LAW·COMMISSION

Report No 13

Intellectual Property: The Context for Reform

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LAW COMMISSION

Report No 13

Intellectual Property: The Context for Reform

March 1990
Wellington, New Zealand

The Law Commission was established by the Law Commission Act 1985 to promote the systematic review, reform and development of the law of New Zealand. It is also to advise on ways in which the law can be made as understandable and accessible as practicable.

The Commissioners are:

The Rt Hon Sir Owen Woodhouse KBE, DSC—President
Jack Hodder
Sir Kenneth Keith KBE
The Hon Mr Justice Wallace

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Report/Law Commission Wellington 1990

ISSN 00113–2334

This report may be cited as: NZLC R13

Also published as Parliamentary Paper E 31I

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7 March 1990

Dear Minister

I am pleased to submit to you the thirteenth Report of the Law Commission, on *Intellectual Property: The Context for Reform.* The bulk of the report comprises papers prepared by experts in intellectual property law and presented to seminars organised by the Commission in the latter part of 1989.

The need for comprehensive reform of intellectual property law is widely recognised. The principal statutes are based on British models of the 1940s and 1950s. Although those statutes have survived without major review until recently, their many limitations—not least their convoluted drafting—have been exposed by the impact of massive modern changes to technology and trading patterns. The interest of the Law Commission in this area reflects its statutory responsibilities to advise on and encourage the systematic reform and increased accessibility of New Zealand law.

The involvement of the Commission in this field has led it to formally recommend to you that, in order to maximise the opportunities for reform that presently exist, an integrated approach to current reviews of aspects of intellectual property is essential. The Commission also considers that an independent advisory body should be established in due course.

Those recommendations have implications for the sequence of future legislative amendments to the law relating to copyright, designs, patents, trade marks, and trade secrets—in particular, proposals for the early introduction of legislation to replace the Copyright Act 1962.

The Commission will retain its interest in the field of intellectual property, and is ready to assist your Department and others involved at any time.

Yours sincerely

Owen Woodhouse
President

The Hon W P Jeffries, MP
Minister of Justice
Parliament House
WELLINGTON

PREFACE

The primary purpose of this publication is to make available to a wider audience a number of valuable papers addressing aspects of the reform of intellectual property laws in New Zealand. These papers were written by experts in the field and delivered at several small seminars organised by the Law Commission in October and November 1989. This wider availability should further assist the understanding and development of this important and specialised area of the law. It will also assist current reviews of various statutes which are concerned with intellectual property, including those being undertaken by the Department of Justice—of the Copyright Act 1962—and by the Ministry of Commerce—of the Patents Act 1953, the Trade Marks Act 1953, the Designs Act 1953, and related matters.

The seminars were arranged by the Commission as part of its statutory function as a central advisory body for the review, reform and development of the law of New Zealand. They were designed to (and did) focus on and provoke discussion of the underlying objectives and overall coherence of the reforms of various laws affecting intellectual property. Aspects of the background to proposals for reform of those laws and the discussion associated with the seminars are reflected in the introductory chapter which precedes the papers.

The Commission is extremely grateful to the authors of the papers reproduced in this publication:

- The Hon Mr Justice Gault, a Judge of the High Court of New Zealand, and formerly Chair of the Industrial Property Advisory Committee

- Andrew Brown of Auckland, a partner in Russell McVeagh McKenzie Bartleet & Co, Barristers and Solicitors, and co-author of Brown & Grant, *The Law of Intellectual Property in New Zealand* (Wellington, 1989)
- Doug Calhoun of Wellington, a partner in A J Park & Son, Solicitors and Patent Attorneys
- Grant Hammond, Professor of Law in the University of Auckland
- Lee McCabe, formerly an economist with the Economic Development Commission, Wellington, and now returned to Ottawa, Canada.

The Commission is also grateful for the time and contributions of those who accepted invitations to attend and participate in the seminars, and to 2 law firms—Russell McVeagh McKenzie Bartleet & Co, and Brandon Brookfield—for making their Auckland and Wellington boardrooms, respectively, available for 2 of the seminars.

Report of the Law Commission

INTRODUCTION

1 For those familiar with it, intellectual property is a field of great fascination. It covers a mix of creative and commercial forces, and the cultural and economic context is particularly important. This mix is further enriched by the different forms and conditions of protection which historically separate legal developments have produced, and by the international forces reflected in intellectual property conventions and in commercial activity.

2 An introduction to a collection of papers addressing intellectual property law reform should explain, at least in a preliminary way, the term "intellectual property". There is no standard definition of the term, in part because it incorporates a number of separate components, but it is reasonably well understood by those who have an economic interest in it, and those who advise on it. The opening paragraph of the recent New Zealand text, Brown and Grant, *The Law of Intellectual Property in New Zealand* (Wellington, 1989) provides a starting point:

> Intellectual property is a convenient term, now in common currency in many countries, which is used to describe the laws relating to copyright, patents, designs, trade marks and certain analogous common law and equitable rights such as passing off and trade secrets. To these may now fairly be added (so far as New Zealand is concerned) certain rights and remedies created by the Fair Trading Act 1986 which it has been said are very likely to overtake the passing off cause of action. The common thread in all these

apparently disparate areas is the protection of the output of human intellectual endeavour and the goodwill and reputation which is created in names, marks, get-up and even products. The phrase "intellectual property" has now largely supplanted the older term "industrial property" with its confusing connotations of industrial law.

3 Another expression of the "common thread" was given recently by a senior officer of the Commonwealth Attorney-General's Department, Canberra:

> Intellectual property is ... the bundle of rights which a person ("the creator", "the inventor", "the author", or "the designer" as the case may be) has against all other persons in relation to the product of his or her mind. The rights are to prevent others from doing specified acts which detract from the commercial or intrinsic value of that product.
>
> (Lauren Honcope, "Washington Convention on Integrated Circuits", paper delivered to the 16th International Trade Law Conference held at Canberra, ACT, Australia, 27–29 October 1989, p 3.)

4 Concise definitions of the various components of intellectual property law are difficult but it may be helpful to note some features of the copyright and patent systems at least. Copyright is principally concerned with the form of expression of ideas, generally involves a period of protection from copying which extends to 50 years after the death of the author, and is not subject to registration requirements. This may be contrasted with the patent system which is designed to protect useful inventions, involves a sophisticated registration and examination system, and generally provides a 16 year period of exclusive use and exploitation.

5 Some of the flavour and contemporary relevance of intellectual property matters may be found in the following (non-exhaustive) list of legal and policy issues which various legislatures, executives, law reform agencies, international organisations and courts have had to consider in recent years:

- Copyright protection for functional objects such as spare parts.
- Copyright or analogous protection for developing computer technologies.
- Recognition of "moral rights" to protect the integrity of copyright works.
- The patentability of forms of life and of medical treatment.

- The appropriate length of the term of exclusivity granted by a patent, including possible allowance for regulatory delay of exploitation of inventions in the pharmaceutical field.
- The impact of registered trade marks on comparative advertising and character merchandising.
- Unregistered trading names and geographical "spillover" of reputations.
- Use of intellectual property rights to enforce geographical division of markets, and the costs and benefits of "parallel importing".
- Codification of laws relating to trade secrets and confidential information.

6 That list is illustrative of the wide range of difficult policy issues facing reformers of intellectual property laws. It will also be seen from that list, and from preceding paragraphs, that intellectual property laws and possible changes to them are matters of considerable commercial and cultural significance.

INTERNATIONAL CONTEXT

7 The international context is particularly important in intellectual property. Ideas and their exploitation are not constrained by national boundaries but, in the absence of international mechanisms, intellectual property rights can only be national. The need for international co-operation and reciprocity to provide a workable system of intellectual property was recognised more than a century ago.

8 In 1883 the Paris Convention for the Protection of Industrial Property was signed. The text of the Convention has since been revised, is currently adhered to by some 90 countries, and requires national laws to protect designs, patents, trade marks and trade names, and to grant equal rights and remedies to nationals of other member countries. New Zealand became an independent party to this convention in 1931.

9 In 1886 the Berne Convention for the Protection of Literary and Artistic Works was signed. New Zealand became a party to this convention in 1928.

10 Following the 1967 Stockholm revision of the Berne Convention, the World Intellectual Property Organisation (WIPO) was established as

the secretariat for the major international intellectual property conventions, combining the responsibilities of earlier bodies which serviced separately the Paris and Berne Conventions.

11 On 1 July 1988, the Attorneys-General of New Zealand and the Commonwealth of Australia signed an inter-governmental Memorandum of Understanding on Business Law Harmonisation, committing both countries to an examination of the scope for "harmonisation of business laws and regulatory practices" in a number of areas, including

> copyright law, including support of appropriate international conventions, and the protection of computer software and integrated circuits (clause 5(d)).

