO was invaluable in co-ordinating and pulling together those various departmental responsibilities and activities." [94]

Some three and half years following that important memorandum, New Zealand finally joined. The failure to join WIPO until a very late stage reflects the failure of successive governments to pay attention to this very important area of economic development. It also shows that since Australia, Canada and New Zealand attended the Rome Convention in 1928, New Zealand has failed to match the performance of the other two nations in ensuring copyright protection for its citizens and their work.

F. CONCLUSIONS

WIPO and UNESCO are the structures established to promote the protection of intellectual property. The discussion on the structure of the Conventions and the agencies which administer them is important, because it provides a convenient back-drop for much of the discussion that will come later on the specific issue of the protection of computer software. The effectiveness of the procedures established by the Convention establishing WIPO will also be commented on later in the context of the specific discussion on computer software protection.

There is no doubt that the establishment of WIPO is regarded as a most important event in the ongoing protection of intellectual property. In his report to the Centenary Congress of the International Literary and Artistic Association, Valerio de Sanctis praised the establishment of WIPO.

"It is to the Convention establishing the World Intellectual Property Organisation (WIPO) signed Stockholm on 14 July 1967, which in December 1974 became a new specialised agency of the United Nations, that we owe the permanent, articulated link between the two major Union Conventions, namely the Berne Convention and the Paris Convention for the Protection of Industrial Property, constituted by the International Bureau of the Organisation and the Co-ordination Committee, which connects the executive of the committees of the Assemblies of Berne and Paris Unions.

The advent of WIPO not only made changes in the administrative organisation of the two Unions, but also created a "meeting point", useful for the progressive development of the two international systems for the protection of the rights they represented. Neither should be overlook a certain number of links, of a legal, economic and social nature that exist between the protection of property right including "neighbouring rights", and certain industrial property rights, due to new inventions and new technologies coming to light in the world of today and tomorrow." [95]

Before leaving the discussion on structure, brief comment should be made about future prospects. Stephen Stewart Q.C. has expressed

the hope that the United States will soon be able to ratify the Berne Convention so that all major copyright countries could be members of both Conventions.

"Then, a two-tier structure, with the Berne Convention as the upper tier and the U.C.C. as the lower tier, will emerge. A fusion of the two secretariats, with WIPO as the special United Nations agency, will then become possible with savings in manpower, effort, time and money which are obvious. The ratification by the United States would be a most fitting way to celebrate the centenary of the Berne Convention which occurs in 1986." [96]

There would certainly be strong arguments in favour of such a move, provided the major stumbling blocks to United States ratification can be removed. That is however some time off, and in the interim WIPO and UNESCO must work together in finding adequate means of protection for developing forms of technology if indeed such developments are worthy of protection.

III. COMPUTER SOFTWARE

A. INTRODUCTION

When giving the Henry A. Carey Lecture on Civil Liberties at Cornell Law School 29 November 1976, David E. Bazelon, Chief Judge, United States Court of Appeals for the District of Columbia Circuit, confessed to knowing very little about science and technology:

"If, as Socrates said, it is a wise man who knows what he does not know, a discussion of "coping with technology through the legal process" should allow me to display uncommon wisdom - because technology, and science are things about which I frankly know very little. I suggested recently that judges are, for the most part "technically illiterate", and I would certainly include myself in that category. But whatever our limitations, the judiciary is increasingly being asked to grapple with scientific and technological issues of great complexity." [97]

The Judge continued to discuss the possibility of a Science Court, and the more general question of who should be called on to decide legal issues which have a large scientific component. However two points from that small passage quoted above deserve comment. Firstly, it is not only judges who are technical illiterates, but rather all members of the legal community - from the international legislator to the sole practitioner in Wellington. Secondly, there are many legal issues of great scientific importance and complexity that all members of the profession are obliged to come to terms with. Foremost among these is the development of computer software, and the ongoing debate at all levels about whether it should be protected and if so how. But while children may be completely at home with ROM and RAM, PROMs and EPROMs, or even RPRROMs, lawyers tend to be completely confused.

This Chapter introduces the subject the protection of which will be discussed at great length in later sections. It introduces the

basic concepts of computer technology, and is essentially concerned with the following questions:

- (a) What is computer software? How is it to be distinguished from computer hardware? What is a computer program? What is firmware?
- (b) What is the value of computer software to science and industry? In answer to this, reference will be made to Australia, Japan, the United Kingdom and even New Zealand to show that computer software manufacture and supply is a massive international industry.
- (c) What is the cost to this industry of computer software piracy?
- (d) Should computer software be protected? Or should one simply accept the inevitability of copying?
- (e) If it is to be protected, what method of protection is to be used? There are various options available to the manufacturer and/or supplier - trade secrets, the patent system, copyright, and possibly contract.

This is not a debate that has been confined to individual states, but has been and continues to be discussed at all levels - both national, regional and international. While the primary focus of this paper is the international work being done on this subject, brief reference will also be made to national concerns and opinions, as they play an important part in the formation of international opinion.

B. TERMINOLOGY

It has been suggested that the difference between hardware and software is that you can kick hardware, while you can only swear at software.[98] However a more comprehensive explanation of some of these terms is provided by Lockhart J. in the decision of the full Federal Court of Australia in Apple Computer Inc. v. Computer Edge Pty Limited:

"A computer is an inter-connected and sophisticated system comprising four parts: input, processing, output and storage. The machines in a computer system are called "hardware". "Software" is the term given to the computer's programs and is distinct from hardware. A program is a concise set of instructions that directs the computer to do the tasks required of it step by step and to produce the desired result."[99]

The definitions given by the Learned Judge are concise and for the most part accurate, but he does not make a clear distinction between a "program" and "software". The explanations given by Bryan Niblett in his paper "Copyright Protection of Computer Programs", make that distinction more clearly:

"Also associated with a computer program is a more or less large volume of explanatory text and diagrams. These are the specifications, the flow charts, the operating and user manuals which describe how the program is constructed, how to modify it and maintain it and how to run it on a practical machine. It is usual to refer to the program and associated document as "software" whilst reserving the term "program" for the computer program itself."[100]

Programs may be represented in different forms - figures and letters handwritten or printed on paper; printed type on paper tape; holes punched in cards or paper tapes; areas of differing magnetic fields on tapes or disks; connections in electrical circuits such as chips or intergrated circuits of either a permanent or temporary nature.

There are two types of computer programs. The first is the program which provides a specific set of instructions which generate a predictable end result or output from a given input. These include programs for playing chess games, solving problems, operating machinery, and so on. This type of program is known as the application program. The other sort of program is the control program. This controls the workings of the machine itself or the operation of the whole computer system. A control program might allow a computer to perform several tasks at once, each of those tasks being a subject of an application program.

Brief reference is now made to program language. A distinction must be made between object and source codes. The explanation given by the Senior Assistant Commissioner (policy) of the Australian Patent Office (Mr P.A. Smith) is instructive in this regard:

"[Computers] really only understand two states in each of the large number of individual components - "on" "off". In electrical terms that is seen as open or closed switches or circuits, so the lowest level of instructions or programs must be presented to the computer in that form. Called machine language or "object code" this set of instructions can be expressed in binary form, 0 and 1, i.e. "on" or "off". While it may be intelligible to human beings in some simple forms, it is not easily readable by them.

Higher level languages, written in alpha-numerical form, such as assembly language, or those such as BASIC or FORTRAN which use English words and symbols, are called "source code". These languages are more readily understood by humans and can be written by them to provide instructions for the computer." [101]

Smith also explains the need for at least "one translation" from the high level language or source code, to the operating language or direct code so that the computer is able to carry out its instructions. These translations are carried out by compiler programs which convert source code to object code.

Finally the terms RAMs, ROMs and EPROMs require explanation. Notwithstanding Judge Bazelon's comment about technically illiterate judges, it is fair to concede to the Federal Court which overturned Beaumont J.'s decision in Apple Computer Inc. v. Computer Edge Pty Limited[102] a degree of literacy - and particularly Lockhart J. His judgment contains a very lucid explanation of these terms. When a program in machine readable form is entered in the operating nerve centre of the computer (CPU) the computer may process it. The CPU executes the programmed instructions - the part which actually does the calculating being called the arithmetic logical unit (ALU). There are two types of memory in a computer, namely, ROM and RAM.

- (a) RAM stands for "random access memory". These are storage or memory chips, in which data and programs can be written in and read from any main storage location readily and speedily. They require a continuous supply of electric current to maintain the stored data.
- (b) ROM stands for "read only memory" and is a permanent form of storage designed to avoid accidental loss. This is often called "firmware", namely something between hardware and software. The program contained on a ROM is software but has the hardware characteristic of permanence.
- (c) An EPROM "erasably program read only memory" is another type of firmware storage. This may be read during execution of a program, or altered, rewritten or erased before assembly into the computer system.
- (d) RROMs - these are reprogrammable ROMs.

This terminology is of some importance because it appears in all the discussions at WIPO and at national level, and it also

essential to an understanding of the recent Australian case which is examined in the final section of this paper.

C. THE SOFTWARE INDUSTRY

What is the value of the computer software industry? In answering this question, brief reference is made to a few countries to show its importance to national economies. A survey of the New Zealand software industry by the DSIR indicates that annual sales of New Zealand written software could be \$15 million in New Zealand, and up to \$7 million overseas.[103] (The full survey which was conducted by DSIR Scientist Martin Kaiser will be released later this year.) In 1974 the Whitford Report estimated that the investment in computer programs in the United Kingdom by users, computer manufacturers and software houses was approximately £350 million.[104] At the time of this report, on a worldwide scale it was estimated that a sum of the order of £7,500 million was being spent annually on the creation and maintenance of software systems.[105] At the National Symposium on computer software held in Canberra earlier this year, a spokesman for the Australian Computer Equipment Suppliers' Association indicated that the revenue from software worldwide in 1982 was estimated to be A\$10,000 million to increase to approximately A\$41,000 million in 1987.[106] In Australia itself, vast sums are also involved. In an address to the same Symposium as referred to above, the Attorney-General, Senator Gareth Evans Q.C. had this to say about the developing Australian industry:

"We are fortunate that a strong and competitive local software industry is developing. For example, I am informed that in Australia today there are over 600 organisations whose main activity is software development, servicing and consultancy. These organisations employ over 7,000 persons and have an estimated turnover of A\$360 million. This does not include organisations which produce their software inhouse." [107]

A spokesman for the Australian Computing Services Association at the same Symposium indicated that the 1984 annual revenues of software and services is expected to be over \$A550 million with about 800 companies and employing 13,000 people, over 8,000 of these being involved in software.[108]

Finally, reference is made to the report of the Information Industry Committee of Japan which produced an interim report in December 1983 on proposals for establishing legal protection of computer software. It referred to the remarkable technological advances in this field and the ever increasing demand. From 1978-1982, the number of general purpose computers installed in Japan increased 2.2 fold, while total personal computer shipments reportedly exceeded 1 million units.

"Meanwhile, the value of software development has increased 3.6 times reaching approximately Y300 billion in the past five years, even in limited areas related to the information processing industry. Furthermore, some estimates have indicates that the software development value would be approximately Y5 trillion if in house development and in house use by computer users in the information industries, software supplied to the merchant market by computer manufacturers and those sold as part of the hardware are included.

At present, the share of software cost in information processing spending exceeds by far that of hardware (there is some indication in the U.S that it has reached 80% of the total), and this trend is expected to accelerate in the future." [109]

D. COMPUTER SOFTWARE PIRACY

As with other modern forms of technology, such as those mentioned in the introduction to this paper, piracy is reaching serious proportions in the computer software industry. Software Trade Organisations now estimate that piracy in Europe and Britain is costing over £50 million per year.[110] It is even suggested that piracy is even more rampant than in the video or music trade. Software pirates are cashing in on the computer boom. For every

program or video game that is sold, it is estimated that as many as eight illegal copies are made. When these programs, recorded on floppy discs, cost several hundred dollars each, that can cause the profits of software companies to tumble.[111] America's Visi Corp is thought to lose around 30% of the market for its enormously popular "Visicalc" program for financial analysts.[112] At the bottom end of the software market, trying to stop programs being copied is like keeping tabs on music cassettes being recorded in backrooms. The British Economist has commented that notwithstanding the new safeguards invented, there is no entirely foolproof method. "Like Wily Bacteria faced with a new anti-biotic, the program pirates faced with a new safeguard are spurred on to find new dodges around it." [113]

Moreover, this piracy is not only financially damaging. A spokesman for the British Guild of Software Houses recently said that piracy is also affecting the development of the industry, for nobody wants to spend months writing a complex program only to find that in a matter of moments it can be copied, en masse by pirates.[114]

E. DESIRABILITY OF PROTECTION

Much of the debate on computer software has not so much been directed to desirability of protection, but to the method by which protection is best granted. Nonetheless, there are a few commentators and interest groups that have questioned the need for protection. A useful starting point is an article by Stephen Breyer published in the United States in 1970.[115] In that article, Mr Breyer expressed considerable doubts as to the need for program protection, particularly by copyright, and suggested that any protection of software would depend on five conditions:

"(1) Generally usable programs, (2) Produced by independent software companies, (3) Selling "off the shelf", (4) At low prices, (5) To large numbers of widely dispersed buyers." [116]

In the fourteen years since that article was written however every one of Mr Breyer's conditions has been satisfied.

In the ongoing debate in Australia about protection of computer software, even the self-styled "Software Liberation Movement" (SLM) representatives acknowledge the need for protection, but dispute whether the copyright system is the appropriate one. Rather they would prefer to see a long term measure introduced, rather than the use of copyright legislation to which they object.[117]

One of the major functions of WIPO is the promotion of discussion at international level of legal developments in member States. At such discussions, States are given the opportunity of learning the experiences of other member States in efforts to confront common problems. Such a discussion is mutually beneficial and provides a relatively simple and inexpensive means of domestic law reform. In 1970, the Secretary-General of the United Nations called on WIPO to conduct a study as to the best means of providing protection for computer software.[118] The first meeting was held in Geneva from 8-12 March 1971 and proceeded at all times on the basis that protection of computer software was required.[119] After the fourth session of the advisory group of non-governmental experts on the protection of computer programs, model provisions on the protection of software were produced by WIPO, together with explanatory notes.[120] Three reasons were given for the desirability of legal protection. The first is the time and investment required to produce computer software. Reference was made to the sum of the order of \$US13 billion expended annually on the creation and maintenance of software systems. Nor was protection only seen from the point of view of the large producer. The WIPO Report also mentioned the small software enterprise or even the individual creator of software:

"The existence of strong legal protection would encourage the dissemination of their creations and enable such creators to avoid duplication of work. Without such dissemination, numerous programmers may spend considerable time and effort in order to

accomplish, in parallel work, the same objective; although the programs created by them may be different, any one of the programs would probably fully accomplish the said objective. In any case, legal protection would encourage exploitation of software for the purposes other than internal use."[121]

The second reason that WIPO advanced for the desirability of protection of software was the likely future developments. Reference has already been made in the context of the Japanese Report on software development to 80% of expenditure in the US in computer technology being on software. WIPO put the figure at 70%, but in any event, it can be seen software development accounts for the predominant proportion of computer expenditure. WIPO predicts that the total expenditure on computer software will certainly increase.[122] At the same time there is an increasing trend to standardised user software as computers become more accessible to the public and easier to operate. Thirdly, protection is seen as providing an incentive to disclosure, particularly in the context of developing countries. Fourthly, protection provides a basis for trade, which again WIPO saw as being beneficial to developing countries.