12 The Memorandum notes that "a significant degree of harmonisation and co-operation" has already been achieved in the area of "intellectual property law" (clause 4(e)) but does not otherwise refer to patents, trade marks or intellectual or industrial property generally. Nevertheless, in introducing a new Patents Bill into the House of Representatives in Canberra on 1 June 1989, the Commonwealth Minister for Science, Customs and Small Business said:

> Patent law has also been included for discussion in the current round of Closer Economic Relations negotiations with New Zealand. Once again, this new Bill, by simplifying the expression of Australia's law, should assist in clarifying Australia's position. It will be interesting to see whether New Zealand will contemplate taking similar action in relation to its law. Both Australian and New Zealand patent laws, of course, ultimately derive from English law as that once was, but they have diverged over time. The question now is whether that divergence has resulted in any impediments to fair and equitable trade across the Tasman. There are studies on foot to ascertain whether or not such impediments exist.

ECONOMIC SIGNIFICANCE

13 The economic significance of intellectual property, and some of the pressures for change, were well summarised in Professor Cornish's *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (London, 1981):

> Intellectual property protects applications of ideas and information that are of commercial value. The subject is

> growing in importance, to the advanced industrial countries in particular, as the fund of exploitable ideas becomes more sophisticated and as their hopes for a successful economic future come to depend increasingly upon their superior corpus of new knowledge and fashionable conceits.

14 Evidence of the economic significance of intellectual property may be found in, for example, the data and references contained in a recent monograph, *The Economic Contribution of Copright-based Industries in New Zealand* (March 1989) prepared by Dr Adolph Stroombergen for the Copyright Council of New Zealand Inc. That work concluded that copyright-based industries contributed 2.8% of New Zealand's gross domestic product (some $1,500 million), and 1.4% of full-time employment.

15 The commercial significance of intellectual property rights to individual businesses is illustrated by the growth in litigation in this area over the past decade. This has included the vigorous employment of s 9 of the Fair Trading Act 1986 ("No person shall, in trade, engage in conduct that is misleading or deceptive or is likely to mislead or deceive") to protect trading names: see, for example, the Court of Appeal decisions in *Taylors Textile Services Auckland Ltd* v *Taylor Bros Ltd* [1988] 2 NZLR 1, *Prudential Building and Investment Society of Canterbury* v *Prudential Assurance Company of New Zealand Ltd* [1988] 2 NZLR 653 and *Trust Bank Auckland Ltd* v *ASB Bank Ltd* (CA 8/89; judgment 7 March 1989).

16 That commercial significance is also reflected in current debates in business and accounting circles over the practice of including the value of brand names as assets in company financial statements. See, for example, Ferris & Hall, "Brand Valuations: The Australian Perspective", *Chartered Accountant* (June 1989).

17 On an international scale, the economic significance of intellectual property is further illustrated by the inclusion of the topic of trade-related intellectual property rights (TRIPS) in the current Uruguay round of negotiations on the General Agreement on Trade and Tariffs (GATT). The advanced industrialised countries have taken a major initiative in seeking more effective protection for intellectual property rights through the TRIPS negotiations. One of the background papers prepared by representatives of industry in the United States, Japan and Europe included a statistical summary:

> Documented losses are compelling evidence of the magnitude of the problem. In response to a recent questionnaire of the US International Trade Commission, 193 US firms

estimated their aggregate world-wide losses due to inadequate intellectual property protection in 1986 at $23.8 billion or 2.7% of sales affected by intellectual property. The ITC further estimated that world-wide losses to all US industry in 1986 from inadequate foreign protection of intellectual property ranged from $43 billion to $61 billion. According to the European Parliament, several billion dollars of counterfeit goods are sold annually within the European Community. This has resulted in the loss of 100,000 jobs, of which approximately 20,000 were lost in France and 40,000 in West Germany. In the United Kingdom, it is estimated that 100,000 jobs are lost due to copyright and patent infringement.

18 A contribution by the New Zealand delegation to the TRIPS negotiations (submitted on 30 October 1989) accepted that appropriate standards of intellectual property rights protection, based on standards in the principal international intellectual property conventions, could be a practical means of addressing trade distortions.

CULTURAL SIGNIFICANCE

19 The preceding references to the material significance of intellectual property should not obscure its cultural significance. As Professor Cornish observes in his text, intellectual property law protects some of the finer manifestations of human achievement. That point is amplified in the New Zealand context in David Beatson's paper, "The Importance of Copyright on the Social Awareness and the Cultural Attainment of a Nation" (*NZ Copyright Symposium 1988 Papers*, Copyright Council of New Zealand Inc, p 10).

20 However, as Professor Cornish goes on to explain, the principles and interests involved in protection of property rights are complex:

> ... No country favours conferring on the creator of an idea a perpetual property in it against imitators. The political and economic implications of such a privilege would be remarkable. Instead a set of limited forms of protection are fashioned against some types of exploitation by others. The root issue to which we constantly return is whether the balance achieved by this approach is broadly appropriate to the economic needs of the country and to the prevailing sense of what is just.

21 This territory has been explored more recently by Professor Hammond in his inaugural lecture, *The Law and Ideas*, delivered at the University of Auckland in July 1989 (to be published as a monograph by the Legal Research Foundation), which focussed on a statement by Mr Justice Brandeis in the United States Supreme Court decision in *International News Service* v *Associated Press* (1918) 248 US 215, 250:

> The general rule of law is that the noblest of human productions—knowledge, truths ascertained, conceptions and ideas—become, after voluntary communication to others, free as the air to common use.

THE INVOLVEMENT OF THE COMMISSION

22 The establishment of the Law Commission in 1986 meant the end of the previous system of part-time law reform committees. That system involved a number of committees made up of lawyers drawn from private practice, government departments and university law schools which would meet once a month or less with secretarial and research assistance provided by the Law Reform Division of the Department of Justice. The committees operated in separate, broadly defined areas: contracts and commercial law; criminal law; property law and equity; public and administrative law; and torts and general law (later evidence law).

23 Although not part of that system, the former Industrial Property Advisory Committee (IPAC) operated in a somewhat similar way, but was associated with the Patent Office rather than the Law Reform Division. For most of its existence, IPAC was chaired by Mr T M Gault QC, now Mr Justice Gault of the High Court (and author of the first of the papers reproduced in this publication). It produced final reports on a range of topics:

- Period of grace for patent renewal fee payments (August 1983)
- Service marks (August 1983)
- The law of copyright as it applies in New Zealand to industrial designs (February 1984)
- The patent monopoly term and extensions thereof (September 1985)
- The legal protection in New Zealand for computer programmes (March 1986)

- The adequacy of definition and disclosure in patent specifications relating to microorganism inventions (July 1988)

24 Early in 1988, after it became clear that IPAC was to be discontinued, and following discussions with Mr Justice Gault, the Law Commission resolved to include in its 1988 and continuing programme the topic "Aspects of Intellectual Property". In so doing, the Commission was conscious of the importance of intellectual property. The initial intention was to seek to identify the areas where reform was a priority. The Commission approached several leading lawyers and patent attorneys and was gratified by their indications of willingness to participate in a small advisory group, but refrained from finalising membership of the group pending the holding of some seminars designed to elucidate the question of priority areas for reform. That degree of Commission involvement, as well as the review of some areas which might be worthy of attention, was the subject of an address given by Jack Hodder of the Commission to a joint conference of the Patent Attorneys Institutes of Australia and New Zealand held in Queenstown in March 1988 (reproduced at p 133 below).

THE INVOLVEMENT OF THE MINISTRY OF COMMERCE

25 In December 1988 a major participant emerged in the intellectual property reform field with the creation of the Ministry of Commerce ("Commerce") with a Competition Policy and Business Law Division as one of its 4 major operating divisions. This division assumed responsibility for the Patent Office (formerly administered by the Department of Justice) and the registration-based intellectual property statutes—the Patents Act 1953, the Trade Marks Act 1953 and the Designs Act 1953. The division is also the successor to those parts of the former Department of Trade and Industry which had had an interest in this area, including the undertaking of a survey of business opinion on intellectual property protection late in 1986 (published as a discussion paper, *Intellectual Property Protection—A Business Perspective*, in June 1987), and the publication of another discussion paper, *Biotechnology in New Zealand—A Business Perspective*, in July 1988. The Department of Trade and Industry had also been responsible for the earlier stages of a review of the Commerce Act 1986, including the relationship between enforcement of intellectual property rights and promotion of competition.

26 In July 1989 the Minister of Commerce announced a review of the Patents, Trade Marks and Designs Acts with the first stage to be a discussion paper for release early in 1990. That announcement was amplified in a 24 November 1989 address by the Parliamentary Under-Secretary for Commerce which indicated that the Commerce review would extend beyond those 3 statutes:

> The first stage ... will be the publication of a discussion paper identifying where New Zealand law is at the moment and suggesting options for reform in the next few years. Some of the more interesting topics which will be looked at include: (a) in the area of patents—compulsory licensing, patent term, protection for microorganisms and biotechnological inventions; (b) in the area of trade marks—trade mark registration and the interface between the trade marks registration system and the Fair Trading Act; (c) in the area of designs —the appropriate treatment of industrial designs.
>
> Other relevant issues will also be examined, for example, legal protection for trade secrets, New Zealand's non-membership of many existing international conventions and the structure of the Patent Office itself.