"Such a system would encourage dissemination of software to those countries, not only because the publication of the software would not defeat protection but also the protection would eliminate the uncertainty of enforcing a confidential disclosure document".[123]

The final reason given was because of the vulnerability of computer software, and the ease with which software may be copied.

F. THE METHOD OF PROTECTION

The goals of legal protection should always be considered before looking at the various methods that may be used to protect computer software. Henry A. Carr, when evaluating the various policy considerations for software protection in the United Kingdom, said that protection must provide the economic incentive necessary for

creativity, and the encouragement to disseminate the results of the creativity.[124] He refers to the American case of Structural Dynamics v. Engineering Mechanics:

"One is aware of the need that information should be disclosed. It may be that in controlled societies, one reason for the apparent lack of development of technology is the restriction on disclosure. But it is also true that some measure of protection favours innovation and that this encouragement to the discoverer or developer enhances a basic human motivation for inventiveness."[125]

Like the WIPO report Carr referred to the large and small creator and producer of software. He saw the large producer as having the volume of production to enable him to produce in the absence of adequate legal protection, but at the same time create a monopoly situation. On the other hand, the small software developer needs an economic return, simply in order to keep going, and also needs the ability to research without legal constraint.

"The fusion of general and specific produce three goals of legal protection. Firstly, that adequate economic returns should result from software development. Secondly, this "economic goal" must be balanced by the need to encourage dissemination of ideas. Finally, legal protection must have administrative workability."[126]

P.A. Smith of the Australian Office has a similar list of relevant criteria which lie behind all intellectual and industrial property protection: the type of development which protection should stimulate, and the effects of protection on the beneficiary of protection, competitors and the general public. The balance of costs and benefits varies for different types of protection.[127]

One of the most popular means of providing protection for computer software is the use of trade secrets law. For example, a person enters the employment of a software manufacturer, and as a condition of employment is required to promise that on termination of employment, any information that may have been learned in the

course of employment, or any work that may have been developed by him in the course of that employment, remains the property of the employer. The major result of the trade secrecy option is its prevention of dissemination of ideas and exclusion of competitors. Confidentiality leads to duplication of effort. Unlike an idea protected by patent law, an innocent third party who develops a similar method or program is protected. The disadvantages of such a system are referred to in the WIPO background report to the model provisions produced in 1978:

"... one of the advantages of the establishment of clear and adequate legal protection for computer software is to encourage greater disclosure of information on computer software which would otherwise be vulnerable to misappropriation. The aim of such protection is therefore precisely to avoid any necessity to rely on secrecy and on laws and legal measures safeguarding secrecy." [128]

Therefore on the grounds of encouragement of dissemination of ideas, it would seem that trade secrecy is an inadequate form of protection.

Most discussion has centred on the desirability of either patent or copyright law protection. This has formed the basis of much of the discussion at the WIPO sponsored conferences, and in various national reports. The patent option has not found favour in the United Kingdom, where the Patents Act 1977 specifically excludes computer programs from patent protection, [129] nor in Australia, where the question of whether a program is patentable has yet to come before the courts. The Australian Patent Office in nine decisions dating from 1966 to 1978 has refused to grant patent protection for computer programs. [130] The patent option fails to satisfy all three criteria used by Carr. Firstly, an adequate return on investment could not be ensured, because of the requirement of public disclosure as a pre-requisite for patent protection. Secondly, a system whereby a patent is registered does not provide a flexible means for disseminating ideas, particularly where the subject matter of protection is in a rapidly developing

field. The most cogent argument against the patent system is administrative unworkability. P.A. Smith, in his paper on computer software protection in Australia refers to the sluggish response of patent law to new areas of technological endeavour:

"When the Statute of Monopolies was enacted in England in 1623 to forbid the grant of patent monopolies except for the "working or making or any manner of new manufactures", industries was rather different from now." [131]

The background notes to the model provisions of protection of computer software produced by WIPO also illustrate further arguments against patent protection. [132] Even if it were available, it could only cover a tiny proportion of computer programs since in only a few cases would a program have sufficient inventiveness to satisfy the requirements of patent law. (One of the major requirements of any patent legislation is that of novelty of an invention.) A further problem outlined was the practical difficulty in conducting the examination relating to novelty and inventiveness of a program, establishing documentation on the prior art and finding qualified examiners. The WIPO Report also referred to the disclosure requirements of any patent procedure, and highlighted the point made earlier that unrestricted disclosure to the public would be undesirable because of the difficulty of detecting misappropriations of a computer program. But it was said that to make an exception in favour of computer software, would prejudice a fundamental principle of patent law, that of full disclosure to the public. [133]

Thus it would seem that the patent system is not acceptable, and this is reflected in the very few applications made by computer software manufacturers for patent protection. The owner of the program may receive protection against independent development of his idea or copying, but disclosure may prejudice him and encourage competitors.

The final system of protection commonly proposed for computer software, and the system that is generally accepted to come closest to the ideal is copyright law protection. Patent law protects the technical idea that underlies an invention, whereas copyright law focuses on providing protection for the form in which ideas are expressed, though protection may not be limited to that form. Many members of the discussion groups at the WIPO meetings argued in favour of the copyright system of protection for computer software because of the large amount of descriptive or explanatory matter[134] - even a computer program consisting of magnetic tape is a form of expression of the ideas contained in the software which results in the program. Of the three systems that have been referred to, and considered by the non-governmental experts in their four sessions between 1971 and 1977, copyright protection was seen to be the most efficacious method of software protection, and the model provisions prepared by the International Bureau and adopted by the advisory group essentially adopted a modified copyright approach.

These opinions are generally in line with what has been accepted in the United Kingdom. The Whitford Committee reports both recommended that unauthorised use of a computer program should be an infringement of copyright[135]. The United States Copyright Act 1976 specifically mentions computer software[136]. While there has been no decision of the United Kingdom Courts[137], there have been a number of out of Court settlements on the basis that copyright subsists and has been infringed. The adequacy of the copyright option will be examined in the next chapter.

IV. BERNE, U.C.C. AND COMPUTER SOFTWARE

A. INTRODUCTION

In this chapter the substantive provisions of the Berne and Universal Copyright Conventions that are relevant to computer software will be examined, and consideration will be given to whether they provide an adequate basis for protection. For New Zealand, the relevant conventions are the Rome Act of the Berne Convention, and the 1952 text of the Universal Copyright Convention. In order to ratify later texts, substantial changes would need to be made to New Zealand's existing copyright legislation. The Copyright Law Reform Committee in its report to the Minister of Justice in 1959 listed what it considered to be necessary for alteration before New Zealand could accede to the Brussels Act of the Berne Convention. The report also contained comments on the Universal Copyright Convention.[138]

The Conventions are not part of New Zealand's municipal law, but may be looked at in arriving at the proper construction of domestic legislation. (Warwick Film Productions v. Eisinger[139] confirms the principle, although in that case it was held that there was no ambiguity in Section 20(4) of the British Copyright Act 1956 and that accordingly, the Brussels Convention 1948 was not admissible evidence to aid construction.) If a question on interpretation arose, New Zealand Courts would be able to look no further than the Rome Act and the original Universal Copyright Convention text.[140]

The interpretation of the Berne Convention for domestic legislation was referred to by Mr S.G. Raymond in his report to Parliament after the 1928 Conference in Rome.[141] He suggested that in interpreting the Convention, the interpretation placed upon it by other nations (or any not inconsiderable body of them) might be safely and properly adopted, even if that interpretation did not commend itself to a common lawyer. However, according to English

Law, one may only look at the Berne and Universal Copyright Conventions for assistance if there is an ambiguity in domestic legislation. In a recent New Zealand decision, Jeffries J. was prepared to go so far as to acknowledge that New Zealand had recently concluded the CER Treaty which would affect reputation and good will of Australian companies in New Zealand. Crusader Oil NL and Another v. Crusader Minerals NZ Limited[142] was a passing off action involving an Australian oil company and a New Zealand mineral exploration company, both of which had the name "Crusader". The Australian company sought an injunction requiring the New Zealand company to change its name. In this case however, the Judge was not called on to interpret any provision of the CER Treaty, but rather he took note of its existence and its likely future affect. Nonetheless, this case does illustrate the relevance of an international treaty to domestic law, and the recognition of that by the Court.

B. ADEQUACY OF PROTECTION UNDER BERNE AND U.C.C.

The adequacy of the existing Conventions (including the Paris Convention for Protection of Industrial Property) was considered by the expert group convened by WIPO to consider the legal protection of computer software[143]. At the group's first session in 1979, the provisions of the existing Conventions were not seen to be giving the protection which should be granted to software. The experts agreed that the question of the desirability of a special treaty for the protection of computer software should be further studied. This further study resulted in the draft treaty, which will be considered in the next chapter.

When looking at the Conventions, the first question is whether computer software comes within the definition of protected works in either Convention.

The technological advances of the 20th Century are mirrored in the successive revision and extension of the term "literary works" in the Berne Convention. The original definition was very general and open-ended: "In fact every production whatsoever in the literary, scientific or artistic domain which can be published by any mode of impression or reproduction".[144] This was removed by the Paris Additional Act of 1896 when photographic works were added to the list of protected works and the phrase "works produced by an analogous process" was created. The Berlin Act of 1908 added choreographic works and entertainment in dumb show, works of architecture and cinematograph productions. "Speeches, sermons, addresses and other works of the same nature" were added in Rome. The Brussels Act 1948 added works of applied art, industrial designs and models. Article 2(1) of the Paris Act 1971 provides the latest definition of "literary and artistic works" in the Berne Convention.

The wisdom of the change to the definition in 1908 has been questioned. Stephen Stewart argues that had the original 1886 definition been left just when it began to be needed, the "considerable intellectual and practical difficulties which the Convention encountered later, particularly at the Revision Conference in 1948 with regard to films, television broadcasts and phonograms, might have been avoided"[145]

The definition contained in the Rome Act which is the relevant one for New Zealand is, (Article 2(1)):

"The term "literary and artistic works" shall include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression, such as books, pamphlets and other writings; lectures, addresses, sermons and other works of the same nature; dramatic or dramatico - musical works, choreographic works and entertainment in dumb show, the acting form of which is fixed in writing or otherwise; musical compositions with or without words; works of drawing, painting, architecture, sculpture, engraving and lithography; illustrations, geographical charts, plans, sketches and plastic works relative to georgraphy, topography and science."

It is submitted that computer programs and related material which make up computer software would be covered by this definition. At this stage of the development of the Berne Convention, there was acceptance of the idea that literary and artistic works need not solely be used for pleasure, information or instruction purposes. A work of architecture or a chart is a work which may have a commercial as well as an artistic or literary value. The categories overlap. The first part of the definition is the key section - that which comes later is merely illustrative of the types of work that are protected. The list is not exhaustive.

The words "whatever may be the mode or form of its protection" are important because they may cover computer programs in both source and object code. Thus, a program which is not intelligible to human beings may nonetheless be protected.

If it is not accepted that Article 2(1) covers object codes, then it would seem that Article 2(2) certainly would. That Article provides, inter alia, that translations, adaptations and other reproductions in an altered form of a literary or artistic work ... shall be protected as original works without prejudice to the author of the original work. In Apple Computer Inc. v. Computer Edge Pty Limited[146], discussed later in the context of developments in Australia, two Judges were prepared to give a liberal interpretation to the term "adaptation" and hold that an object code program was a translation or adaptation of the source code program. The exact classification of what takes place when changing a program from source code to object was considered at a special meeting in Canberra this year, without any firm conclusions being drawn.

Article I of the 1952 text of the Universal Copyright Convention provides for adequate and effective protection of the rights of authors and other copyright proprietors in "literary, scientific and artistic works, including writings, musical, dramatic and cinematographic works, and paintings, engravings and sculpture."

The inclusion of the word "scientific" means that it is possible to argue that a computer program is included. When the text was being discussed by the Commission in 1952, Canada suggested that the word "scientific" was unnecessary. The President of the Conference said however that the word "scientific" was necessary to cover such things as logarithm tables and works on nuclear physics.[147] Thus, the generality of the definition would allow the inclusion of computer software as literary and scientific works. This would be the case whether the program is in source code or object code.

In conclusion on the types of work covered by the Conventions, it is submitted that both the Berne and Universal Copyright Conventions as currently ratified by New Zealand would cover developments such as computer software. The terms in both Conventions are capable of being interpreted in this way. The long lists of specific items in both definitions do not narrow the definitions as they are non-exhaustive. Thus the Rome Act of 1928 and the 1952 text of the Universal Copyright Convention may be used to assist in determining whether a development of the 1970s and 1980s is able to be included in a list of protection works.[148]

The next matter is publication. Article 4(3) of the Rome Act provides that by "published works" is understood "works copies of which have been issued to the public." This definition has undergone extensive changes in later revisions. The Brussels Act added the following words:

"... and made available in sufficient quantities to the public whatever may be the means of manufacture of the copies." [149]

It is made clear that copies must be issued to the public in sufficient quantities and that the method of manufacture of the copies is immaterial. The Paris Act 1971 sought to define "sufficient quantities" by adding the proviso:

"... that the availability of such copies has been such as to satisfy the reasonable requirements of the public, having regard to nature of the work." [150]

Manfred Kindermann, in his paper on software and the Paris Revisions refers to the 1971 gloss:

"In interpreting this last phrase, the nature of the work must be considered. In short, it depends on how many copies must be available and how this must happen. Thus publication of a work having a high value, such as a film, may take place by offering a limited number of copies for renting to a certain type of customer such as film theatres. In this case, the offer of copies amounts to publication." [151]

The Berne Convention provides protection for both published and unpublished works (Article 4 of the Rome Act). Article 4(3) of the Rome Act provides however that the country of origin in the case of unpublished works is the country to which the author belongs, but in the case of published works, the country of first publication, and in the case of works published simultaneously in several countries of the Union, the country is the law which grants the shortest term of protection. The Brussels Act added an additional paragraph to provide that any publication of a work which takes place in one or more other countries of the Union within 30 days of the date of the first publication of the work shall be regarded as simultaneous publication. Article 3 of the Paris Act (which builds on Article 4 of the Rome and Brussels Acts) specifically makes it quite clear the publication must be with the consent of the author - this had never been clear in earlier Acts, but only implied. The Rome Act neither adequately defines "published works" nor makes it clear that publication must take place with consent of the author. Under the Rome Act, something may constitute a "published work" under its loose and vague definition, but not under the subsequent Acts.

Article II of the Universal Copyright Convention applies the protection provided for in Article I to published and unpublished works. A published work is protected if first publication takes place in one of the member states. This is the case also when works are at first published in that member state. There is therefore no requirement for works first published in a member

state that they be published by a national of a member state. Unpublished works of the nationals of one member state enjoy in each other member state the same protection as that state gives unpublished works of its own nationals. Article VI defines publication as being the reproduction in tangible form and the general distribution to the public of copies of a work from which it may be read or otherwise visually perceived. There is not qualification of the amount (e.g. substantial quantities) like the equivalent provision of the Berne Convention. Accordingly publication of a small number of programs satisfies the publication requirements of the Universal Copyright Convention but not the Berne Convention.

The lack of formalities in the Berne Convention has already been mentioned. Copyright automatically subsists in a literary or artistic work without the need to deposit anything at either a national or international depositary. In this way, secrecy, which may be so important in the development of a new product, is maintained. The Universal Copyright Convention requires certain formality requirements as the condition of granting protection. These formality provisions would only be relevant in a country which has no formalities requirements if the subject matter of protection was to be published outside the boundaries of the State in which it was first published. To receive subsequent protection in a State which requires formalities, the minimum formalities provided by Article III of the Universal Copyright Convention would have to be complied with. If however the work was first published in a State which required formalities, such as the United States, minimum formalities would not suffice to enable protection to be given, if that State was the place of first publication, but full compliance with all the requirements would be necessary. The lack of formalities in the Berne Convention has given rise to lengthy debate at the various WIPO sponsored meetings on the best means of protection of computer software[152]. Provided software, or some of its constituent parts, can be included in the definition of literary and artistic works or its equivalent in the Universal

Copyright Convention, formalities would not concern a proprietor of software. They are non-existent under Berne, which is the optimum for him, and minimal under Universal Copyright Convention.

How long should computer software be granted the protection of the Conventions? Article 7 of the Rome Act provides that the term of protection to be granted by the convention shall be the life of the author and 50 years after his death. In the case of works which have joint authors, Article 7 bis provides that the term shall be calculated according to the date of the death of the author who dies last. This could therefore substantially lengthen the term of protection for works. Until the Brussels Act, the 50 years period had been optional as the term could be made the subject of a reservation (Article 7(2) of the Rome Act). However the deletion of paragraph (2) of the Rome text made it necessary for all countries of the Union to give a minimum period of protection of 50 years after the death of an author except in the case of cinematographic works and works of applied art. It was this change in the Brussels Act which was one of the reasons why the authors of the committee on the reform of the New Zealand copyright legislation did not think that New Zealand should ratify the Brussels Act:

"We would particularly stress the matters of term of copyright We are recommending a reduction in the general term of copyright to a period less than the minimum provided by Article VII(1), and if New Zealand accedes to the Brussels Revision it cannot provide for such a reduced term." [153]

There is a strong argument against a 50 year period in the case of computer software. Given the speed of technological change, a computer program written in 1980 will certainly be obsolete in 50 years time. A shorter period is desirable. However as Manfred Kindermann noted in his paper on the Paris Act 1971 [154], there are several works which were referred to in Article 2(1) such as maps and plans that may become obsolete while their term of protection runs for many years so computer software is not unique in that regard. The Universal Copyright Convention provides for a shorter term than that of the Berne Copyright Convention. Article

IV(2) provides that protection is to last for no less than the lifetime of the author and 25 years after his death. Even that period may be said to be too long for computer software.

One of the principal rights protected by the Berne Convention is the right of translation. Article 8 of the Rome Act gives to the authors of unpublished works, who are nationals of one of the countries of the Union, and the authors of works first published in one of those countries, the exclusive right of making or authorising a translation of their works in the other countries of the Union, during the whole term of the right in the original work. This right was recognised as fundamental in 1886 as a translation gives a work its international dimension. Its importance in the context of computer software is in the translation, if that be what it is, of a source code program to an object code program. The matter was considered by Lockhart J. in Apple Computer Inc. v. Computer Edge Pty Limited.^[155] He was prepared to hold that the translation of a program from source code to object code was a translation. If he is correct, then that right is the author's throughout the whole term of the right in the original work. Article V of the Universal Copyright Convention spells out the basic rights of the author in whose work copyright subsists. Those rights include "the making and publication of translations of works" protected under the Convention. If it be said that the change from source code to object code is a translation, then it is submitted that those words are general enough to include translations of computer programs. However this matter is not resolved.

Article 12 of the Rome Act gives the right of adaptation to the author. The same Article in the Brussels Act is couched in more precise terms, but the substance is not altered. There is no adaptation right as such in the Universal Copyright Convention. The relevance of this Article is again seen in the way the object code is to be treated. If the changes which take place in making a source code into an object code are adaptations, and not translations, then the Berne Copyright Convention provides the necessary

protection. In order to constitute an adaptation under Article 12 of the Rome Act, it would be necessary that any adaptation would be a reproduction of the work in the same or another form without essential alterations, additions or abridgements and which would not present the character of a new original work. The change from source code to object code is of a more fundamental nature than that, as the character of the source code is altered.

One of the most important rights of the Berne Convention is the reproduction right. Until the Stockholm Convention of 1967 it was not expressly stated in the Convention. Stewart advances as the reason for its omission the fact that it was always understood that the author would have this right *jure conventionis*, but that it proved difficult to find a formula which would cover both present and future processes of production.[156] Article 9(1) of the Paris Act 1971 gives to the authors of literary and artistic works "the exclusive right of authorising the reproduction of these works, in any manner or form". The absence of the express right of reproduction, constitutes a serious weakness in the Rome Act of 1928 as it relates to computer software. It is submitted that it would be very difficult for example to argue that an implied right existed in the Rome Act of 1928 for the reproduction in machine readable form of a computer program. The very wide yet explicit definition provided by Article 9(1) of the Paris Act 1971 would appear to be essential in order to be able to mount such an argument.

A similar problem exists with the Universal Copyright Convention. IV bis of the Paris Act 1971 refers to the basic rights ensuring authors' economic interests as including the exclusive rights to "authorised reproduction by any means". Reference has already been made to Article VI of the same Convention which defines publication. An essential part of the requirement of publication in Article VI is that the reproduction must be "in tangible form" from which the work "can be read or otherwise visually perceived". The reference to reproduction in Article IV bis is wider, in that the

words "by any means" would indicate that it need not only be in tangible form. Thus a copy of a computer program which is stored on a silicon chip may be a reproduction for the purposes of Article IV bis of the Universal Copyright Convention, but would not satisfy the definition of publication in Article VI. In his paper on the Copyright Conventions and Software, Manfred Kindermann said that the restricted meaning of reproduction in Article VI was mainly adopted in deference to the United States of America, although the United States Copyright Act 1976 no longer maintains such a restricted meaning. Section 101 of that Act provides that the term "copies" covers "any material fixation of the work from which it can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device". He argues that given the change in the United States, the same wide definition of reproduction contained in Article 9(1) of the Berne Copyright Convention may be given to the term "publication" contained in Article VI of the Universal Copyright Convention:

"It does not require a modification of the text of Article VI to reach that interpretation if "read or otherwise visually perceived" is understood as embracing reading or otherwise visually perceiving by means of suitable display or printer equipment such as video-recorder fed T.V. screen or a computer linked display terminal or output printer." [157]

Such an interpretation may be acceptable to the Courts. The Judges in Apple Computer v. Computer Edge [158] were prepared to give a liberal definition to terms such as "literary work" and such an interpretation would allow "reproduction" to have the wide meaning ascribed to it by Kindermann.

C. CONCLUSIONS

It is submitted that there are strong arguments for saying that the latest texts of both the Berne Convention and the Universal Copyright Convention are applicable to computer software. However while the definition of "literary and artistic work" in the Rome

be wide enough to cover computer software, there are other provisions that do not provide adequate protection. Particular reference is made to reproduction, which is of critical importance to computer software. The same comments apply to an interpretation of the 1952 text of the Universal Copyright Convention, although the question of reproduction is more hopeful. New Zealand would therefore be required to ratify the latest revisions of both Conventions if it wished to make the matter more certain. The length of protection under both Conventions is also too long for a development such as computer software. While the model legislation allows for a twenty year period of protection, recent Canadian proposals provide for only five years,[159] while Japan is proposing a law which provides fifteen years' protection.[160]

V. RECENT INTERNATIONAL INITIATIVES

A. INTRODUCTION

In this chapter the work done at the international level by groups of governmental and non-governmental experts under the auspices of WIPO will be examined. Two major achievements have been realised in the last seven years - firstly the model national law of 1978, and secondly the model treaty of 1983. These are extremely important documents, because they are the result of much discussion that has taken place since 1971 on the best methods of providing protection for computer software. This Chapter will also illustrate the functions of WIPO, particularly those of consultations of member states, and providing a forum at the international level for discussion in general terms and of specific proposals.

Since the early 1970s WIPO has been at the forefront of discussion on the need to provide protection of computer software. In 1970, the Secretary-General of the United Nations called for an international study to be undertaken on protection at a national and international level.[161] In response to this call, WIPO convened a meeting of an advisory group which was composed of governmental experts from developed and developing nations.[162] The purpose of the meeting was to examine existing efforts at the national level to protect software and also to assess the impact of existing international conventions, and whether there was a need for any modification of the Berne or Paris Conventions.

In opening the meeting WIPO's Director-General suggested that attention be given to the possible subject matter of protection, the interests of developing countries, and also whether the written views of governments should be obtained.[163] This latter suggestion illustrates an important function of WIPO - the assembling and dissemination of information concerning the protection of intellectual property and the carrying out of studies. It is an extension of the responsibility of the old Berne

International Bureau to collate material for the purpose of educating the governments of member States.

At the initial meeting of governmental experts, it was agreed that any study should confine itself to the question of the method of protection of computer software and that the separate question of the use of works protected by computer systems be made the subject of a separate study. Two other major decisions were made by the participants of the initial meeting. All members agreed that computer programs in the widest sense were worthy of protection - attention was mainly focussed on the means by which such protection could be given.[164] Secondly, the experts resolved that the study should concentrate on the desirable ingredients of a system of legal protection of computer programs, rather than rigidly follow the lines of established legal concerns for the protection of other inventions or works[165]. Later meetings of various groups have been prepared to cut across the traditional patent and copyright boundaries[166]. For example, it was agreed, even in 1971, that the period of protection for computer programs should not be based on established concepts of intellectual property but on up-to-date evidence concerning the effective commercial life of a program and the need for a reasonable recoupment of investment[167].

Another major issue which has been a source of debate since discussions first began in 1971 is the issue of registration or deposit of computer programs. In 1971, the different traditions of member countries was obvious. The expert of the United Kingdom for example, referred to his country having had no experience of a registration system in copyright. Canada and India had optional registration systems, and the United States of America in effect had compulsory registration[168]. Therefore the advisory group agreed that the establishment of such a system would depend on the legislative traditions and the administrative resources of the country concerned. The fourth session of the advisory group of non-governmental experts which produced the model law did not include in the draft any system of deposit or registration with a

national authority, or compliance with any formalities. The report of the fourth session simply sets out the arguments for and against such a proposal and leaves its member states to decide for themselves taking into account their differing legislative traditions and preferences.[169] A mandatory deposit system draws its inspiration from the patent system. In return for special protection accorded, the owner of copyright rights would be required to deposit the software. This would ensure the eventual disclosure of the software to the public with the consequent advancement of the art, as with patentable products. The promoters of such a system argue that it would enable third parties to direct their efforts to creating computer software in new fields and would promote the distribution of computer software, facilitate its sale or licensing, and increase certainty concerning the object of protection in each case. A less formal system is compulsory registration where the software owner would be required to provide particulars of the software, together with an extract of it, which would be disclosed to the public. A compulsory registration system is alien to New Zealand's Copyright Law but is similar to that adopted in the United States.

The compulsory deposit system has been criticised for being unnecessarily complex in that careful indexing would be required (without which the advantages of disclosure and public notice would be nugatory). Secondly, deposit would have to provide for public disclosure after a period of time, but if the time period were too long - thus ensuring protection of the software - the advantages of disclosure would disappear. Mandatory deposit would inhibit small producers, and could discourage creators who had to disclose their works. The report also said that protection should not be dependent on any formalities in the model laws as this would be at odds with the copyright laws of most countries.[170]

The report suggested to member States the desirability of deciding the basic approach to a system of protection before considering the option of mandatory deposit:

"If a patent law approach were adopted, it would be logical for a requirement of compliance with formalities to be included in legislation based on the model provisions which ... would need to be examined in the light of such an approach. If the principle of the model provisions (copyright law approach) were adopted: countries whose copyright law contains no requirement for compliance would have to consider, on the balance of convenience, whether and to what extent such a requirement should be introduced for forms of computer software that are not protected by copyright ..."[171]

Several comments were also made about the optional deposit system (like the Canadian and Indian systems). In this kind of system deposit does not confer any legal rights but merely certain presumptions as to the time of creation of the software.

An optional system enables public access to non-secret software, gives the depositor evidence of prior existence, and through publication of an abstract of computer software enables the public to know the kind of software available. However the report of the Fourth Session also cast doubts on this system. The principal arguments against such a system are the inability to tell whether or not the software has been updated, and that evidential advantages could be achieved by deposit with a Notary Public for example[172].

Alternatively, an optional registration system was proposed where the information registered could include an abstract of the computer program, the machines on which it could be used and the languages, the price and the date of expiration. The report concluded:

"The usefulness of an optional deposit or registration system would have to be examined in the context of the needs of software producers and users, and of the services already existing in the field. Any such system having no legal effects would probably have to be considered outside the framework of legal protection of computer software."[173]

B. MODEL NATIONAL LAW

At the fourth session of the Advisory Group of non-governmental experts which met in Geneva from 1 to 3 June 1977, a document which had been prepared by the International Bureau containing draft model provisions for a national law on the protection of computer software was discussed in some detail.[174]

The report of the fourth session referred to the purpose of the model law as being to provide assistance to the States in either complementing their law or introducing certainty to those provisions that are applicable to software protection:

"They endeavour to regulate their subject matter in as complete a way as possible so that they may form the basis of a special law on the protection of computer software; they would of course have to be adapted to the legal system of the country adopting them and supplemented with the usual provisions in its legislation."[175]

Secondly, the report commented that the provisions should not be understood as requiring adoption in a separate law, but that they might simply amount to clarification, or extension of existing legal rules and could be incorporated in existing laws.

"... the complete presentation in the model provisions has the advantage that it draws attention to the various problems which may exist under particular national systems and indicates possible solutions to those problems."[176]

In proposing model laws on a national level, the Advisory Group also referred to the linkage between national laws and the international system. It was stressed that protection of computer software does have an international flavour, in that the use of computer software frequently concerns more than one country, and that the development of modern technology enables use of software in one country while the machine which performs functions under the control of the software is in another country. The national laws

were seen as a means by which these problems could be addressed and harmonisation of the law encouraged.