THE INVOLVEMENT OF THE DEPARTMENT OF JUSTICE

27 In the meantime, the Department of Justice ("Justice") had retained responsibility for administration of the Copyright Act 1962 and was continuing with work on the review of that Act which had included the publication of a discussion paper, *Reform of the Copyright Act 1962*, in April 1985, and a further paper, *The Copyright Act: Options for Reform*, in July 1989. The Foreword to the latter paper stressed that the Government had not made policy decisions and was not committed to any of the options.

28 The Justice approach to reform of the 1962 Act was set out in the July 1989 options paper in the following paragraphs:

> 3.2 One approach to a new Act would be to accept the submissions of copyright owners relating to the erosion of their rights by new technology, [and] provide for more effective enforcement and compensation for new uses of copyright works. This would involve adopting largely European precedents which restrict "fair use" of copyright materials, impose levies on photocopying equipment and

paper, cassettes and video tapes and provide for a rental right.

3.3 We suggest a less stringent approach which would take account of the fact that the bulk of copyright material used in New Zealand is imported and the general principle that access to information, particularly by educational institutions, should not be unduly restricted. Nevertheless, care should be taken to fulfil the equitable economic expectations of the authors of works.

THE 1989 SEMINARS

29 The involvement of several law reform agencies in the intellectual property field, and the overlapping of various issues, caused some concern among those practising in the field. This concern was known to the Commission and, after consultation with various interested persons, it decided that a series of seminars with a limited number of invited specialists focussing on the fundamentals and coherence of intellectual property law reform would be a constructive contribution to the overall reform process, irrespective of which agency had the primary carriage of that process.

30 Such is the background to the seminars conducted in October and November 1989 at which the papers reproduced in this publication were first presented. In chronological order, the first of the seminars was that at which the paper by Lee McCabe was presented, held at the Law Commission's offices in Wellington on 27 September 1989. The paper is made up of 3 sub-papers, and offers the opportunity to learn of the way economists approach the topic of intellectual property, and also the way that reform of intellectual property was approached in Canada.

31 It may be mentioned here that the seminar by Lee McCabe was not the first time that the Commission had arranged for the economic aspects of intellectual property to be aired. In April 1988, following the receipt of an interesting (but, to the non-economist, partly impenetrable) article by Landers & Posner, "Trade Mark Law: An Economic Perspective" (1987) 30 *Journal of Law and Economics* 265, the Commission referred that article to Peter Gorringe, a senior officer in The Treasury, and he presented a paper entitled *An Economic Perspective on Trade Mark Law* to an invited group of private practitioners, departmental, and Commission personnel and others in April 1988.

32 The second of the 1989 seminars was held in the Auckland offices of Russell McVeagh McKenzie Bartleet & Co, barristers and solicitors, on 6 October 1989. At that seminar the papers prepared by Mr Justice Gault, Professor Hammond, Andrew Brown and Doug Calhoun (his first, on biotechnology) were presented to and discussed by an invited audience of private practitioners together with Commerce representatives and Professor Eagles of the School of Commerce, University of Auckland.

33 At the third of the seminars, held on 27 October 1989 in the Wellington offices of Brandon Brookfield, barristers and solicitors, Mr Justice Gault and Andrew Brown were unable to attend, but their papers, together with that of Professor Hammond and the second prepared by Doug Calhoun (on computer technologies), were presented to and discussed by a Wellington-based audience including invited private practitioners together with officers of Commerce and Justice and representatives from the Copyright Council of New Zealand.

34 In organising these seminars, the Commission invited the authors to deal with specific topics in such a way that there was coverage of the topic of intellectual property on a broad scale (the papers by Mr Justice Gault, Professor Hammond and Lee McCabe), and also of some exemplary areas of difficulty created by overlap, rapid developments in innovation, and the (possibly unintended) consequences of case-law developments (the papers by Andrew Brown and Doug Calhoun). In all of the papers there is a reflection of the fact that intellectual property laws operate in an international context, an important component of which is the current impetus for harmonisation of Australian and New Zealand business laws.

35 During the Auckland seminar, Mr Justice Gault articulated a number of issues requiring attention in any review of intellectual property law. He subsequently reduced those issues to writing and they form the "Addendum" to his paper (see pp 24–25). It is the Commission's view that that Addendum deserves the most careful and continuing consideration by all involved in intellectual property law reform. The experience of Mr Justice Gault with IPAC and his pre-eminence as an intellectual property lawyer in New Zealand are reflected in and add weight to the force of his points.

THE REFORM PROCESS

36 From the discussions at the seminars, and subsequent discussions with seminar participants, it became clear that many of the private

practitioners had various concerns about the process by which reform of New Zealand intellectual property laws is to be achieved. In summary form, the concerns they expressed included the following:

- There is no specific and visible mechanism for developing a coherent policy on intellectual property matters, although the desirability of such coherence is widely accepted.
- There is no logic in the Copyright Act 1962 alone remaining an administrative responsibility of Justice and responsibility for it (and its reform) should be transferred to Commerce which is now responsible for the other components of intellectual property law.
- Notwithstanding protestations to the contrary, it is doubted that Commerce and Justice can successfully overcome the departmental barrier to deal with the whole field of intellectual property in a desirable manner.
- There is no particular urgency for wholesale overhaul of intellectual property law, and the "no piecemeal reform" policy under which Justice is operating may be unhelpful, not least given that Commerce states that it is open to ad hoc amendments if that seems the most appropriate option.
- While Commerce is congratulated for its preparedness to consult widely and take an active interest in international developments in the intellectual property field, it is regarded as lacking in expertise.
- Recent legislative proposals impacting on intellectual property have been ill-considered. For example, the overriding of intellectual property rights in the Medicines Amendment Act 1989 has attracted much criticism (and is currently the subject of further remedial legislation); and the Ministry of Agriculture and Fisheries Amendment Bill (No 2) of 1988 as introduced would have significantly confused existing provisions on Crown ownership of intellectual property.
- Other countries have not left reform of intellectual property law to departmental resources alone but have relied on the work of specially established committees (ad hoc in the United Kingdom, standing in Australia) to harness the expertise of practitioners and business people.

37 The Commission has drawn those concerns to the attention of both Commerce and Justice. Some of them seem well founded, but others may reflect the private practitioners' lack of familiarity with government policy-making processes. In any event, the fact and context of the

articulation of those concerns may well have contributed to the elimination or avoidance of some of them at least.

38 In both of the October seminars there were suggestions that the Law Commission should take the leading role in intellectual property law reform. Officers of both Commerce and Justice were distinctly unsympathetic to the idea of the Commission (or any other agency) having such a role. For its part, the Commission recognises that Commerce and Justice are advanced in, and committed to, their respective reviews of aspects of intellectual property law, and that for the Commission to seek a major role in the current reviews would be unproductive.

39 Nevertheless, the topic of intellectual property reform falls within the Commission's statutory responsibility to promote and co-ordinate law reform activities and, in particular, to advise on reviews of aspects of the law conducted by departments. For the reasons outlined below, the Commission is of the firm view that intellectual property reform in New Zealand requires both an integrated approach and an independent advisory body.

AN INTEGRATED APPROACH

40 Although the various components of intellectual property law have had different evolutions, they share common features and raise similar public policy issues when reform is under consideration.

41 These common features include the intangible nature of the subject matter—which challenges orthodox legal analyses of property rights (exclusion, control, and enjoyment)—and characterisation as products of the human mind. Those features in turn give rise to common public policy issues. In correspondence with the Commission, Professor Ian Eagles of the School of Commerce, University of Auckland, listed some of these:

- Does intellectual property law strike the right balance between the interests of right holders, consumers and competitors?
- Does intellectual property law strike the right social balance between short-term price increases and long-term innovation?
- Should profit maximisation or cost recovery be the State's aim when assessing fees for intellectual property rights?
- Should term of grant and social benefit be more evenly matched?
- Does resolution of the foregoing issues require a more unified intellectual property law or should we dissect and reassemble

that law so that it reflects more closely the personal and business interests sought to be protected rather than the often fortuitous and largely historical patent—copyright—trade marks division?

42 At a less general level, there are difficult issues which straddle the traditional divisions of intellectual property law. Andrew Brown's paper deals with the question of parallel importation, and the second paper by Doug Calhoun deals with protection of computer technologies. These matters cannot properly be considered except as part of an integrated approach to the whole topic of intellectual property law.

43 One explanation for the division of the present intellectual property reform responsibility between Commerce and Justice was contained in the speech of the Parliamentary Under-Secretary of Commerce, referred to in para 26:

> The statute relating to copyright, because of its traditional literary and artistic significance, remains with the Department of Justice, however the Ministry of Commerce works with the Department on copyright issues when business interests are affected.

44 More recently, in correspondence with the Commission, Justice has indicated that its copyright review is almost complete, and stated its position on the timing and content of legislation as follows:

> A new Copyright Act is needed as soon as possible. The present Act is outdated, largely unenforceable and somewhat of an embarrassment internationally. Areas where change is promptly needed are:
>
> - "fair dealing" and copying by educational institutions
> - control over collection societies
> - parallel importing
> - protection for designs of useful articles
> - Crown copyright legislation
> - penalties for copyright infringements.
>
> The question of moral rights will also have to be addressed in the short-term in the context of the TRIPS negotiations, in which New Zealand has assumed a significant role.
>
> Finally, copyright is squarely within the harmonisation exercise being conducted with Australia.

It is therefore apparent that piecemeal amendments on a few matters such as computer software and integrated circuits are not the answer.

45 Notwithstanding the force in those observations, the Commission believes that the present division of responsibility—reflecting a compartmentalised approach—is unhelpful if a longer term view is taken. The need for intellectual property reform is undoubted but we now have an unprecedented opportunity to take an integrated approach. It may be that some of the suggestions canvassed in Professor Hammond's paper are too radical for ready adoption in a small trading nation such as New Zealand, but the opportunity to fundamentally re-examine what it is that intellectual property laws across the board can and should achieve ought not to be missed.

RECOMMENDATIONS

46 These considerations lead the Commission to recommend that:

- There should be a clear integration of the present Justice review of the Copyright Act 1962 and the Commerce review of other aspects of intellectual property.
- If possible, major legislative changes to copyright, patent, trade mark or trade secrets law should be introduced contemporaneously.
- In the meantime, amendments to existing statutes should be permitted to proceed, in particular where this would advance or retain harmonisation with Australian developments in this area.
- In the longer term, the responsibility for administration and policy advice on copyright matters should cease to be separated from responsibilities for other aspects of intellectual property.

AN INDEPENDENT ADVISORY BODY

47 Although both the Commerce and Justice reviews involve consultation, including the seeking of submissions from interested parties, the Commission considers that there is a strong case for an intellectual property advisory committee. This would provide a single co-ordinated and independent source of advice in this area in addition to the general responsibilities of government departments.

48 The Commission contemplates that an intellectual property advisory committee would include experts drawn from both the public and private sectors, would consult widely, and would provide advice from time to time, sometimes at a time or in a direction that might not be welcomed by the administering department or the government of the day.

49 As mentioned in para 24, the Commission took some preliminary steps to establish such a committee during 1988. Given the major development of the commencement of the Commerce review since that time, the Commission's present preference is to co-operate with both Justice and Commerce in their current reviews, with the existence and composition of an advisory body being addressed in the discussion paper which Commerce proposes to release later this year. The nature, composition and role of such a body can then be fully considered in the light of relevant responses to the Commerce paper.

THE POLITICAL PROCESS

50 To focus entirely on the efforts of various advisory agencies would overlook the fact that comprehensive reform in this—or any—area would be by way of legislation and thus involves the political process. The hazards of the political process may be illustrated by—and lessons drawn from—the enactment in the United Kingdom recently of a new consolidated intellectual property statute. Vincent Porter has described the bending and shaping of the original United Kingdom bill thus:

> During the passage of the bill a rental right was introduced for sound recordings, films, and computer programmes but not for their authors; special rules were introduced to permit the copying of works in an electronic form by the purchaser; Crown copyright was subdivided into Crown copyright proper and parliamentary copyright; additional exemptions were made to permit advertisers to make copies of works in order to advertise them for sale; a limited right of privacy was introduced to prevent photographers and film-makers from exploiting their copyright; and the term of copyright of Sir James Mathew Barrie's *Peter Pan* was extended for an indefinite period so as to provide funds for the Hospital for Sick Children, Great Ormond Street. Indeed, it may fairly be claimed that the provisions of the new law reflect the interests of the powerful and the politically active, not those of society as a whole.

("The Copyright Designs and Patents Act 1988: The Triumph of Expediency over Principle" (1989) 16 *Journal of Law and Society* 340.)

51 An open and informed process of reform preceding the introduction of new legislation on intellectual property law should help avoid a situation where similar comments could be made in the New Zealand context. In the meantime, the Commission will continue to take an active interest in this area, will assist the departmental reviews which are under way, and will seek to minimise causes for concern about the process and content of intellectual property reform.

RECENT EXPERIENCE OF INTELLECTUAL PROPERTY REFORM

The Hon Mr Justice Gault

(Paper first presented to a Law Commission seminar
Auckland, 6 October 1989)

Recent Experience of Intellectual Property Law Reform

The Hon Mr Justice Gault

The last 30 to 40 years have spanned the period of greatest development in internal and external trade and technological and industrial advancement in the history of the country. Compare the economic structure, level of higher education, research, manufacturing skills and commercial sophistication of New Zealand in the 1950s with the position today.

Across that period, to my knowledge, there has been no study of any depth into the appropriateness of the laws providing for the protection of new technology and differentiation of products and services in the markets of this country. It can be only in small part because the English statutes we had imported were entirely satisfactory.

The much publicised, and lamentably shelved, Beattie Report (*Report of the Ministerial Working Party on Science and Technology*, December 1986), while so emphatic on the need for increased research and development in New Zealand, simply mentioned in passing that review of the intellectual property laws was in the hands of the Industrial Property Advisory Committee (IPAC).

I suggest that review and reform in the law require as minima

- an acknowledged need;
- political will and commitment;
- resources;
- expertise harnessed for such time as it takes.

IPAC lacked all of these.

That committee was appointed as a working party to which the Minister of Justice could refer complaints he received, particularly relating to industrial product copying litigation which was giving discomfort to local "importers" of product designs. It was never intended that IPAC would review the whole field

of intellectual property law. It was not equipped to do that. It is perhaps significant that the only area in which its recommendations were taken into legislation was the area in which there had been some public pressure. I exclude the introduction of service marks into the Trade Marks Act 1953. While this was an IPAC recommendation, I am not convinced that the legislation resulted from that.

The committee was criticised, I think, more for what it did not do than for what it did do. Certainly its limited output did not stem from the Chairman's perception that no more needed doing.

For many years, and particularly since the establishment of the World Intellectual Property Organisation (WIPO) as an organ of the United Nations, initiatives at the international level in the area of protection of rights have been rapid. New Zealand has shown little apparent interest in evaluating them. I believe this has been due to the separation of responsibilities and a lack of suitably qualified people at the right level to monitor and assess these developments.

The Patent Office could fairly have been described as a low priority division of the Department of Justice. Because of its role in registering patents, designs and trade marks, it appears to have had virtually sole responsibility for those areas of law. Being registration oriented, however, it had no one with qualifications and available time to consider broader policy issues such as the need for reaction to international developments relating to such matters as type faces, computer software and biotechnology; or to the commercial exercise of protected rights. Such matters as the relationship of the registered rights to the common law and judicial developments, particularly in the areas of trade and company names and trade secrets, have had little consideration.

Over the years the concentration of the Department of Trade and Industry was elsewhere. I saw no evidence of activity in that department directed to the suitability of existing laws or proposals developing overseas.

Copyright was the province of the Department of Justice, which operated upon a demonstrated need (priorities) approach. As many members of Equity (now the Performance Entertainment Workers Union) will attest, struggling performers seeking to establish a fledgling entertainment industry in New Zealand were repeatedly told that the need for performers' protection had not been demonstrated. Until recently no efforts towards accommodating within the copyright law technical developments such as photocopying, sound and video taping, satellite communications, computer software and the like were apparent. I suggest that the community's best interests are not always served by responding to pressure and that policy formulation is vital.

The international obligations accepted by adherence to the principal treaties necessarily impose constraints on law reform in this field. They also mean there is available for access accumulated experience and wisdom not always available in fields of only domestic interest. These obligations have not been at the forefront of considerations when steps have been taken for domestic reasons. Without wishing to be critical, I draw attention to how recent examples of enactments in 1968 and 1989 of powers of importation of pharmaceutical products in the face of convention obligations to protect patents reflect this very problem. Similarly, the stance taken for a period by New Zealand representatives in conjunction with those of 5 other countries in the revision meetings on

the Paris Convention for the Protection of Industrial Property (1883) reflected response to an internal pressure without full consideration of broader international implications.

I attribute these matters to lack of co-ordination among those responsible for the various aspects of policy. A number of organs of government are in a position to initiate or influence policy development affecting aspects of intellectual property law, yet there appear no established lines of consultation to ensure compatibility with other broader interests and New Zealand's international obligations. There has been little articulation of a coherent government policy by which such initiatives should be guided.

IPAC attempted in certain narrow areas to promote awareness of the necessary interaction among government agencies. The committee included representatives of the Department of Justice and Department of Trade and Industry (although perhaps not at the right level) and consulted with the Department of Scientific and Industrial Research, the Department of Health and the Ministry of Foreign Affairs on certain issues. Much more is needed. I regard continuing co-ordination of the highest importance.