The model law is made up of seven sections:

- (i) Section 1 defines the protected subject matter - computer programs, program description, supporting material and computer software.

Computer software means any or several of the items referred to in Sections 1(i) to 1(iii), namely computer program, program description or supporting material. The earlier draft model provisions for a national law provided that protection was afforded to software in the broad sense, that is computer programs and the related documentation.[177] The related documentation comprised program descriptions, algorithms, flow charts, program descriptions and explanatory instructions belonging to or intended for a computer program. Gert Kolle, in an article on the future prospects for computer software protection commented on that definition, and said that by extending protection to algorithms as such, the draft went beyond the recommendations of the group of experts.[178] Algorithms were eventually deleted from the definition, and the definition of the subject matter of protection were spelled out in greater detail by stating a number of alternatives. The result was Section 1 of the Model Provisions of 1977. Kolle criticises this move as showing a tendency towards "excessive perfectionism and a wealth of detail". He preferred the more open clause on the subject matter of protection which he saw as being more suitable, and more adaptable to future developments.[179] There is some merit in this argument, as the definition of literary and artistic

"works" in the Berne Convention illustrates. A more general definition may be more appropriate in changing times than an overly comprehensive one, provided all the basic elements are contained in the general definition. The word "proprietor" is also defined, and is intended to cover joint proprietors, where computer software is created jointly or where the rights in it are owned jointly by more than one successor in title.

- (ii) Section 2 covers ownership and devolution of rights in software. It proposes that computer software belongs to the person who creates the software, but in the case of an employee, the rights belong to an employer unless otherwise agreed. The section also contains a reference to assignability in whole or in part by contract.

This Section determines who is entitled to the rights provided for by the law and permits transfer and devolution of rights.

One interesting question which is considered in the context of Section 2 is whether the creator of a computer program which generates another computer program can be considered the creator of that other computer program. The commentary on Section 2 explains what often happens:

"... the creator devises a "parent" program designed to have a wide range of applications in making provision for a variety of different functions. A generating program selects appropriate parts of the parent program, adjusts them to the needs of the new program, links those parts together and produces the new program, all of whose parts are thus contained in the parent program. This is a question which would have to be decided

case by case. In the situation outlined above, the creator of the parent program would probably be considered also to have created the new program; but even if he were not, his rights would extend to any new program which is substantially similar to the parent program from which it was produced." [180]

- (iii) Sections 3 and 4 cover the requirement of originality of computer software and states that concepts (as opposed to the form in which they are expressed) are outside the protection of the law.

The concept of originality is appropriate since the model provisions adopt a copyright approach. They protect the form in which ideas are expressed and cannot be invoked against anyone who has independently created software which is the same as the protected software.

Section 4 is also a fundamental copyright concept, namely that the provisions protect the form in which the concepts or methods used in the creation of computer software are expressed and not the concepts themselves. If a computer program is patentable, as it has been on several occasions in the United States (as where it embodies a new and inventive concept), it follows that the concept itself is also protected.

- (iv) Section 5 lists the rights of the proprietor, being rights to prevent any person from disclosure, copying, facilitating access to software, use of the program to produce a substantially similar program, using the program description for the same purposes, selling any such similar program, or doing any of the acts referred more specifically in the section.

These rights allow the proprietor to prevent certain acts committed in direct or indirect relation to the computer software owned by him. Particular reference is made to Section 5(iii) where copying is given a very wide definition namely, copying "by any means or in any form".

- (v) Section 6 defines infringement as the unauthorised disclosure of the software or facilitating of its disclosure before it is available to the public; allowing or facilitating access by any person to any object storing or reproducing the software before it is made available to the public; copying by any means or in any form; using the computer program or program description; offering or stocking for purposes of sale, hire, licence, selling, importing, exporting, leasing or licensing. Sections 6(2) and (3) specify two situations (independent creation of software and the particular situation of foreign vessels, aircraft, spacecraft or land vehicles entering the territory of the country). The latter exception is based on the principles laid down in Article 5 of the Paris Convention for the Protection of Industrial Property.

Section 6(2) refers to the "independent creation" idea that is typical in copyright, namely that one who unknowingly and independently creates a work which is a duplicate of that which is the subject of protection has not infringed, unless of course the program has received patent protection under the national laws of one country.

- (vi) Section 7 provides that the term of protection is twenty years from the date of first use or sale, and in no case is the period of protection to exceed

twenty-five years from the time the computer software was created. This period is substantially less than that provided by the Berne Convention, but only five years less than the period provided by the Universal Copyright Convention.

The commentary on this Section says that the aim is to encourage proprietors of the rights in computer software to make the software accessible to the public by giving them a reasonable period during which they can rely on the protection of the law. "Once the rights have expired, everyone will be free to copy or use the computer software, subject to any continuing rights under other laws." [181]

Is 20 years too long a period? The proposal contained in the Canadian White paper on Copyright may be more realistic given the nature of the subject matter of protection. In relation to computer programs (which is the only category of computer software referred to), the following proposals are made:

- "(a) The term of protection for an unpublished machine-readable program will be five years from the date of creation;
- (b) The term of protection for a published machine-readable program will be five years from the end of the year of publication; and
- (c) If the machine-readable program is published more than five years after its date of creation, it will not be eligible for computer program copyright." [182]

The Japanese proposal is for a period of 15 years. The commentary on the Japanese intentions makes the following comments about duration of rights:

"As the base of the concept to determine the duration of program rights, as in the case of existing industrial property rights, it is necessary to grant an exclusive right for a certain period to secure recovery of investment, and thereafter offer the program for general use in order to contribute to the development of industry and the economy." [183]

Some would agree that a period of either 15 or 20 years for computer software is unacceptably long, and the Canadian proposal adequately covers this type of property. The commentary on the model laws acknowledges that the period is a little longer than the term normally accorded to patents, but is shorter than the normal copyright period.

"Consideration must also be given to the fact that computer software can have a very long life; computer programs which formerly became obsolete as soon as a new generation of computer hardware was developed can now, by means of another program, be adapted for use in subsequent computers. Furthermore, it can take several years for computer software to become ready for commercialisation, especially in foreign countries." [184]

Thus the question of duration is still not solved.

- (vii) Sections 8 and 9 cover establishment of relief and make clear that protection on the basis of other provisions such as Patent or Copyright Law is not excluded.

The commentary on Section 8 concedes that it is very general, but says that is because of the very different rules in the countries that may adopt the model provisions. The commentary also suggests that

this section will be more useful as a guideline rather than as a model provision.[185]

Section 9 is designed as a reminder that the purpose of the provisions is to complement existing law on computer software.

"For example, a proprietor whose rights under the law have expired under Section 7 may nevertheless, at least in respect of certain forms of computer software be able to take action in reliance upon the copyright law of the country concerned unless computer software has been removed in its entirety from the copyright law when introducing the model provisions; similarly, a patentee of an invention involving computer software is not prevented by Section 6(2) from bringing an action under the country's patent law with respect to computer software created independently." [186]

As to the first of the suggestions about independent copyright action, the most appropriate thing to do when introducing a model provision of this sort, would be to exclude computer software from copyright protection. It would be inappropriate if sui generis legislation provided specific provisions on matters such as duration of protection, and a more general copyright statute provided a far longer period. As Kollé indicates, the draft legislation contains no rule on possible precedence of other systems of protection or on conflicts between the special software protection and other forms of protection. He suggests it is for national legislation to avoid undesirable overlapping of the various systems of protection and to establish an order of precedence between the various possible forms of protection.

The general reaction to the draft model laws has been favourable. Kolle suggests that the model law constitutes an excellent tool for continuing the debate on the appropriate protection of software:

"The rules proposed for national protection of software would seem both to take into account the special features of the problem and to meet the software producers' need for protection." [187]

He cautions against excessive perfectionism, lest such striving prevent states from adopting special legislation and rely on existing copyright legislation. This warning has some validity. WIPO has now sent thirteen years on this topic and no definitive proposal has been produced. However, the value of WIPO is in its raising of the issues. It is for national legislation to specify particular methods of protection, and for international organisations to highlight the various options. Abel expresses similar sentiments on the value of the WIPO proposals:

"At the very least the WIPO proposal simplifies the terms which apply to the area and to a degree, draws a well defined line between the needs of software manufacturers and those of society.... One of the strongest arguments favouring an international treaty (or identical national laws) is that of clarifying much of the uncertainty surrounding the protection which may be afforded to computer software. By delimiting the subject matter to be protected and the origins of the protection afforded, the protection draft has succeeded in this goal." [188]

C. MODEL TREATY OF 1983

Following publication of the Model Laws, WIPO convened a meeting of a further expert group on the legal protection of computer software. This Group held its first session in Geneva from 27 to 30 November 1979.[189] The meeting again reaffirmed the desirability of protection for computer software and then examined the proposals for a treaty. Particular reference was made to the Paris and Berne Conventions, and it was agreed that those Conventions did not provide the protection which should be granted to computer software. The International Bureau was asked to undertake further study and to produce proposals for a treaty for the protection of computer software. The question of the international deposit of computer software was further discussed but no conclusions were reached. The Expert Group recommended that the Bureau prepare a questionnaire to cover problems raised in connection with the international protection of computer software and any other related questions. The questionnaire was also to canvass opinion on the desirability of a treaty on the protection of software.

Some people have criticised the failure of WIPO to act decisively in this field rather than holding innumerable discussions which appear to lead nowhere. It should be borne in mind however that protection for computer software is extremely complex, and there are many competing interests. WIPO's value as a co-ordinator of information is illustrated by the International Bureau's questionnaire to member States.

As a member of WIPO, Australia received a questionnaire concerning computer software matters in March 1981.[190] To assist in preparing the response, copies were widely circulated amongst interested organisations such as the Department of Science and Technology, the Australian Copyright Council and the Public Service Board. For those who would say WIPO is not decisive, the following comment of the Australian Government partly provides an answer:

"Notwithstanding the substantial amount of work carried out by the Expert Group and the International Bureau and notwithstanding the consultation with affected interests on which the following answers are based, this Department ... considers that there is still room for further consultation as to the desirability of additional protection and as to the form which it should, if granted, take."[191]

Until member States have firm conclusions about what they want in model provisions, WIPO is unable to do more than consult and suggest.

Four questions were contained in the questionnaire. The Australian view was expressed in the letter from the Attorney-General's Department to WIPO dated 25 January 1982.[192] The Australian view is useful when considering the probable New Zealand position.

The first question asked member States to give an opinion as to the extent of protection of computer software by the existing treaties.[193] The Australians agreed that the protection given by the existing treaties was inadequate and uncertain, although it was conceded that copyright law was generally capable of protecting computer software against unauthorised copying where the program or an expression of it can be treated as a literary or artistic work. The duration of protection was also considered difficult as copyright law was said to provide far too long a period of protection. For these reasons the Australian contributors did not think that a modification of the Berne Convention would be appropriate, and there was agreement with the International Bureau's conclusion that the Paris Convention was also an inappropriate vehicle for reform.

The second and third questions were answered by Australia as one.[194] The second question was whether additional provisions were required in order to ensure sufficient international protection of computer software and to regulate related matters such as freedom of international traffic. The third question covered the measures to be taken to adopt such additional

provisions (for example, the revision of existing Conventions or the conclusion of a special treaty). The general consensus in Australia was for a new treaty because it was thought that no existing treaty could be satisfactorily amended to provide the appropriate protection for computer software.

The final question directed to member States concerned the desirability of setting up an international register of computer software on the understanding that the international deposit of the descriptions of software for the purpose of such a register (1) would be voluntary, (2) would not be a condition of protection of any rights the owner of software might have, and (3) would be kept secret by the depositary authority for as long as protection lasts, but would be available, with the consent of the depositor for the purposes of evidence of the date of deposit.[195] There was little enthusiasm in Australia for this proposal, and was compared with adequate copyright protection which would facilitate freedom of exchange and marketing of programs.

The answers from all the States were collated, and presented at the Second Session of the Committee of Experts held at Geneva 13th to 17th June 1983.[196]

Thirty WIPO members participated, and among the member States were not only the developed countries as expected but even nations such as China, Congo and Turkey. Also present were five intergovernmental organisations who were present as observers, one of which was UNESCO. The conclusions adopted following the meeting noted with appreciation the work done by WIPO in many ways to protect software, and expressed the unanimous view that, whatever the form, there should be effective international protection of computer software. That was the view notwithstanding that some of the member states attending the Second Session were quite clearly importers of computer technology.

As at prior meetings, an opportunity was given to delegates to discuss their national laws, and whether copyright and/or patent legislation provided the protection which all considered to be necessary. An opportunity was also afforded delegations to comment on the advisability or otherwise of a new sui generis treaty for the protection of computer software. Of the national delegations whose submissions are contained in the report of the meeting, six delegations indicated opposition to a specialised treaty, while a further six were neutral on the subject, with Finland and India indicating that such a proposal would be worthwhile.[197] The principal reasons advanced by delegates as to why such a treaty would be inappropriate were that it might distract from the possibilities offered by copyright law, and that existing conventions and national laws were adequate. Several nations expressed the view that if an additional treaty was desired, it should be concluded as a special agreement under Article 20 of the Berne Convention. That Article reserves unto the members of the Union the right to enter into special agreement among themselves, where those agreements grant two authors more extensive rights than those granted by the Convention, or contain other provisions which are not contrary to the Convention. The representatives from other international and private organisations were also split on the need for a new convention for the protection of computer software.

The proposed special treaty which had been prepared by the International Bureau was considered to the extent that it raised the following basic principles of international protection for computer software:

- (a) Definitions;
- (b) Desirable minimum rights;
- (c) Duration of protection;

(d) Use of computer software on land vehicles, vessels, aircraft and spacecraft;

(e) National treatment.

(a) Definitions

Article 1 of the draft treaty defined "computer program", "program description", "supporting material" and "computer software". The definitions are the same as those appearing in the model provisions produced in 1978.

The report on the meeting in 1983 does not make it clear who aired certain opinions, but does indicate that delegates had moved away from the idea of a three level definition such as that contained in the model national laws.[198] They considered it was necessary only to give the definition of "computer program". Some delegates even expressed doubt on whether a definition was needed, particularly because any definition would soon become obsolete as a result of technical developments.

The Experts had some difficulty with the definition of computer software, and in its conclusion the Second Session recommended the convening of a further working group to examine certain technical issues, such as an adequate definition of the term. In particular one of the fears was that even if the definition was only of a descriptive nature, it could soon become obsolete because of ongoing technological developments.[199]

(b) Desirable Minimum Rights

Article 4 lists and defines the acts against which Contracting States are obliged to grant protection under the treaty. The acts are those referred to in Section 5 of the Model Provisions.