In recent times the picture has changed considerably. The Department of Justice has accelerated its revision of the copyright law. The Patent Office has come under the umbrella of the Ministry of Commerce and there are moves towards formulation of policy and a review of the law. Competition laws have been enacted. The change of British laws to conform with European obligations means that less reliance can be placed on developments there. The Australia/New Zealand Closer Economic Relations Trade Agreement (ANZCERTA) has stimulated the desirability for New Zealand of "harmonisation" of laws with Australia, a logical necessity in an open or common market. Pressures appear to be increasing for laws to accommodate recent international developments in fields such as biotechnology and computer firmware. There has been activity in relation to the protection of new plant varieties although the significant issue of the relationship between that and the protection of microorganisms has had little more than a mention.

A time for change has come. Working parties of the IPAC type with narrow terms of reference will likely be equally ineffective unless operating within an overall coherent programme structured with facilities for accumulation of information, research and consultation.

New Zealand, because of its size, has only a small number of true experts in the field and, as in many other fields, there is the potential for disproportionate interest group influence. Reform work also can be rather depressing unless some legislative programme can be worked to.

Another factor which experience shows is likely to arise is the inundation of reformers with material from abroad, particularly from some of the large international companies whose expertise and resources, while impressive, will tend to be slanted.

An issue which has arisen in many countries and undoubtedly now is ripe to emerge in New Zealand is the debate on the economic value of rights protection. At the fundamental level this debate goes to the merit of an intellectual property protection system and is pursued passionately by some economists. I am not aware of any resolution because the economic analysis seems necessarily to be

founded on unprovable assumptions. However, unless there is to be examined the very adherence to the international conventions to which New Zealand has long been party, the commitment of significant time to this interesting debate may be a diversion of resources without prospects of gain. In saying that, I do not wish to be taken as arguing against proper economic analysis of particular reform proposals. That is only appropriate in this field.

Although I have highlighted past difficulties and potential problems, I believe that with an ordered approach a review of intellectual property law is not an unmanageable task. It needs doing. The very lack of urgency and the fact that such a task is undertaken rarely mean that when it is done it should be done with care and thoroughness.

Finally, I venture a personal view. So often we hear that New Zealand is a net importer of technology and so protection conferred by our laws benefits foreign nationals to the detriment of New Zealand. As I understand it there are in fact only two countries that are net exporters of technology. One of those is Japan which after World War II adopted a policy of strong protection of rights in order to attract the import of technology. The technology imported was used as a springboard for internal development. This is an example of the transfer of technology operating successfully. It is to be compared with some of the South American countries which although anxious for industrial development, fail to provide the legal framework for the secure and confident introduction of new technology.

ADDENDUM

In the formulation of overall policy to which aspects of review or revision of the law of intellectual property might be expected to conform, the constraints imposed by international obligations will be of importance. In addition the following issues should be addressed.

OBJECTIVES FOR INTELLECTUAL PROPERTY LAW

While there must necessarily be differences in the purposes for conferring different property rights, the overall objective might be simply to conform to the minimum requirements of the international community or it might be actively to provide a climate for New Zealand's industrial, commercial and intellectual development. If it is the second of these, the laws must be considered as part of a wider policy which extends to encouragement of research and development, and fiscal policies towards investment, royalties and the like.

KNOWHOW

The provision of a legal base for the importation of technology must be supplmented by the development of domestic technical competence to a level that ensures assimilation and use of technology to the greatest advantage. It is essential that the transfer inwards of technology provides the springboard for technical development domestically. For this reason it is vital to secure access not only

to legal rights but also to all necessary knowhow. The appropriate legal incentives for this must be considered.

CER

With progress towards "harmonisation" and the stated objective of an open or common Australasian market some consideration will need to be given to Australasian rights. In Europe this has been done by initially superimposing community rights on national rights. The period likely to be involved in a substantial review of the laws will probably cover significant developments in New Zealand/Australia relationships and the eventual role for intellectual property laws in the wider market must be given consideration at an early stage.

RELATIONSHIP TO OTHER LAWS

The relationship between intellectual property laws and competition law and consumer protection laws must be determined. At one level they appear in conflict; at another they are all serving the same general purpose.

In the trade mark area there is also to be considered the impact of the common law and also the laws conferring protection on company names. The issue of business name protection calls for consideration also.

CRITERIA FOR PROTECTION

In recent times there appears to have been a move away from protection for innovation to protection for investment. This undoubtedly is so in the fields of copyright and trade marks. It is less clearly identified in the area of patents. Any coherent policy needs to consider the appropriate basis for protection in the modern society.

REGISTRATION OR SELF-REGULATION

Again a different approach may be necessary in respect of different rights but the trend away from registration rights is clearly evident. A subsidiary issue is whether, in the case of registration, rights should follow simple deposit or full examination.

INTELLECTUAL AND INDUSTRIAL PROPERTY PHILOSOPHY, PROCESS AND PROBLEMS

Professor Grant Hammond

(Paper first presented to a Law Commission seminar Auckland, 6 October 1989)

Intellectual and Industrial Property: Philosophy, Process and Problems

Professor Grant Hammond

INTRODUCTION

All developed economies presently have a "system" of intellectual and industrial property law. And most have, to a greater or lesser extent, been endeavouring to overhaul their system in recent years. It is now apparent that these reform initiatives have followed a similar path.

First, following expressions of concern from the commercial, cultural and legal communities, high-sounding rhetoric eventually emanates from governments about the impact of the "new technologies" and the need for a fundamental rethink to accommodate these new technologies. Very general statements are made about the economic importance of this subject area. This might be characterised as the awakening stage.

There then follows a second period, more technocratic, in which there is a slow and painful realisation that the task of fundamental reform is extremely difficult (if not intractable), that root and branch reform calls for a secondment of resources and legislative time far beyond what was originally contemplated, and that the values at stake routinely conflict and require very careful adjustments.

The result has been that reformers and legislators get driven down from the high road of fundamental reform to the low road of ad hoc amendments of the make and mend variety. Ultimately the reforms have not matched the rhetoric. As has recently been said of the English Copyright Designs and Patents Act of 1988:

> overall [the Act] is a complicated statute, subjected to a wealth of amendments during its progress through Parliament. Having been heralded by a White Paper that failed to address key issues in depth it is hardly surprising that during its progress the Government made major changes to the substance of the Act and appeared at times to be uncertain of the correct

> way forward. Indeed it was rumoured at one stage of the Bill's life that the Government were considering scrapping the Bill and starting again. (Carty & Hodkinson, (1989) 52 *Modern Law Review* 369, 379)

And Professor David Vaver, in discussing the recent reform of Canadian copyright law has said:

> The introduction and progress of Bill C60 through the legislature, and its eventual enactment, indicates that even modest copyright reform is a difficult process ... experience with that Bill indicates that a better process must be devised than simply introducing a fully fledged Bill and having it referred, after two pro forma readings in the House, to a legislative committee for study. (1988 ABLR 412,438)

In New Zealand we have recently had the unedifying spectacle of the Government being unable to get to grips with the issue of Crown copyright in a sensible manner. And the debacle over the Medicines Amendment Act 1989 does not inspire much confidence. (See Hammond, "Intellectual Property: Recent Developments" *New Zealand Recent Law Review*, September 1989, 239, 240.)

These known difficulties of intellectual and industrial property law reform should give pause in New Zealand for serious reflection before the first step in the 10,000 mile journey of reform is actually taken. Justice, Commerce, and the Law Commission have all indicated that their respective enterprises wish to embark on this particular journey. Whilst I fully support the commencement of the endeavour I do suggest that 2 questions must be directly addressed from the outset:

- what are the expectations for reform, and
- what process or processes are best suited to advance those expectations?

I will make some comments under each of these heads. I will then identify some of the larger structural problems which I hope would be addressed in considering how matters might best be advanced.

THE EXPECTATIONS FOR REFORM

The essential questions here are, do we need an intellectual and industrial property system in New Zealand? If so, what form should the system take?

THE NEED FOR A SYSTEM

The arguments for and against a system of intellectual and industrial property law usually fall under one or other of the following heads.

For such a system it is argued that it

- encourages dissemination of knowledge;
- encourages technology transfer;
- encourages research and development;
- encourages new investment in production;
- is morally justifiable in rewarding inventiveness;
- restrains abuse of technological dominance.

Against such a system it is argued that it

- is inimical to pure research and science;
- costs too much to use;
- takes too much time to use;
- is a political weapon of the west;
- is an economic weapon of (particularly) large technology companies in the west;
- is morally unjust and permits abuse;
- is economically inefficient and wasteful;
- is anti-competitive in a free market economy.

RESOLVING THESE ARGUMENTS

The mere recital of these arguments, even in an attenuated form, indicates that a consensus is unlikely to be forthcoming. This is hardly surprising.

First, the empirical evidence (such as it is) is inconclusive.

Second, there is clearly room for reasonable people to differ on where private and commercial morality lie in intellectual and industrial property issues.

Third, from the standpoint of economics it should be recalled that to an economist property rights exist where one can exclude others from the use of a resource. To the economist, all legitimate means of exclusion have the function of property rights, even though lawyers may give these means quite different names. Hence economic theory predicts that property rights in this broad sense can and indeed should arise where the cost of excluding others from a resource is more than offset by the benefit to be derived from the exclusive use of it. But different economists see this cost benefit equation falling differently. In other words, there is no difference over the equation itself, but the figures to which it is applied produce much inconclusive debate.