(c) Duration

Article 5 is based on the provisions of Section 7 of the Model Provisions. It provides that protection starts at the time of the creation of the computer software and continues at least until the expiration of twenty years calculated from the earlier of the following dates:

- (i) The date when the computer program is first used; or
- (ii) The date when the computer software is first sold.

This differs from the Canadian proposals which in effect provide five years' protection from date of creation, rather than date of first use.[200]

The meeting of Experts considered that the duration of protection should be dependent on the type of protection afforded to computer software, whether under copyright law, trade secret law, or patent law. Reference was made to Article 7(1) of the Berne Convention and Article 4(2) of the Universal Copyright Convention for copyright protection. It was stressed that the duration of protection should not exceed ten to fifteen years because a longer period would create difficulties for users of software in view of the need to further develop the software. No-one suggested applying the Berne period to computer software.

(d) National Treatment

Article 3 deals with national treatment, and provides that Contracting States must grant national treatment in respect of the protection of computer software, whatever the form of protection may be.

It was agreed by the Experts that the principle of national treatment should apply to the protection of computer software, and

there would appear to be no reason why this should not be the case. This is the most effective way of dealing with a truly international development, and avoids jurisdictional and choice of law problems.

The remaining Articles of the draft Treaty follow the established practice for treaties concluded under the auspices of WIPO, with the exception of Article 6 which is based on the principle laid down in Article 5 of the Paris Convention for the protection of industrial property, and covers the use of computer software effected on land vehicles, vessels, aircraft or spacecraft. That provision is also contained in the model national law.

The proposal that there be an international depositary of computer software has lost favour. Several reasons were advanced.[201]

Firstly, most copyright systems provide that if a work is eligible for protection, copyright subsists without any formalities. Secondly, classification and publication cost problems were referred to. While it was generally agreed that studies might be conducted as to the desirability of national systems of registration, an international system was quite clearly not needed. The only delegation indicating some approval for an international system was Australia, which mentioned that a deposit system might be desirable if any international system for protection of ideas in software were adopted. However there appears to be no movement in that direction.

The Australian proposal would be necessary if ideas in software are to be protected, as that is a movement away from a copyright system to one having patent characteristics. Copyright law only protects the manner in which an idea is expressed, rather than the idea itself. Therefore to provide protection to the computer programmer who by chance devises a program which is very similar to one protected, it would be necessary to provide proof that the

protected program was devised first. That could only be done if some form of deposit was established.

Accordingly it is clear that the principal issues involving protection of computer software at an international level are becoming quite clearly defined. There is general acceptance of the need for effective international protection, and the committee noted that WIPO together with UNESCO intends undertaking a study on the protection available for computer software under existing international copyright laws and treaties, the copyright approach being the most favoured. Unfortunately however, the committee considered that in the light of developments, and future studies, a stand on the question of the best form for the international protection of computer software would be premature, and the Committee recommended that the consideration of the conclusion of a special Treaty should not be pursued for the time being. The Committee also noted that the study of establishing an international deposit of computer software was not required to be pursued at this stage. This is unfortunate because by the end of this meeting, with the possible exception of the definition issue, the other questions were reasonably clear.

Following this meeting, the International Bureau of WIPO wrote to all member States seeking comment on the results of the meeting. Australia, being a member, received a copy of this letter. The Attorney-General's Department in Canberra replied by letter dated 27 January 1984.[202] The reply does not attempt to give a global Australian view, but faithfully reports the comments of each respondent to whom copies of the WIPO Report had been sent. The Departmental view was also briefly outlined. The copyright system of protection was still considered the best form of protection, although the deficiencies brought about by the term of protection and the failure to protect ideas was raised. The Departmental view on registration which had been stated at Geneva had not changed in the intervening months, although none of the private respondents has expressed support for any system of registration.

This letter illustrates the ongoing discussion between WIPO and its member States in developing appropriate measures to protect intellectual property. One must wonder however when all the discussions will stop and some firm conclusions be made. Doctor Robin Bell of the Attorney-General's Department in Canberra apparently has given some thought to that himself. In closing the seminar held at the conclusion of the National Symposium in March 1984 in Canberra, he commented on a further joint meeting called by WIPO and UNESCO to consider copyright aspects of legal protection of computer software and remarked at their facility for coming up with "new permutations on an old theme." [203] He did acknowledge however that the meeting was going to be of some importance, and that Australia should have its views well settled by the next international meeting. Dr Bell however should note that the international organisations cannot be expected to resolve all problems without some firm proposals from member States. Australia does not yet have any final view on these issues, as he himself indicated.

D. CANBERRA MEETING ON TECHNICAL ISSUES

The last of the international meetings in this series was held at Canberra from 2 to 6 April 1984. [204] This was a Working Group to deal with technical questions relating to definitions and technical explanations, classification of computer programs, and questions involving preventing or hampering unauthorised usage of computer programs by technical protection devices. The first technical question involved the definition of a computer program. The draft Treaty had contained definitions of the terms "computer program", "program description", "supporting material", and "computer software". These definitions were contained in the model provisions on the protection of computer software which had been published by WIPO in 1978 following work done from 1974 to 1977.

Future developments were also considered as far reaching changes had occurred since 1977 in the development of computers and computer programs. After some discussion it was agreed that it was neither necessary nor useful to attempt definitions of terms such as "computer software" or "firmware" for the purposes of legal protection, and "supporting material" was said to be covered for the purposes of legal protection. Certain alternative texts were proposed by members as improvements of the definition of computer program although nothing was finalised. In fact the Canberra meeting did not resolve the fundamental question of definitions. It appears that the arguments advanced by Kolle for a general definition are becoming accepted.[205]

reflected at national level, and secondly, will show how national law is influenced by what has been going on at an international level over the past twelve years. The last six months in Australia have seen intense public discussion of the kinds of issues that have been canvassed in this paper. The urgency of the discussion was caused by the decision of Rowson J. in Apple Computer Inc. v. Computer Edge Pty. Limited, [206] a decision of the Federal Court of Australia given on 7 December 1983.

B. APPLE COMPUTER INC. v. COMPUTER EDGE PTY LIMITED [207]

This case involved the well-known Apple Computer Inc. of California and its subsidiary, Apple Computer Australia Pty. Ltd. which sued Computer Edge Pty. Ltd. and its managing director. Computer Edge Pty. Ltd. is an Australian company, which imported Komat computers which were made in Japan and then sold them in Australia. They were manufactured without the consent of Apple Computer. In the Federal Court, the action was brought under the Australian Trade Practices Act, although there were questions of copyright because the Komat computers contained chips which were alleged to infringe Apple's copyright. Accordingly Apple claimed that Computer Edge did not have the right to sell micro-computers containing the chips. The trade practices argument proceeded on this basis.

VI. PROTECTION OF COMPUTER SOFTWARE IN AUSTRALIA

A. INTRODUCTION

Reference throughout this paper has been made to the inter-relationship between the work being done at the international level on the protection of computer software, and that being done at national level. Particular reference has been made to the work done at international level on both model national law and a proposed international treaty. In this section detailed study is made of the developments in Australia. This will illustrate that the kinds of issues being faced at international level are reflected at national level, and secondly, will show how national law is influenced by what has been going on at an international level over the past twelve years. The last six months in Australia have seen intense public discussion of the kinds of issues that have been canvassed in this paper. The urgency of the discussion was caused by the decision of Beaumont J. in Apple Computer Inc. v. Computer Edge Pty Limited, [206] a decision of the Federal Court of Australia given on 7 December 1983.

B. APPLE COMPUTER INC. v. COMPUTER EDGE PTY LIMITED [207]

This case involved the well-known Apple Computer Inc. of California and its subsidiary, Apple Computer Australia Pty. Ltd. which sued Computer Edge Pty. Ltd. and its managing director. Computer Edge Pty. Ltd. is an Australian company, which imported Wombat computers which were made in Taiwan and then sold them in Australia. They were manufactured without the consent of Apple Computer. In the Federal Court, the action was brought under the Australian Trade Practices Act, although there were questions of copyright because the Wombat computers contained chips which were alleged to infringe Apple's copyright. Accordingly Apple claimed that Computer Edge did not have the right to sell micro-computers containing the chips. The trade practices argument proceeded on this basis:

Apple alleged that the chips sold by Computer Edge infringed Apple's copyright and that because of this Computer Edge contravened the Trade Practices Act. The first applicant, Apple Computer Inc., claimed that it was the owner of copyright in certain original literary works. The subject matter of the litigation was the following:

- (a) "Applesoft" - a computer program in source code ("Applesoft Source");
- (b) "Applesoft" - a computer program in machine or object code ("Applesoft Object");
- (c) "Autostart ROM" - a computer program in source code ("Autostart Source");
- (d) "Autostart ROM" - a computer program in machine or object code ("Autostart Object").

An agreed statement of facts was placed before the Judge. In 1977, a Mr Wigginton wrote a computer program called "Applesoft". It was written in the United States of America in the form of handwriting on paper by him while he was an employee of the first applicant and in the course of that employment. Subsequently he assigned any copyright which he owned in "Applesoft" to the first applicant. In writing Applesoft, Mr Wigginton took a pre-existing work called "Micro-soft Basic" - he modified and revised it and added a substantial amount of new material. Although the material added, revised or modified by Wigginton is not able to be identified line by line throughout Applesoft, it relates largely to the provision of graphics and colour subroutines and it involved considerable skill and labour. Mr Wigginton first wrote Applesoft in a computer "language" called 6502 Assembly Language.

Apple submitted that Applesoft was a new and original literary work in which copyright subsists: it was made when it was first written by Mr Wigginton. Also it was said that Applesoft Object was a reproduction in material form of Applesoft. Applesoft Object had been reduced to and embodied in a variety of material forms such as tape and computer printouts. Apple contended that the 6502 Assembly Language, for example, was merely a different notation or language for the same words and phrases which comprised part of Applesoft: alternatively Applesoft Object was a new literary work distinct from Applesoft, of which new work Wigginton was the author; alternatively Applesoft Object was an adaptation or translation of Applesoft. Similar arguments were made in relation to the Autostart program.

The Court was not prepared to hold that any of the programs were literary works within the meaning of the Australian Copyright Act, so that accordingly a discussion of the status of translations or adaptations was not required. Beaumont J. based his view on the meaning of the term "literary work".

"In my view, a literary work for this purpose is something which was intended to afford 'either information or instruction or pleasure in the form of literary enjoyment'... The function of a computer program is to control the sequence of operations carried out by a computer. In this sense, as Dr Emmerson submitted on behalf of the respondents, a contrast may properly be drawn between something which is merely intended to assist the functioning of a mechanical device and a literary work so called. The position is even stronger in the case of the object program... This type of program, As Dr Emmerson submitted, is at a more advanced stage of the process of controlling the sequence of operations carried out by a computer." [208]

The Judge found support for his view in the changes to the Copyright Act in Australia. He said that at the time of the amendments, forms of expression such as cinematographic films and sound recordings were added to the list of literary works, but

computers were not. He said this omission was at a time when computer technology was very well known.

"In my view, the omission by the Parliament to make any reference to computers or computer equipment when it determined to extend the scope of copyright protection should be treated as an indication on its part that this field was not to be afforded the significant privilege given by copyright, but intended rather to leave such matters to be dealt with by other legislation dealing with patents and industrial designs." [209]

Immediately after this decision, there was a general uproar around Australia. On 21 December 1983 Senator Gareth Evans, Q.C., the Australian Attorney-General, Senator John Button, the Minister for Industry and Commerce, and Barry Jones, M.P., the Minister of Science and Technology, issued a press statement in which they acknowledged the importance of the software industry to Australia and to the government's industrial development objectives, and undertook to promptly take whatever legislative action was necessary to ensure that software was adequately protected. [210] (They even indicated that such action could include if necessary some backdating of legislation, to the 21st of December 1983, and possibly beyond that.)

The applicants appealed to the full Federal Court, which by a majority allowed the appeal. [211] All three judges agreed that the source code programs were new and original literary works in which copyright subsisted under the Australian Act. Fox J. did not agree with Beaumont J.'s interpretation of what was a literary work.

"I do not myself doubt that the programs in source code were literary works. There is no necessity for a literary work to be of a literary quality. It is accepted that the term includes mathematical tables, codes and in general alphanumerical works. One limit doubtless is that it needs to be a 'work' and to have some skill, even if very small, applied to its preparation. Meaningless rubbish would plainly be excluded." [212]

He did not agree with Beaumont J. that a source code was analogous to something merely intended to assist the functioning of a mechanical device. He saw a distinct and recognised difference between a computer program and the electro-magnetic functioning of the machine.

Fox and Lockhart J.J. also held that the object code programs were translations or adaptations of the respective source code programs within section 31(1)(vi) and section 10(1) of the Australian Copyright Act. On the interpretation of adaptation, Fox J. said that the term should not be given a narrow or confined meaning, nor should the adaptation of a literary work necessarily be itself a literary work. Lockhart J. likewise held that the Applesoft and Autostart object programs were adaptations of Applesoft Source and Autostart Source, and held that they were translations. He did not decide whether the programs in object code were reproductions in material form of the programs in a source code. Sheppard J. held that the programs in object code were not adaptations, because he did not think that the legislation went so far as to protect object codes. Finally both Fox and Lockhart J.J. held that the manufacture of the Wombat Roms (if done in Australia) would amount to an infringement of the copyright of Apple Computer Inc. in the source code programs, or in the object code programs as adaptations of the source code programs, and that the programs embodied in the Wombat Roms were reproductions in a material form of the object code programs stored in Apple Roms and as such were an infringement.

The conclusion of Lockhart J. on the interpretation of copyright legislation is useful on the interpretation issue. While acknowledging that what he had been required to decide was a matter of "high controversy", he offered this opinion on how copyright legislation should be interpreted.

"In my opinion copyright legislation should be construed liberally and with a view to the furtherance of justice. In particular, such legislation should be interpreted to keep pace with technological innovation. But this does not mean that the language of

copyright legislation should be strained to bring within its scope subjectmatter which although perhaps deserving of protection, is not conformable with the principles developed by courts over many years of experience. An approach of this kind defeats the ends of justice.

Ultimately, Parliament may have to decide whether the Copyright Act requires amendment in the light of the judgments of this Court and, if the matter should proceed further, of the High Court. This involves essentially political considerations, business interests and Parliament's perception of Australia's medium and long term interests in relation to computer technology."[213]

A further appeal to the High Court was lodged shortly afterwards.[214]

C. COPYRIGHT AMENDMENT ACT 1984

The decision of the full Federal Court was delivered on 29 May 1984. Several months earlier, the Attorney-General announced a National Symposium on the Legal Protection of Computer Software.[215] This Symposium has already been referred to earlier in this paper. It was directed mainly to the long-term protection issues; however it was stated that the government would consider the views expressed in formulating its own views on the form of any short term legislative action necessary to ensure that software was protected. The Symposium was held from 15 to 16 March 1984, and in opening it, Senator Gareth Evans indicated that it was unlikely that legislative action would be taken before the result in the full Federal Court of Appeal in the Apple case was known. Shortly before the conference was held, the Attorney-General's Department sent out to participants a short issues paper which covered all the live issues relevant to a discussion of the protection of computer software. Participants were also asked whether Australia should support moves to clarify the protection afforded to computer software under existing international copyright treaties, or move for a new treaty to be established.

In opening the Symposium on 15 March in Canberra, Senator Gareth Evans, Q.C. reported to participants on international developments. He reported on the various meetings of WIPO and UNESCO, and the extent to which firm proposals had been made on protection of software.

"At present no international consensus has emerged. For example, the United States has adopted copyright as the method of protection of software, but there is vigorous debate in Japan as to whether existing copyright protection should be replaced by a sui generis scheme including aspects of patent law. In this climate it is open to Australia to seek to influence international discussions towards solutions which will not favour large industrialised nations at the expense of smaller nations such as ourselves." [216]

There was some argument at the Symposium about whether the Australian Copyright Act should simply be extended so that computer programs in source and object code came within the definition of literary works. Not surprisingly, the representatives of the producers wanted an extension very quickly. Some commentators referred to this extension as the band-aid (or perhaps tourniquet) [217] approach, and in effect nothing more than an interim solution. Bernard Green, the Deputy President of the Australian Software Houses Association, said that government must be prepared to go beyond an interim measure.

"Stage 2 is for a comprehensive piece of legislation which recognises the peculiar nature of computer software, accords appropriate protection to the developers, and for the owners of that software as well as recording the need for access, the need for 'use rights' and the requirement (and in fact the necessity) to make copies for what we might call 'honourable' purposes.

ASHA has consistently promoted the view that the model provisions for software protection legislation published by WIPO in 1978 should be used as the basis for Australian action." [218]

He referred to what he termed "a long fruitless wrangle" since 1978 on the desirability of a new international treaty, and said that Australia was not involved in that argument and that there was no real impediment to the introduction of special Australian legislation based on the model provisions. Mr Bruce Taylor of Software Liberation argued very strongly against the use of legislation in the manner of an interlocutory injunction to preserve the status quo pending a full hearing.

"Since the status quo does not include copyright, it cannot be used to deprive people of their rights quickly merely because otherwise they would be entitled to a public enquiry first. The argument seems to be that admittedly inadequate legislation should be brought in quickly precisely because the issues are so complex that it would take a long time to resolve them satisfactorily. One only has to state that argument to see its absurdity, and to realise what would happen if the approach was followed." [219]

He considered the government's announcement before Christmas 1983 of impending legislation was like an Anton Piller order granted ex parte, and that it did not work. He did not consider that copyright legislation was the appropriate means for protecting computer software, and that any attempt to deem software a "literary work" would be guaranteed to result in a major continuing controversy with protracted legal battles. He said Software Liberation was concerned with long-term issues.

One major argument against simple adoption of the WIPO model provisions was made by a partner of the international law firm Baker and McKenzie, Mr F.J. Smith, who attended the 1983 meeting in Geneva on the desirability of a specialised treaty. [220] He reported to the Symposium that the balance of opinion was against a specialised treaty, and warned that while there was international uncertainty about a specialised treaty, which uncertainty was bound to continue for some years, (he thought a further five years for a new treaty to be concluded) Australia should be careful lest it introduce a law which would not be the subject of reciprocal arrangements.

"If Australia develops a new law which is outside the present conventions, no reciprocal protection would be available without a new treaty. This means that a law which falls outside the copyright or patent conventions would attract no automatic protection outside Australia. The author in Australia would have to obtain independent protection in overseas countries. Given a new type of law, automatic international protection could only be obtained by bi-lateral arrangements or perhaps a regional treaty with say, Pacific rim countries. These also are not readily negotiable.

The WIPO model provisions falls within the Berne and U.C.C. except for the term of protection. If we are to continue to import and export computer software and desire the security of a minimum form of automatic ascertainable protection, copyright protection in both the short-term and the long-term is the only viable option." [221]

In the general discussion that took place, Dr Robin Bell of the Attorney-General's Department referred to a meeting to be organised by WIPO and UNESCO at the end of 1984 or early 1985 to consider copyright aspects of legal protection of computer software. He indicated that Australia needed to have a very clear international policy by the time of that meeting.

Thus the Symposium enabled participants from all backgrounds in Australia to discuss both the domestic scene and also have regard to contemporary international developments. As was to be expected, the full range of opinions was expressed at that meeting. Nonetheless it was a valuable forum for an exchange of ideas to assist the Australian government in formulating its opinions when dealing with international bodies and other countries.

New Zealand had a representative at the National Symposium, and reported to the Ministry of Foreign Affairs on 22 March 1984 on the background and principal issues. [222] Two matters were the cause of specific attention. [223] The first was the input of the education sector, and the growing trend of modern libraries to store and retain material on videotape, and the need for the educational sector to be given a special position under any

software protection regime. The other matter of interest to the New Zealand observer was the role of the Software Liberationists and their argument that computers and software should be a public rather than a private good, and also the bitter exchanges between S.L.M. user and industry representatives. The report to the Ministry of Foreign Affairs also noted that one of the dominant themes was that any legislative steps adopted by Australia should not be inconsistent with moves in the international community, particularly as regards Australia's trading partners for technology, and that work done by WIPO to develop model laws and a convention for the protection of software should play an important role.

On 29 May the full Federal Court delivered its appeal judgment, and the same day the Attorney-General announced in Parliament that urgent consideration was being given to the terms of the judgment to determine whether it was necessary to proceed with planned legislation. Five days later the Copyright Amendment Bill was introduced into Parliament. In the second reading speech, Senator Evans referred to the uncertainty that would remain as a result of the decision in the appeal, particularly because of the dissenting judgment of Sheppard J. as to whether an object code was of itself protected as a literary work.[224] He said the purpose of the bill was to remove uncertainty and to enable continued development of the software industry against the background of protection by the Copyright Act, although he emphasised that the bill was only a short-term measure. He committed his government to a review of long-term policy, taking four matters into account, the first of which is particularly relevant in the context of this paper. Senator Evans endorsed the comments of Mr Smith of Baker and McKenzie, and indicated that Australia should not go out on a limb in adopting new legislation, until the international consensus moved in that direction.

"Because of the highly international nature of intellectual property laws, Australia would probably not wish to adopt a system of protection which was out of accord with international consensus as to the

appropriate form of protection. To do so might leave Australia in a position where its software products were inadequately protected in other countries, thus limiting export opportunities.

However, as international agreement on the best form of protection is far from settled, Australia can seek to influence the nature of any eventual consensus." [225]

The Bill includes copyright programs in the category of literary works, whether they are originally created in source or object form, and whether on paper or in a computer readable form. It expressly treats as "adaptations" programs derived by translation from one language to another, for example, by a process of "compilation" of source code into object code. While the matter was not dealt with in the judgment of the full Federal Court, the Bill includes the removal of the requirement for visible form in respect of tables and compilations in the definition of "literary work". There were also some other subsequent changes necessitated by the amendment.

On 7 June the Copyright Amendment Bill 1984 passed all stages in Parliament without amendment, and on 15 June the enactment commenced operation immediately upon the Royal Assent.

D. INTERNATIONAL INFLUENCES

The above account shows the degree to which Australia's law reform, even in the short term, was influenced by the discussions that had gone on at an international level, and particularly the inadvisability of "moving away from the pack" until an international consensus for a new treaty had developed. Both participants at the Symposium and legislators in Australia see the issue of protection of computer software not just from a national perspective, but also from an international perspective, both in terms of what other countries are doing and what the international community is doing through WIPO and UNESCO. For example, in introducing the Copyright

Amendment Bill to Parliament, Senator Gareth Evans Q.C. referred to the Canadian developments and the proposals in the report from Japan which have already been referred to above.[226]

Reference has already been made to the Working Group on Technical Questions Relating to the Legal Protection of Computer Software which was convened in Canberra from 2-6 April 1984. The discussions there on the definition of "computer program" adopted in the Copyright Amendment Act 1984 drew very strongly on the discussion and models presented at the WIPO meeting. For example, the report adopted by the Working Group following that meeting said it was generally agreed that it was not either possible, useful or necessary to attempt definitions of jargon terms such as "computer software" or "firmware" for the purposes of legal protection.[227] The Copyright Amendment Act 1984 does not attempt to define those terms. Secondly, the definition of "computer program" is greatly influenced by the results of the WIPO discussions. The definition given in section 2 of the Amendment Act is:

"'Computer program' means an expression, in any language, code or notation, of a set of instructions (whether with or without related information) intended, either directly or after either or both of the following:

- (a) Conversion to another language, code or notation;
- (b) Reproduction in a different material form,

to cause a device having digital information processing capabilities to perform a particular function."

No one definition was accepted at WIPO although the third option seems to have been the one which Australia found most useful:

"A computer program is an expression, in any form or on any medium, of a set of directions (with or without related information) intended to cause a machine having information processing capabilities to perform a particular function."

The explanatory notes on the clauses of the Copyright Amendment Bill when it was before the Senate explain the slight differences.[228]

- (i) The phrase "expression.. of a set of instructions" is intended to make clear that it is not an abstract idea, algorithm or mathematical principle which is protected but rather a particular expression of that abstraction. The word "set" indicates that the instructions are related to one another rather than being a mere collection.
- (ii) The WIPO definition refers to "in any form and on any medium" whereas the Australian definition refers to "in any language, code or notation". The explanatory note says that this latter phrase is intended to cover not only high level (that is humanly intelligible) but also low level (that is, machine intelligible only) and intermediate levels of expression.
- (iii) The WIPO definition refers to "a set of directions" whereas the Australian proposal refers to "a set of instructions". In this, Australia was simply adopting another optional definition of the WIPO meeting.
- (iv) Preference in the Australian definition was expressed for "intended ... to cause ..." rather than words such as "capable ... of causing" to cover the situation where the program, as written, may not operate for technical reasons such as the presence of a programming error. Both options are given in the WIPO definitions.

- (v) The words "either directly ... material form" are intended to make it clear that a program need not necessarily be capable of execution in its existing form but may need first to be translated into another language or converted into a suitable machine readable form. The WIPO definition does not make that clear, although other alternative definitions do.

Accordingly it can be seen that even at the technical level the WIPO discussions played a great part in assisting the Law Draftsman to formulate a definition of a computer program, and in excluding definitions such as firmware and software. The interlocking relationship between Australia and the international community can be seen by the events of the past six months, and particularly in the disinclination of Australia to adopt an independent path before the rest of the world community is in a position to go along. In both procedural and substantive matters Australia has been influenced and will continue to play its part in influencing the international community to formulate proposals that can be adopted by all parties to ensure the protection of computer software.

VII. CONCLUSIONS

In his opening address to the Canberra Conference on technical questions, the Attorney-General of Australia, Senator Gareth Evans Q.C., spoke of the importance of protection of computer software and reviewed the work of WIPO since 1971. He acknowledged what had come before as being of great value but added:

"Whilst such careful analysis, debate and consultation is most valuable in developing acceptable legal responses, it does run into one substantial difficulty. Technological development does not wait for legislators and just as the technology may change almost beyond recognition in a decade or less, so the necessary legal apparatus for dealing with such technology must change or risk becoming redundant. We of course find the same phenomenon with our domestic laws and it is always difficult to balance the time needed for detailed analysis and the wide consultation against the risk that solutions will be obsolete, or at least obsolescent, unless adopted reasonably quickly." [229]

That very gentle criticism of the international law-making process in this field is not a single cry in the wilderness. The Registrar of Copyrights of the United States of America in an article entitled "Reflections on the Future Development of Copyright" [230] spoke of the diminished international vision, and particularly the failure of WIPO and UNESCO to adapt and perfect modes of protecting authors. He suggests that WIPO is more pre-occupied with political strivings of political groups, with the inevitable consensus positions which are:

"... so muted in compromise and vague in direction that decisive action in the service of authorship became virtually impossible; or a shift in focus away from protecting authors towards serving users." [231]

While the political pressures do not appear to be present in the field of computer software, there are other pressures present. The major problem facing WIPO with the consideration of protection of computer software is the time factor. WIPO has done some excellent work in promoting model national laws and producing a draft international treaty for consideration by member States and other interested parties. It provides an excellent service to all member States by promoting a discussion on

national legislation, and has provided a questionnaire for member States on the desirability or otherwise of a specialised treaty dealing with protection of computer software. However, if it is to establish pre-eminence in the field of intellectual property, it is submitted that firm decisions will have to be made by WIPO within the near future.

It would also seem apparent from the work done to date that a sui generis treaty is the best means of protection of computer software. David Ladd has referred to the dangers of an uncritical extension of copyright to new kinds of work which may make vulnerable the protection of traditional works of authorship.

"For example, the term of fifty years of post mortem auctoris has emerged out of the concern for the livelihood of an author and his family, and for that purpose has less force for industrial like works and, inadvertently or unwisely, may invite the calling into question of protracted terms of protection for all works." [232]

In the field of copyright protection of computer software, for example, the traditional Berne fifty years postmortem auctoris period would be totally inadequate too long. The nature of computer software suggests that a far shorter period of protection is necessary.

Ladd suggests an approach by international organisations which remembers the *raison d'etre* of conventions such as the Berne Convention.

"International organisations should continue examining questions concerning computer-related and similar issues but they should do so without being so dazzled by technological progress that they lose sight of traditional authors and their works. In general, in considering the extension of copyright from its historic base in *belles lettres* to new technology enabled or technology containing works, questions should repeatedly be asked about the effects upon traditional copyright of extending copyright to new kinds of works and about the alternatives of new kinds of copyright-like protection outside copyright itself." [233]

A similar comment in relation to copyright law in England was made by the Whitford Committee which reported in 1977.

"The first Copyright Act was enacted in 1709 and dealt only with books. This Act may be likened to a modest Queen Anne house to which there have since been Georgian, Victorian, Edwardian and finally Elizabethan additions, each adding embellishments in the style of the times." [234]

The product of these embellishments is said by the Committee to be a remarkable feat of craftsmanship, but a nightmare to those who have to try to understand it. The Committee called for a simplification of the law. Other commentators are making exactly the same point about domestic legislation. In a recent article in the Financial Times for example, reference was made to the fact that the Copyright Act 1956 was drafted at the beginning of the Computer Age, and at that time contained no reference to computer programs.