As matters stand, no country (except Holland for a short time at the turn of the century) has yet taken the bold initiative of doing away with a system of intellectual and industrial property rights. And the point is usually made that the burden of establishing that such rights should be done away with rests on the proponents of change and that the burden has not been discharged.

SCHOOLS OF THOUGHT

Against this backdrop 2 broad schools of expectations for reform can be discerned.

The first sees the balance of the argument as being in favour of the present system or a modified version of it. The problem is then viewed as being predominantly technocratic: the accommodation of new technological and cultural considerations into the system along with the "debugging" of known problems within the system. This viewpoint insists that this is all that is necessary and indeed feasible and that any reform processes should be designed accordingly.

The second viewpoint is more radical and holds (for a variety of reasons) that even a respectable level of accommodation and debugging is futile. Thus, one commentator recently argued that most of the current copyright law reforms have been a waste of time because they have involved attempts to extend the principles of copyright law to new language systems which are substantially different from that for which copyright law was first developed or to which it could be logically extended. As it was put:

> at every stage, the legislators have ducked the intellectual challenges which face them. Instead of drafting new legislation designed to address the specific relationship between each communication system and the society which they sought to serve, the legislators sought to adapt and amend copyright legislation which had been devised and developed for an earlier age and for an essentially different communication system. In some cases it has even been left to the Courts to decide how copyright legislation should develop, which has led to even more unpredictable results. Not surprisingly, many of the ways in which copyright law has developed benefit neither the author nor the public. (Porter, "Copyright: The New Protectionism" (1989) 17 *International Institute of Communications* 10)

And I once argued in a fit of radicalism that conceptually the system is largely futile because what is being attempted is the capture of information, and that that endeavour is doomed from the outset:

> The most striking characteristic of information is that it does not fit easily with extended concepts of property. First, sole ownership is vastly complicated in the case of information. The act of theft is often impossible to detect and difficult to prove. A piece of information can be "owned" by two people at the same time without any denial of the conventional benefits of ownership. Second, some kinds of information can be infinitely multiplied at low cost. Third, information generally does not depreciate with use and some kinds of information of a theoretical character actually inflate in value with usage. Fourth, unused information is, in general, of no use but the moment information is used it reveals both its existence and content and may actually enter what is conventionally referred to as the "public domain". Fifth, the creation of information is routinely a joint activity and the apportionment of "creativity" is then rendered extraordinarily difficult. Sixth, the creation of technology and information is tending to move on shorter frequencies: commercial advantage is today inextricably intertwined with innovation. Longer-frequency functional vehicles such as the statutory monopolies, are becoming increasingly inapt for this pronounced shift in commercial timeframes. Seventh, the volume of available information has reached overwhelming proportions. Classical economics assumes the possession of complete information about the availability of different goods, estimation of costs and maximization of utility preferences. But more information is not complete information. The disabilities of the individual in relation to the sum of knowledge become progressively more severe as the sum increases. Eight, in economic terms, public goods are separated from private goods by a principle of exclusion. Although that principle can still apply to information it is routinely invoked only at a considerable cost.

(Hammond, "Quantum Physics, Econometric Models and Property Rights to Information" (1981) 27 *McGill Law Journal* 47)

In view of the commentators and analysts of this sort of persuasion, the reform process ought to be much more fundamental and ought to be structured accordingly. The argument is not that protection is not appropriate, but that completely new approaches need to be adopted.

FACTORS IN DECIDING WHICH ROUTE SHOULD BE FOLLOWED

In deciding whether to adopt a (respectable) make and mend approach or whether to pursue more fundamental reform the following factors should be weighed. These factors are not priorised.

- The available resources.
- The projected time frame for fundamental reform.
- The perceived political will to undertake and "stick with" a more fundamental exercise.
- To the extent that it can be gauged, the possibility of an attempt at more fundamental reform producing something worthwhile in a given jurisdiction.
- International constraints in the form of treaty obligations.
- The implications of the CER agreement with Australia.
- The availability of empirical studies or other field studies of specific industries which might provide suggestive data or tentative solutions.
- The degree of commitment which a given jurisdiction is prepared to give to a "strong" system of intellectual and industrial property protection as a direct incentive for the promotion of research and development.

Most of the foregoing factors are self-evident, but it may be worth making a few observations on the last factor. The modes, rate and direction of technological change in a traditional industrial economy have been closely studied. There is in fact relatively widespread agreement upon the determinants of technological change in such an economy. The common sense a priori assumption that the rate of technological change in an industrial economy is closely related to the resources devoted by individuals, firms and governments has been substantially confirmed. Economic studies also confirm the further common sense assumption that there is a high correlation between the amount that a business enterprise spends on research and the expected profitability of the use of that research. Other factors commonly influencing technological change have been shown to be social demands; the particular market structure; the legal arrangements under which a particular industry operates; attitudes towards technological change by management, workers and the public; and the way in which corporate government and university-based research and development is organised and conducted. On the whole however, the bottom line with respect to the economics of innovation has been found to be dollars. That is, a direct relationship between expenditure and technological advance has routinely been demonstrated. And there are many economists who argue that this model has

"produced". It has for instance been demonstrated that the advance of knowledge contributed about 40% of the total increase in national income per person employed in the United States from the early 1930s into the 1960s.

Other characteristics of (at least) Northern Hemisphere economies which have been noted are that the necessary information for research and development tasks is acquired primarily from within firms, very often by informal means. Second, the time lag from invention to innovation is surprisingly high (and often a matter of years). Third, (as common sense would suggest) the rate of diffusion of innovation is very variable but is higher when something other than durable goods is involved. (See generally Hammond, "The Misappropriation of Commercial Information in the Computer Age" (1986) 64 *Canadian Bar Review* 342.) It is also worth recalling that in what is still the most incisive analysis of the economics of innovation, Schumpeter advances 3 basic propositions. One, that capitalist economies are characterised by a continuous process of "creative destruction" in which innovative technologies and organisational structures threaten the status quo. Two, the resultant technological innovation provides the opportunity for temporary monopoly profits and the pursuit of these profits has been what has spurred the tremendous growth of western economies. Three, that because of the expense of conducting research, large firms supported by an appropriate intellectual and industrial property system are necessary to keep the engine of capitalist change going (*Capitalism, Socialism and Democracy* (3rd ed 1950) 81–106). It followed in Schumpeter's view that an industry structure that encourages competition among many small firms is not the best structure for fostering technological innovation.

I make these observations to make some perhaps self-evident points. It is far from clear that there is any national commitment in New Zealand to the development of a genuinely innovative technology-driven society. On the other hand, it may well be that New Zealand is less of a net importer of technology than is commonly supposed. There are some clear instances (for example in the agriculture sector) of world leadership in technology which would require strong support rights. And protection may be needed as much for technology transfer to us, as anything else.

In the end, one is driven to the conclusion that the "strength" of a system of intellectual and industrial property rights is part of our social and economic policy and cannot be considered apart from the overall policy direction a given jurisdiction chooses to pursue. Or, to put it another way, to the extent that there is a vision or philosophy of how the future of our intellectual property laws should look it cannot be an abstract thing. And finally, it must be recalled that a "strong" system (with its emphasis on exclusivity, and hence exchange value) comes in conflict with political and cultural values (and their emphasis on openness and the continuous creation of new kinds of communities through the diffusion of ideas, information and innovation). (See Hammond, *The Law and Ideas*, Inaugural Lecture, University of Auckland, July 1989, to be published as a monograph by the Legal Research Foundation.)

THE PROCESS OF REFORM

It is apparent from what has already been said that intellectual and industrial property reform has two distinct elements.

First, there must be evolved a clear appreciation of the policy objectives sought to be achieved. These objectives must "square" with international and regional objectives.

Second, there is then the technical task of finding the most appropriate vehicles to advance those objectives.

Whilst it may well be appropriate in a larger jurisdiction to have different elements of this exercise handled in various departments and agencies, New Zealand would not appear to have the expertise, nor the resources to countenance fragmentation of effort. Ideally, decisions should be made now as to which department or institution is more appropriately fitted to carry forward the reform initiative and to implement and monitor that initiative. We have already seen in the last few months in New Zealand the quite unfortunate results of undue dispersion (often for political reasons) of scarce resources. Once the "carriage agency" is identified and agreed upon, agreement should be reached on what underlying or technical studies might be required to support thoroughgoing reform. At that point some dispersion of effort can sometimes be appropriate but the "carriage agency" should remain the line of reporting authority.

Third, it is quite apparent from all the reform initiatives that have taken place in the western world to date that a "closed" approach to reform is fatal. The strongest objections (and often those which turned out to have the most practical merit) which have been forthcoming with respect to proposed reforms have come from users of the system who were never adequately consulted. Frustrated by a poorly designed process such organisations quite quickly became "unfriendly users" and hindered, and in some cases derailed altogether, attempts at reform.