"To redraft it so as to bring information technology under its roof might require doing violence to concepts which were developed for quite a different purpose. There are many difficult problems to solve, but it may be quicker and easier to solve them when starting from scratch instead of torturing the Copyright Act to meet the needs for which it was not intended." [235]

It is submitted that this is the position with International Law. The Berne Convention which has so admirably protected books, and by logical extension films, broadcasts and television, cannot be easily extended into what are referred to as "second order" technological developments. The copyright protection afforded by Berne has many elements in it which are not appropriate for a technical development which may within a few years be out of date. Similarly the somewhat cumbersome procedure required for protection of patents and trademarks is also inappropriate. In such a circumstance, a model Treaty along the lines of that proposed by the International Bureau of WIPO would appear to be the most acceptable means of ensuring protection. Definitions of terminology must be kept flexible to allow for future technological developments not contemplated at this time. A definition along the lines of that originally provided for literary works in the Berne Convention in 1886 would be preferable to an exhaustive definition of terms such as those proposed in the model national laws of 1978, although in recent years these definitions have been simplified.

This paper has been concerned throughout with the inter-relationship between national and international law. International law is unable to operate in a vacuum. The specialised agencies of the United Nations receive their ideas from member governments. This is illustrated by the discussion throughout the paper of the way Australia has commented on questionnaires and proposals, and been present at international meetings where general and specific discussions have held. So too, it is not possible for national governments to be concerned with only domestic considerations. As was said at the very start of this paper, intellectual property have an international component. This has been recognised particularly in recent years. For example, in the United Kingdom there have been two committees that have looked at the possible reform of copyright law. There has been widespread agreement that copyright law in the United Kingdom has developed in a piecemeal way, and that there is an increasing need for a complete review of copyright law to take account of technological developments in various fields. Reference throughout the two reports of the Whitford Committee has been made to international conventions and their importance in the field of copyright. The need for an international perspective has been referred to by numerous influential commentators. For example, the Registrar of the Copyrights of the United States of America has stressed the international character of the strains on copyright. When referring to the problems which have been outlined in this paper, he said:

"Purely domestic approaches cannot hope to contain them because they are international problems often involving international commerce or transmissions, and thus requiring international solutions. ... In the hurly-burly of change, policy makers must continuously and carefully not only watch and assess how various countries try to cope, but also to search for new international solutions to increasingly international problems. This is easy to say but hard to do. The international copyright positions taken by various states rarely proceed far in advance of domestic positions on the same questions. In a sense, the development of international law for new technologies requires us to search for international solutions which permit variations at the State level, while moving steadily towards a substantial degree of international harmonisation." [236]

The law reformer in New Zealand should take note of those comments. There has been some criticism in this paper of New Zealand's participation in the international community, both in its lateness in joining WIPO, and in its failure to attend the crucial international meetings which have taken place on various intellectual property topics. While there will always be problems with allocating resources to enable delegates to attend various conferences, it should be realised that without adequate legislation to protect new technologies, foreign investment in this country will be discouraged.

Stephen Stewart, when delivering the Jean Geiringer, makes the point that there are no votes in copyright, principally because of "consumer politics".[237] The overwhelming majority of voters are consumers whereas only a very small number of voters are copyright owners who therefore have some interest in greater protection. This is certainly apparent when one considers the sorts of challenges confronting copyright which were outlined at the start of this paper. What government would want to legislate against hometaping? Nonetheless it is submitted that governments must be prepared to take a stand, and in this regard it is pleasing to note that the Minister of Justice in a speech to the Copyright Council of New Zealand on Friday, 21 September 1984 indicated the Government's intention to review copyright law in this country.[238] It should be noted however that the previous Administration made a similar promise, and nothing was ever done.[239] Any law reform in New Zealand should take into account the international discussions and proposals, not only in the field of computer software, but in all areas of intellectual property law.

In this post-Gutenberg era, WIPO has provided an excellent service to the international community. Much work however remains to be done. In protecting computer software, it will be necessary for member States to make firm decisions as to the method of protection of software, and WIPO must encourage the enactment of national laws, while at the same time moving to finalise proposals for an international treaty which ensures protection of this valuable tool of the information age.

FOOTNOTES

1. Inscription of the Cupola at WIPO Headquarters in Geneva. The text is by WIPO Director-General Arpad Bogsch:

"Human genius is the source of all works of art and invention. These works are the guarantee of a life worthy of men. It is the duty of the State to ensure with diligence the protection of the arts and inventions."

2. The Economist Intelligence Unit, "Copyright and Related Rights: Principles, Problems and Trends", London, The Economist Intelligence Unit Limited, 1983, p.2.
3. "Toward a Unified Theory of Copyright Infringement for an Advanced Technological Era", (1982) 96 Harvard Law Review, p.450.
4. Ibid, at p.451.
5. Mihaly Fiscor, "The Home Taping of Protected Works: An Acid Test for Copyright", (1981) Copyright, 59.
6. De Freitas, "Emerging Problems in the Field of Copyright, especially with respect to Piracy", a paper presented to the Meeting of Commonwealth Law Ministers in Sri Lanka, 14-18 February 1983, p.4.
7. Ibid, p.5.
8. "Who's Been Stealing My Monster?", The Economist, June 11, 1983, p.99.
9. "Piracy on the Bookshelves", The Economist, April 2, 1983.
10. Ibid.
11. Ibid. US\$330,000 moreover.
12. Universal City Studios Inc. v. Sony Corporation of America 659 F 2d 963, The Famous "Betamax" Case. Barbara Ringer regards home taping as probably the most important copyright question of the 1980s in

- the United States - see Stewart International Copyright and Neighbouring Rights, London, Butterworths, 1983, p.492.
13. This term has its genesis in prohibition days in the United States when those who were illicitly trafficking in spirits hid the bottles in the legging of the their boots. Stewart notes that the expression became appropriate again as young folk would hide recording equipment in high boots when attending a "pop" concert - see Stewart International Copyright and Neighbouring Rights, London, Butterworths, p.214.
14. [1982] 3 ALL ER 771.
15. [1981] 2 ALL ER 456.
16. See supra. note 14. The issue of bootlegging is examined in Finlayson, "Instant Discovery - The Anton Piller Order", Research Paper for LL.M. (Litigation), Victoria University, Wellington, 1983, p.59.
17. (1983) 1 IPR 353.
18. The latest revision has not yet been completed.
19. See more particularly, "Copinger and Skone James on Copyright", 12th Edition, London, Sweet and Maxwell, 1980, p.563.
20. Ibid. at p.563, paragraph 1292.
21. S.M. Stewart, "International Copyright and Neighbouring Rights", London, Butterworths, 1983, p.36.
22. ALAI ("Association Literaire et Artistique Internationale") was founded in 1878. Its Honorary President was Victor Hugo.

23. The ten signatories were the leading European powers, France, Germany, Italy and Britain. Belgium, Spain and Switzerland also signed the Convention and so did three non-European countries, Haiti, Tunisia and Liberia.
24. See Article 26 of the Rome Act 1928.
25. See more particularly Stewart, "International Copyright and Neighbouring Rights", London, Butterworths, 1983, p.89.
26. Mr S.G. Raymond, a prominent member of the Christchurch and Timaru Bars, took silk on 7 July 1913 in Christchurch, along with another well-known Cantabrian, Frederick Wilding, later High Commissioner in London. Raymond's name continues today in the distinguished Timaru firm, Raymond, Sullivan, Cooney and McGlashan. See Cooke, "Portrait of a Profession", Wellington, A.H. & A.W. Reed, 1969.
27. Report of the New Zealand Delegate to the International Copyright Conference in Rome 1928, p.2. (This report may be found in the Appendices to the Journals of the House of Representatives, 1928, H/10A).
28. Ibid.
29. The text of the Rome Act may be found in "Copinger on Copyright", Tenth Edition, London, Sweet and Maxwell, 1965.
30. See, for example, Valerio de Sanctis, "The International Copyright Conventions" (1978) Copyright 254, 256.
31. See supra, note 7, at p.8
32. "Report on the International Copyright Conference", Brussels 1948, by the Hon. Minister of Justice and the Text of Revision of Copyright Convention. Presented to the House of Representatives by Reave. This report may be found in the Appendices to the Journals of the House of Representatives, 1948, A/22.

33. See supra, note 30 at p.256.
34. Article 2(2).
35. See generally, Stewart, "International Copyright and Neighbouring Rights", London, Butterworths, 1983, p.38.
36. Ibid.
37. Article 5(2) of the Paris Act 1971. (See also Article 4(2) of the Rome Act 1928).
38. A brief overview of the proposals for the administrative and structural reform of BIRPI is contained in (1966) Copyright 226.
39. (1967) Copyright 154.
40. See supra, note 38.
41. See supra, note 39 at p.155.
42. A distinction is often made between industrial and intellectual property, the former applying to patents, industrial designs and trade marks, while the latter term is used specifically for copyright and neighbouring rights. See, for example, T.M. Gault Q.C., address to New Zealand Law Society Seminar on Intellectual Property, Wellington, 1983.
43. It is important to note that WIPO does not interfere with the independence of the various Unions for which it has an administrative responsibility.
44. See supra, note 6. See also De Freitas, at p.17:

"Although copyright laws, and the rights subsisting under them are national, technology has made the copyright system international. The authors and other copyright owners in one country need protection from

piracy not only in that country but in as many countries as possible. Any Government which accepts the responsibility for protecting copyright owners, and securing respect for the copyright system must join the international copyright community."

45. See supra, note 6 at p.17. De Freitas is particularly concerned with as great a harmonisation as possible in civil and criminal procedural matters, such as standardized penalties for piracy, and increasing use of Anton Piller orders.
46. Articles 8 to 14 of the Phonogram Convention (1971).
47. A useful discussion on the Patent Co-operation Treaty (PCT) may be found in Terrell, Law of Patents (13th ed.) 1982, p.7. The history of the Rome Convention and its 50 years gestation period are covered in Stewart, "International Copyright and Neighbouring Rights", London, Butterworths, 1983, Chapter 8.
48. Stewart, "International Copyright and Neighbouring Rights", London, Butterworths, 1983, Chapter 7.
49. Ibid at p.177.
50. See Article 8(3) which provides that while the International Bureau of WIPO carries out the tasks of assembling and publishing information, and conducting studies into various questions, it is to do so in co-operation with UNESCO and ILO. In recent years WIPO has also published tables showing the legal protection of phonograms worldwide and in conjunction with the other two specialised agencies of the United Nations has produced a model law of Neighbouring Rights. This model law was first considered in 1971, but was not issued until 1980. As will be seen in this paper, model provisions are very slow in the making, a reflection of the many complex issues that are often involved in the intellectual property field.
51. See Supra, note 2 at pp. 50-51.

52. See supra, note 39, at p.156.
53. Memorandum of T.C. O'Brien, Representative at the New Zealand Permanent Mission to the Office of the United Nations at Geneva, to the Secretary of Foreign Affairs, Wellington dated 11 December 1980 (43/14/1), at p.4. Kindly made available, with other materials, by Ms Margaret Nixon, of the Ministry of Justice at Wellington.
54. Both these publications are available in the General Assembly Library in Wellington.
55. Article 1(2).
56. Letter Commissioner of Patents (K.S. Dalefield) to Patent Office, Department of Justice, 28 January 1981, p.2.
57. See supra, note 38 at p.227.
58. See supra, note 39 at p.158.
59. See supra, note 53 for comment on how the provision of technical assistance would assist New Zealand.
60. Andre Kerever (1983) Copyright, 386, 375.
61. See supra, note 38 at p.227. The report saw a need for co-ordination of the Unions because the administrative organ of the Unions would continue to be the International Bureau at Geneva.
62. Ibid. Apparently they were united as a result of a decision by the Swiss Government.
63. See supra, note 53 at p.3.
64. See supra, note 38 at p.228.

65. Article 10.
66. Article 11.
67. Article 12.
68. Article 14.
69. A useful history of the developments leading to the implementation of the Universal Copyright Convention is a background paper prepared by UNESCO in 1981 (reference DG/O.1/126/71). It was sent under cover of a letter by the Director-General of UNESCO to all countries to encourage accession to the Universal Copyright Convention. A similar background is found in Stewart, "International Copyright and Neighbouring Rights", Chapter 6, p.133.
70. WIPO Guide to Berne 6 bis 1.
71. See supra, note 21, at p.60.
72. 17 USC paras. 401 et seq; see also supra, note 21, particularly Chapter 21 by Barber Ringer, p.508 et seq. which provides a good overview of United States copyright law.
73. See supra, note 21 at p.506.
74. 2 C/Resolution 2.4.1. See also supra, note 69.
75. (1952) V UNESCO Copyright Bulletin, Nos. 3-4. This bulletin contains the report on the Conference, together with a commentary on the contributions made from member States.
76. Document DA/118 at the Geneva Conference. See also supra, note 75 at p.203.
77. See supra, note 75 at p.204.

78. Article II.
79. Article I.
80. See Stewart, "International Copyright and Neighbouring Rights", p.141.
81. Stewart, "International Copyright in the 1980s", (Geiringer Memorial Lecture) Bulletin of the Copyright Society of the US (April 1981) p.351.
82. Ibid at p.373.
83. Valerio De Sanctis, "The International Copyright Conventions", (1978) Copyright 254, 257.
84. Andre Kerever, in his article "Is Copyright an Anachronism?" (1983) Copyright 368, 376 distinguishes between the WIPO and Berne Convention:
- "The Berne Convention, administered as it is by WIPO, highlights especially the economic aspects of copyright, symbolised by the term "intellectual property". The Universal Copyright Convention, administered by UNESCO, illustrates the fact that copyright is a right of the human being considered in relation to his creative activity, namely a fundamental right which cannot be limited otherwise than by the general interest of the human community. These two insights are mutually complementary, and tend to denote co-operation more than duplication or competition."
85. For a copy of the agreement, see (1974) Copyright 63.
86. See Article by Kerever, referred to in note 84 supra, particularly p.375 et seq. where the work of WIPO is highlighted, and particularly the drafting of national laws, the training of copyright specialists and the assistance in the creation of national authors' societies. He says that these efforts:

"... were all the more successful for having been harmonized with those of UNESCO in the framework of its administration of the Universal Copyright Convention."

87. See supra, note 39 at p.162.
88. See (1984) Copyright 214.
89. Telegram Geneva to Foreign Affairs in Wellington (No. 25709), advising instruments of accession to 1967 Convention were handed to WIPO Director-General (Bogsch) on 14 March 1984.
90. Letter Commissioner of Patents to Secretary for Justice, dated 4 December 1973.
91. Letter Commissioner of Patents to Secretary for Justice, dated 28 January 1981.
92. Memorandum Representative, New Zealand Permanent Mission to the Office of the United Nations at Geneva to the Secretary of Foreign Affairs dated 11 December 1980. The reference in the passage to Upov is to a new treaty which pays particular attention to the protection of plant varieties. Such a treaty is of special importance to New Zealand, when one considers the potential of exports of flowers and plants such as kiwifruit.
93. Ibid at p.2.
94. Ibid at p.6.
95. Valerio de Scantis, "The International Copyright Conventions" (1978) Copyright 254, 260.
96. Stewart "International Copyright in the 1980s" - the 18th Annual Gean Geiringer Memorial Lecture (1980) Bulletin, Copyright Society of U.S.A. 351, 374. Stewart identifies the other two obstacles as the manufacturing clause, and the term of copyright of life plus

fifty years. As has already been mentioned, the difficulty over the term of copyright has already disappeared (see note 73) and he says the difficulty over the manufacturing clause will have disappeared by 1 January 1982. That clause requires certain types of works to be manufactured in the United States to be fully protected. Barber Ringer in Stewart, "International Copyright and Neighbouring Rights", London, Butterworths, 1983 at p.512 indicates that representatives of the printing industry and Unions persuaded Congress that if Section 601 were repealed, thousands of jobs would be lost to printers in other countries. Congress accordingly extended the manufacturing clause for another four years, to 1 July 1986. President Reagan then vetoed the extension bill, and then - for the first time in his Administration - Congress over-rode his veto and enacted the extension into law. The problem with that clause still remains. Still, the arguments for extension must have been fairly strong to persuade Congress to over-ride one of President Reagan's vetoes in a year when the so called "Great Communicator" was winning every legislative battle on Capitol Hill.

97. David L. Bazelon, "Coping with Technology through the Legal Process" (1977) 62 Cornell Law Review 817.

98. D. McKinnon, "Welcome to the 21st Century", (July 1984), Better Business, 29.

99. (1984) 53 ALR 225, 247. It should be noted at this point that for the sake of uniformity, the writer has adopted the Australian and American spelling of "program". That appears to be the accepted usage in international texts also.

100. Bryan Niblett, "Legal Protection of Computer Programs", contained in "Data Processing and the Law", London, Sweet and Maxwell, 1984, a collection of essays edited by Colin Campbell, Professor of Jurisprudence, at the Queen's University of Belfast. Later in this paper, the model provisions on the protection of computer software

prepared by the International Bureau of the World Intellectual Property Organisation will be examined, and the distinction between a program and software is highlighted in the treatment of those terms by the model provisions.

101. P.A. Smith, Senior Assistant Commissioner (Policy), Australian Patent Office, "Computer Software Protection in Australia" (January 1984). This was a background paper prepared by Mr Smith for the National Symposium on Legal Protection of Computer Software which was held in Canberra, Australia, on 15-16 March 1984.
102. See supra, note 99.
103. The Dominion, Monday, 17 September 1984.
104. Report of the Committee to Consider the Law on Copyright and Designs (also known as the Whitford Committee Report) (Cmnd 6732), Chapter 9, para. 477.
105. Ibid.
106. Val Micken, Statement of Australian Computer Equipment Suppliers' Association, reported in the Report on National Symposium on Legal Protection of Computer Software, Canberra, 15-16 March 1984.
107. Senator Gareth Evans Q.C., opening address to National Symposium, p.6.
108. Len Rust, Statement of Australian Computing Services Association, p.1.
109. "Aiming Towards Establishment of Legal Protection of Computer Software", interim report of 9 December 1983, of Information Industry Committee of the Industrial Structure Council, advising the (Japanese) Ministry of International Trade and Industry (MITI). MITI's proposal is for a "deposit and registration"

118. system. The developer of the software has full rights to its use and full control over copying and leasing for a period of 15 years. The developer must register the software with a new agency and provide a complete deposition, which will be kept private, as well as a summary of its functions which will be made public. See further Ross McNab, "Non-Copyright Approaches to Legal Protection in Australia of Computer Software", p.13. This is another address given to the National Symposium in Canberra earlier this year, and contained in the report of that gathering.
- 119.
110. S. Bradshaw and T. Delaney, "Britain Welcomes Software Pirates", The Listner, 15 December 1983, p.6.
111. "Blocking the Millionaire Computer Software Pirates", The Economist, 10 September 1983.
112. "Wily Breed", The Economist, 25 September 1982, p.70.
113. Ibid at p.71.
114. See supra, note 110 at p.6.
115. S. Breyer, "The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies and Computer Programs", (1970) 84 Harvard Law Review, 281. See also L. Melville, "Computer Software and the Relevance of Copyright", (1980) European Intellectual Property Review, 354. Melville questioned in particular the desirability of the copyright option.
116. Ibid
117. Bruce Taylor, Statement by Software Liberation to National Symposium, in Report on Symposium, p.98. The Software Liberation people see the public funding of micro-computer software packages as both desirable and inevitable in the long term.

118. U.N. document E/4800, para. 201.
119. (1971) Copyright 35. Shortly after the Governmental Experts reported, WIPO convened an advisory group of Non-Government Experts, which met in Geneva for the first time from 17-20 June 1984. The International Bureau's Report on their meeting is reported in (1974) Copyright 226. Thereafter they met intermittently to consider the desirability and form of protection of software.
120. For the report on this meeting see (1977) Copyright 271. The model provisions are contained in (1978) Copyright p.6.
121. (1978) Copyright 6, 7.
122. Ibid, p.7.
123. Ibid, p.7.
124. Henry Carr, "Software Protection in the United Kingdom - Competing Policy Considerations", [1982] 6 EIPR 181.
125. (1975) 401 F.Supp. 1102.
126. See supra, note 124, at p.181.
127. See supra, note 101 at p.22.
128. See supra, note 121 at p.6, 9. A similar argument is made by Kolle in, " Computer Software Protection - Present Situation and Future Prospects", (1977) Copyright 70, 72. He regards the requirements for generating and maintaining protection of secrets amount to a considerable obstacle to the marketing of software. The other reason he advances for the inadequacy of trade protection is that such a system does not give an exclusive right in the product and so does not enable proceedings to be instigated against third

- parties acting in good faith or acting in a way that does not constitute unfair competition.
129. But the consultative document, "Reform of the Law Relating to Copyright, Designs and Performers' Protection" (Cmd 8302), p.33 accepts the need to remove any uncertainty that may exist, and to make it clear in any new copyright legislation that computer programs do attract protection under the same conditions as literary works. The provision under the Patents Act 1977 (UK), (Section 1(2)(c)) states that a program for a computer is not an invention for the purposes of the Act, but provides that this only applies to the extent that a patent or application for a patent relates to that thing "as such". Presumably, it would be possible to obtain a patent in the United Kingdom if the patent criteria of manner of manufacture, novelty and convenience are satisfied. Programs for computers are also expressly excluded from patentability by Article 52(2)(c) of the European Patent Convention (1973).
130. See supra, note 101, at p.5.
131. Ibid, p.9.
132. (1978) Copyright 6, 8.
133. Ibid.
134. Ibid, p.8.
135. The Whitford Report (Cmd 6732) at p.133, and The Second Whitford Report (Cmd 8302) p.33.
136. Section 117 of the Copyright Act 1976. There is a fair use provision however whereby the owner of a copy of a computer program is permitted to make and use new copies and adaptations of the program under certain conditions - see more particularly Ringer on United States Copyright in Stewart, "International Copyright and Neighbouring Rights" London, Butterworths, 1983 at p.495.

137. In Gates v. Swift [1982] RPC 339, the High Court in England was prepared to grant an Anton Piller order for the delivery up of computer programs, although this was only a preliminary hearing and was ex parte. Full argument on whether or not a computer program was copyrightable had not been given.
138. Report of Copyright Law Reform Committee, in (1959) Appendices to the Journals of the House of Representatives, p.6, 15.
139. [1967] 1 Ch. 508.
140. In the United Kingdom on the other hand, an English Court would be able to look at the Brussels Text as an aid to interpreting the Copyright Act 1956. As the United Kingdom has not ratified the main provisions of the Stockholm Act or the Paris Act of 1971, it could not use those Conventions as an aid to the interpretation of its own legislation.
141. See supra, note 27, p.3.
142. A. No.156/84, at p.13.
143. (1980) Copyright 36.
144. Article 4.
145. S. Stewart, "International Copyright and Neighbouring Rights", London, Butterworths, 1983, p.90.
146. See supra, note 99.
147. See (1952) UNESCO Copyright Bulletin, p.47.
148. Manfred Kindermann in his Article "Computer Software and Copyright Conventions" [1981] 1 EIPR 6, 8, reaches the same conclusion when looking at the Paris Acts of both Conventions. So too does Bryan

143. Niblett in, "Copyright Protection of Computer Programs", in "Data Processing and the Law" London, Sweet and Maxwell, 1984, at p.204,
144. although he does not make it explicitly clear to which Act he is referring. One would have expected that as a British writer, he
145. would have considered the Brussels Act, as that is still the latest Act to which the United Kingdom has acceded.
146. Not in general, there is a preference for a copyright system.
149. Article 4(4) of the Brussels Act 1948.
147. See supra, note 119 at p.46.
150. Article 3(3) of the Paris Act 1971.
148. See supra, note 119 at p.36.
151. [1981] 1 EIPR 6, 8.
142. "Special Provisions on the Protection of Computer Software" (1978)
152. (1983) Copyright 271, 278. note 119, at p.38.
153. See supra, note 138 at p.16.
154. See supra, note 151 at p.10.
155. (1984) 53 ALR 225.
156. See supra, note 21 at p.108.
157. See supra, note 151 at p.11.
158. See supra, note 155.
159. "From Gutenberg to Telidon - A White Paper on Copyright." Proposals for the Revision of the Canadian Copyright Act. 1984, Section XII, p.82.
177. The World Intellectual Property Organization (WIPO) had presented in 1976 the draft of a model law for the protection of computer software under treaty for the international protection and international control of software.
160. See supra, note 109.
161. See supra, note 118.
162. See supra, note 119.

163. See supra, note 119 at p.35.
164. See supra, note 119 at p.36.
165. See supra, note 119 at p.40.
166. But in general, there is a preference for a copyright system.
167. See supra, note 119 at p.40.
168. See supra, note 119 at p.38.
169. "Model Provisions on the Protection of Computer Software" (1978) Copyright 6, 9. See also note 119, at p.38.
170. Ibid, at p.10.
171. Ibid, at p.10.
172. Ibid, at p.10.
173. Ibid, at p.11.
174. (1977) Copyright 271.
175. See supra, note 169 at p.11.
176. Ibid.
177. The 1977 model laws were the second draft. In 1976 the International Bureau of WIPO had presented in 1976 the drafts of a model law for national protection of computer software under treaty for the international protection and international deposit of software. But at its third meeting the group of experts restricted its discussions to the main provisions of the draft model law and requested the International Bureau to come up with another draft

172. for the standards of protection under the model law. They were very much preliminary documents. See supra, note 169 at p.6, where the history of the model provisions is outlined.

178. G. Kollé, "Computer Software Protection - Present Situation and Future Prospects" (1977) Copyright 70, 75.

179. Ibid.

180. See supra, note 169 at p.15.

181. See supra, note 169 at p.18.

182. See supra, note 159.

183. See supra, note 160 at p.18.

184. See supra, note 169 at p.19.

185. Ibid.

186. Ibid. at p.19.

187. See supra, note 178 at p.78.

188. Abel, "Worldwide Protection of Computer Software: An Analysis of the WIPO Draft Proposal" [1981] NYJ Int'l and Comp. L. 278, 309.

189. "Expert Group on the Legal Protection of Computer Software" (1980) Copyright 36.

190. Letter Director-General, WIPO, to Australian Government, dated 6 March 1981.

191. Letter Attorney-General's Department to WIPO, dated 25 January 1982, at p.2.

192. Ibid.
193. Ibid.
194. Ibid at p.3.
195. Ibid at p.7.
196. "Committee of Experts on the Legal Protection of Computer Software" (1983) Copyright 271.
197. Ibid at p.272-275.
198. Ibid at p.275.
199. Ibid at p.279.
200. See supra, note 159.
201. See supra, note 196 at p.278.
202. Letter Attorney-General's Department to WIPO, dated 27 January 1984.
203. Transcript of statements and forum discussion following National Symposium on Legal Protection of Computer Software, 16 March 1984, at p.73.
204. "Working Group on Technical Questions Relating to the Legal Protection of Computer Software", WIPO Report LPCS/WGTQ/1/3.
205. See supra, note 178.
206. (1983) 1 IPR 353.
207. The paper prepared by P.A. Smith, Senior Assistant Commissioner (Policy) Australian Patent Office in 1974, entitled "Computer

207. "Software Protection in Australia" provides a very useful background to this case.
208. See supra, note 206 at p.364.
209. Ibid.
210. 191/83 - "Action on Copyright Law Protection of Computer Software" - joint press release by Senator, the Hon. Gareth Evans Q.C., Attorney-General, Senator, the Hon. John Button, Minister for Industry and Commerce, and the Hon. Barry O. Jones, M.P., Minister for Science and Technology, 21 December 1983.
211. (1984) 53 ALR 225.
212. Ibid at p.234.
213. Ibid at p.269.
214. The High Court has not yet given its decision.
215. All the speeches, statements and details are contained in a report issued by the Attorney-General's Department entitled "National Symposium on Legal Protection of Computer Software, Canberra 15-16 March 1984".
216. Opening address contained in the Report of National Symposium, p.17.
217. See particularly the contributions by the various Software Liberationists, contained in the report. See also statement of Bernard Green, of the Australian Software Houses Association, also contained in the Report at p.44.
218. Statement of Bernard Green, at p.47. His contribution illustrates the amount of time that may be spent on the development of software.

219. See supra, note 215 at p.105.
220. See supra, note 215 at p.174.
221. Ibid, at p.180.
222. A.C. Williams of the New Zealand High Commission in Canberra.
223. Report to Secretary of Foreign Affairs, at Wellington from New Zealand High Commission, dated 22 March 1984.
224. Second reading speech of Senator the Hon. Gareth Evans at p.2.
225. Ibid at p.17.
226. See supra, notes 159 and 160.
227. See supra, note 204.
228. Commentary on amendment to Copyright Act 1968 at p.4.
229. Opening speech of Senator Gareth Evans to WIPO meeting - LPCS/-WGTQ/1/3 - Annex 3.
230. D. Ladd, "To Cope with the World Upheaval in Copyright" (1983) Copyright 289.
231. Ibid at p.291.
232. Ibid at p.293.
233. Ibid.
234. "Report of the Committee to Consider the Law on Copyright and Designs", Chaired by the Hon. Mr Justice Whitford - Cmnd 6732 at p.3.

235. A.H. Hermann "Why There is an Urgent Need for Micro-electronics Legislation", Financial Times, Thursday, 22 March 1984.
236. See supra, note 230 at p.290.
237. S. Stewart "International Copyright in the 1980s", (1980) Bulletin, Copyright Society of the USA, 351, 372.
238. Speech given by Hon. Geoffrey Palmer, Minister of Justice to Copyright Council of New Zealand Inc. in Wellington on Friday, 21 September 1984.
239. See, for example, National Party's 1978 General Election Policy at p.33:

National recognises the need to revise the present patent and copyright laws, in light of recent technological developments. National will, therefore, establish a Working Party to examine these laws; and particularly, to make recommendations as to: changes to New Zealand's Industrial Property (Copyright and Patent) Laws to encourage technological development and the promotion of the arts."

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