A fourth factor is that of the continuity of the whole process. Intellectual and industrial property law reform is not a file that can be opened and closed as convenient. Whilst it is possible for one agency to identify directions for reform, every experienced law reformer knows that the real work is done in the trenches—in the committee rooms, and in the long and arduous task of steering the reforms through legislatures and maintaining their integrity as the pressure from affected interest groups begins to bite.

SOME STRUCTURAL PROBLEMS

There are five large scale structural problems within the New Zealand system of intellectual and industrial property law which may be thought to warrant particular attention.

SYSTEMS OVERLAP

This problem is not unique to New Zealand. Essentially it involves legal vehicles being used for quite different functional purposes from those for which the vehicle was originally designed. The most pressing example is the application of

copyright in the industrial and (perhaps) the computer areas. The argument is essentially that copyright is being forced beyond its proper "domain". Abstracted to the most general level, the issue here is how many functional vehicles are required for an adequate system of intellectual and industrial property law and articulating the proper demarcation between those various vehicles.

THE RELATIONSHIP BETWEEN THE TRADITIONAL INTELLECTUAL PROPERTY STATUTES, JUDICIALLY CREATED RIGHTS AND S 9 OF THE FAIR TRADING ACT 1986

The historic thesis of intellectual and industrial property law is that relatively tightly controlled rights are conferred by statute. Conceptually the theory is one of state concession (although it has to be said that European notions of natural rights and the common law of tradition of state concession are coming closer together with the passage of time). But there is a great danger that the intellectual and industrial property statutes will be end-run by judicially created causes of action, or more particularly today, by claims based on s 9 of the Fair Trading Act 1986 (s 52 of the Australian statute). No reform of intellectual and industrial property law can be properly undertaken without a review of those developments. To pretend that the issue is one only of statutory protection and to ignore the whole issue of judicial protection of intellectual and industrial property values would be foolhardy.

THE CREATION OF ADDITIONAL REGIMES

There has been pressure for new kinds of rights within the traditional statutes. But is there a case for additional statutory regimes? For instance in North America a statutory regime for protection of trade secrets has been evolved (see Report No 46 *Trade Secrets*, Institute of Law Research and Reform and a Federal Provincial Working Party, 1986). Again this issue could be abstracted to a more general level. What, if any, additional statutory tiers of protection are necessary for intellectual and industrial property?

COMPETITION LAW

The relationship between intellectual and industrial property values and competition policy has been inadequately thought through in New Zealand and needs attention.

THE EXPRESSION OF INTELLECTUAL AND INDUSTRIAL PROPERTY RIGHTS

At the moment New Zealand utilises separate statutes for patents, copyrights, trademarks and designs. The United Kingdom has now evolved a unitary statute. Australia has made a real effort at simplification of the law in its new Patents Bill.

In New Zealand considerable emphasis has been placed upon accessibility and simpler expression of our law. Should New Zealand be working towards a unified statute? Indeed, the question should be asked at the outset of a reform

exercise: should New Zealand be working towards a code which would accommodate not only the traditional subject matter, but also be expandable in new parts to cover (for example) such issues as shrink wrap licences and warranties in due course? One very obvious advantage of the integrated approach is that it forces a reappraisal of the demarcation issues which have bedevilled this area of the law.

CONCLUSION

- There is no evidence that the "system" in New Zealand is in such dire need of repair that urgent ad hoc amendments are required.
- There is evidence that such reforms as have been undertaken have not been systematic, have lacked depth and care and have themselves created problems.
- Process should never be allowed to defeat initiative. But those having responsibility for the system should seriously review the process problems before matters proceed further.
- What is required is a cohesive, properly resourced, ongoing effort, wherever it is located. If the whole cannot be carefully reviewed at one time, then priorities of "parts" for reform should be established and a staged process adopted. And either endeavour should only be undertaken when a clearly articulated sense of the policies to be pursued has been established.

CURRENT ISSUES IN COPYRIGHT

Andrew Brown

(Paper first presented to a Law Commission seminar
Auckland, 6 October 1989)

Current Issues in Copyright

Andrew Brown

The aim of this paper is to raise for discussion two current aspects of copyright protection in New Zealand which have a significant impact in commerce. These are

- the extent of copyright protection for works which have been industrially applied;
- the protection available under the Copyright Act 1962 to prevent the parallel importation of copyright works.

BACKGROUND

Prior to the enactment of the Copyright Act 1962 both the Dalglish Committee and the then Attorney-General explicitly recognised the obvious—namely that New Zealand is a user rather than a producer of copyright works (*Dalglish Report* paras 13, 15 and 25). The Attorney-General, Mr J R Hanan, in introducing the new statute into Parliament in 1962 observed:

> Nevertheless, we cannot forget that in this country we are likely for a very long time to use far more copyright material from outside New Zealand than we produce in New Zealand. (See 332 NZPD 2323.)

Despite these observations, the Copyright Act 1962 contained few if any provisions which actually recognised that New Zealand might have interests substantially different from those of copyright exporting countries such as the United Kingdom. To all intents and purposes the New Zealand Act was a re-enactment of the 1956 UK Copyright Act and the Parliament of the day, in the interests of international uniformity, did not adopt some of the Dalglish Committee's recommendations for a reduced term for copyright.

Although the industrial base in New Zealand has expanded substantially since the early 1960s it would still be true to say that New Zealand remains a net user of copyright works. Two significant commercial manifestations of this are seen in

- imports of overseas copyright works; and
- the manufacture under licence of overseas products which are subject to copyright.

In any consideration of copyright reform it will be important to make an assessment as to where New Zealand's best interests lie. This is no easy task because such an assessment involves

- balancing economic interests—the encouragement of local industry *and* the encouragement of foreign investment;
- consideration of New Zealand's existing international treaty obligations and recognition that in order for New Zealanders to have protection for their copyright works overseas a minimum level of reciprocity for foreign copyright works is required in this country.

Overlaying these considerations there is now the further need for consideration to be given to the position in Australia. The Memorandum of Understanding signed in Darwin on 1 July 1988 between the Attorneys-General of both countries made a commitment to the examination of the scope for harmonisation of business law. One of the topics specifically identified was copyright. Harmonisation, however, does not involve simply adopting Australian laws and in one of the two areas to be discussed a healthy degree of scepticism towards the Australian solution would seem warranted.

COPYRIGHT—INDUSTRIALLY APPLIED WORKS

In New Zealand there is to a considerable extent dual protection available under the copyright legislation and the Designs Act 1953 for industrially applied works.

The definitions of "artistic work" and its constituent elements in the copyright legislation permit the protection in copyright of functional items. The judicial extensions given to the definitions of "engraving", "print" and "sculpture" and the inclusion in 1985 of the term "model" in the definition of "artistic work" have all aided and abetted a high level of protection. The Dalglish Committee certainly intended that the Copyright Act 1962 should protect original artistic works "whatever their purpose or intended application" (para 310). Whether the Committee quite envisaged the extent of protection which subsequent judicial interpretation has allowed is another matter.

Under the designs legislation, registration is possible where the design has features which in the finished article appeal to and are judged solely by the eye. Designs which are dictated solely by function, however, cannot be registered.

In practice, copyright in recent years has almost always been the preferred vehicle for the protection of industrially applied products and designs in New Zealand. The numbers of registered designs each year are very modest (compare the position in Australia). While copyright infringement actions are legion, there

have been but a handful of cases in New Zealand of registered design infringement.

As a result of the strength of copyright (something which has been particularly demonstrated since *Martin* v *Polyplas* [1969] NZLR 1046 and *Johnson* v *Bucko* [1975] 1 NZLR 311) a whole generation of New Zealand businesses has grown up since 1962 relying entirely on copyright for protection of their products and designs. There is no tradition, in this country, as there is in Australia, of routinely applying for design registration.

In the late 1970s and early 1980s the protection afforded by copyright to industrially applied works seemed excessive particularly given

- the length of copyright term;
- the existence of conversion damages;
- the tendency to seek interlocutory injunctions in copyright matters based on the relatively low threshold test of "serious question to be tried".

The worst excesses were however addressed by IPAC and curbed by the 1985 Copyright Amendment Act. By and large this statutory solution seems to have been a successful one which neatly balances copyright term and the term of registration based rights. It has also provided a balance between stifling competition (where the copyright term is unduly long) and yet providing a sufficient period of protection for investment to be recouped.

Since the 1985 Amendment Act legislative changes to copyright protection from industrial designs have been enacted in both the United Kingdom and Australia. Clearly these changes warrant consideration by New Zealand—particularly the Australian position. However, it is suggested that change for change's sake is an unwise course. A prerequisite to change must surely be to identify whether there are any serious defects in the 1985 solutions which, when balanced against New Zealand's economic and other interests, require reform.

The Department of Justice discussion paper on copyright published recently identifies certain "practical problems" which the application of copyright has created for the business community. Succinctly summarised, the "problems" identified by the discussion paper were:

- Copyright is not registration based. It is difficult for manufacturers to find out the owner of copyright in a particular product. A company may have been making a product for a considerable time before a copyright infringement is brought to its notice.
- New Zealand copyright protection for industrial designs is more extensive than in other countries. Foreign copyright owners have greater protection in New Zealand than New Zealand copyright owners have in foreign countries. This puts local manufacturers at a disadvantage.
- When manufacturers follow overseas trends, in many instances it is "difficult, if not impossible, to make a product which is not 'substantially similar' in whole or in part, to one or more of the products already in the market".

Another possible addition to this list is the difficulty which a local manufacturer may have in determining accurately when the 16 year period of first industrial application actually commenced. As this 16 year period commences from first

industrial application anywhere in the world a New Zealand manufacturer wishing to copy may have no way of ascertaining when the period began.

As a preliminary to reform considerations it is most important to debate whether these identified "problems" have indeed produced substantial difficulties or anomalies which, on balance, are contrary to New Zealand's best interests. Some matters to consider in this regard are:

- the suggestion of a registration based system for copyright was in fact considered and rejected by the Dalglish Committee in its 1959 report;
- is there any validity in the Department of Justice suggestion that "in many instances it is difficult if not impossible to make a product which is not 'substantially similar'";
- the foreign reciprocity argument has considerable patriotic attraction. It is important, however, not to accept this at a superficial level but rather to investigate what rights are available in other jurisdictions—particularly our major trading partners such as Australia, the United States and Britain.

In Australia the copyright design overlap has been a controversial subject. In that country the policy framework has been to prevent dual protection in copyright and designs and to encourage design registration. The theory underlying the different treatment appears to be that innovation in industrial design is to be encouraged in Australia and that the wide, long-lasting protection given to copyright works should not extend to works which have been "industrially applied". Originally in Australia it was not possible to obtain registration of a design which was truly functional. This was changed in 1981.

The bias towards design registration and against any role for copyright in the field of industrially applied works has been taken to the limits in the latest Australian Copyright Amendment Act 1989. In the Second Reading speech introducing the statute the Australian Attorney-General indicated that the amendments were designed

> to remove the possibility of copyright protection for 3-dimensional industrial products. It is considered that these products should be protected only under the designs legislation or other appropriate law.

Thus the effect of the relevant sections in the Copyright Amendment Act 1989 has been to ensure that design features (other than features of pattern or ornament) are protected solely under the Designs Act 1906.

It will be apparent from this that New Zealand and Australia have proceeded in quite different directions.

Is the Australian approach a desirable or sensible model for New Zealand? This is a matter which requires searching analysis. The drafting of the Australian Copyright Amendment Act has been the subject of some trenchant criticism by expert committees of the Law Council of Australia. Moreover there are very real concerns expressed by solicitors and patent attorneys in Australia that the actual protection offered in that country by design legislation is of little commercial value.

- The decision of the High Court of Australia in *Firmagroup Australia Pty Limited* v *Byrne & Davidson* (1987) 9 IPR 353 and subsequent

decisions flowing from it, have made the Designs Act protection virtually worthless by effectively limiting the area of protection to exact or almost exact copies. In *Firmagroup* the court accepted that the design was novel and that the salient features of the design had been taken. It was held, however, that there was no infringement because there was no imitation. The fact that the respondent's articles had different dimensions so that the salient features had been presented in different fashion meant that there was no infringement. This made the design virtually worthless. A number of Federal Court decisions since have taken the same approach.

Ironically these decisions have led to calls in Australia for amendment to the designs legislation. There have indeed been suggestions that the designs legislation should be amended so that the test for infringement is that of substantial reproduction as in the Copyright Act.

- Publication of the design anywhere in the world—not just Australia—is sufficient to preclude registration.

From this description it can be seen that the contrast between Australia and New Zealand is marked. Australia effectively has little or no protection for industrially applied designs. New Zealand on the other hand has substantial protection by virtue of copyright.

It is perhaps sad that New Zealand has not monitored the Australian debate more closely so that harmonisation could have been considered earlier. Given that Australia has only just passed its amendments after a period of 2 years debate it seems politically unlikely that Australia would be prepared to make changes in the short term.

Harmonisation in this area between the two countries may therefore be a difficult issue.

PARALLEL IMPORTATION

The parallel importation provisions of the Copyright Act 1962 are ss 10(2) and (3) for Part I works and ss 18(2) and (3) for Part II subject matter. In the well known *Barson* decision (*Barson Computers (NZ) Ltd* v *John Gilbert & Co Ltd* (1984) 4 IPR 533) Prichard J adopted an interpretation of the second limb of the subsections which was in harmony with the Australian statute. (Under the Australian legislation the hypothetical maker is expressly referred to as the importer.) Prichard J's interpretation was directly contrary to the interpretation given by the English High Court to the same provision in *CBS* v *Charmdale* [1980] FSR 289. The *Barson* case has been followed in 4 subsequent New Zealand decisions but has never yet been tested at appellate level.

Under the *Barson* approach

> the question is simply whether anybody could legitimately manufacture the imported article in New Zealand without the consent of the person owning, by virtue of copyright, the sole manufacturing rights in New Zealand.

A more recent development in the parallel importation area has been use of copyright notices under s 29 of the Copyright Act 1962. These notices, once

accepted by the Minister of Customs, prevent the importation of "printed copies" (a term of uncertain ambit) of the copyright work. The Customs Department seems to be coping with these notices but uncertainties remain as to the effectiveness of the Department's surveillance and what will be its long term commitment to such a system. One has the feeling that as more notices are received the Department may become a more unwilling participant.

The subject of parallel importation is one which provokes hotly conflicting debate:

- On the one hand parallel importers will argue that having purchased the legitimately manufactured copyright article abroad, they have the right to do with the article what they like—including importing it into New Zealand. The proponents of this approach point to the economic benefits which the importation of cheaper products bring.
- On the contrary copyright owners and their New Zealand licensees/assignees will contend that it is important for copyright owners to control the distribution and sale of their copyright articles and that in the absence of protection, proper after-sales service, support and warranties cannot economically be provided.

The economic rationale of the parallel importation provisions and the Barson interpretation does not ever appear to have been adequately debated. We therefore have a regime in New Zealand whereby the decision of a first instance judge has a substantial and far-reaching effect on commerce generally. Some of the economic arguments are summarised in the Department of Justice discussion paper *The Copyright Act 1962: Options for Reform*, July 1989 (pp 27–30).

Extreme examples are always useful in demonstrating possible excesses. The decision in the *Baileys Irish Cream* case (*R A & A Bailey & Co Ltd* v *Boccaccio Pty Ltd* (1986) 6 IPR 279) is such an instance. There the owner of copyright in a label was able effectively to prevent importation of bottles bearing the copyright label. Although the plaintiff and the court accepted that the defendant could still import the bottle by removing the label, effectively this would destroy the marketability of the product. Copyright was therefore a potent weapon.

In Australia the Copyright Law Review Committee has reported to the Attorney-General on 2 questions:

- whether any changes should be made to the importation provisions of the Australian Copyright Act 1968;
- what amendments should be made to s 135 of the Act which provides for Customs seizure of printed works, the importation of which is objected to by copyright owners.

The general conclusions and recommendations of the CLRC in Australia are particularly valuable and ones which should act as a focus for the New Zealand debate. The Committee's conclusions and recommendations were helpfully summarised by Jim Lahore in the May 1989 Bulletin to the Butterworth's publication *Intellectual Property in Australia: Copyright Law.* These are set out below:

1. The principal argument was that deregulation would be likely to benefit the Australian consumer because of decreased prices and increased availability of, or access to, overseas publications, sound recordings and software.

2. The old national interest argument was also argued again—that Australia is a net importer of copyright articles and the parallel import provisions operate, in large measure, to confer benefits on international manufacturers rather than on Australian companies.

3. On the other hand, the Committee acknowledged that the present Australian law is in conformity with the copyright laws of a large number of countries with which it has an ongoing trade in copyright articles. Copyright is international. Australian copyright law should not be out of step with the copyright laws of other countries in any substantial respect.

4. In many cases it is very difficult to distinguish between parallel imports and pirated articles. This is particularly so in the case of computer software.

5. The Committee saw the resolution of the problem as a political one: "If, contrary to the position which presently prevails, the trend were towards protection rather than deregulation of industry, the choice would pose less difficulty."

6. The Committee acknowledged that in the end it had to make a value judgment, but accepted that repeal of the provisions would have a detrimental effect on Australian manufacture, technical know-how, and on consumer back-up services.

7. The Committee also reached the conclusion that the sections do provide very real protection and benefit to authors whose work is internationally distributed.

8. It was also important in the view of the Committee, for Australia to maintain its position in relation to other nations which have similar copyright laws.

9. Despite these conclusions the Committee was concerned by:

   • absence of competition;

   • inefficient practices; and

   • possible over pricing.

   Hence the compromise solution proposed by the Committee.

10. The Committee saw particular problems in relation to computer software, but in the end decided not to recommend any special treatment. Only one example of "abuse" was given to the Committee.

11. Finally, the Committee acknowledged that its recommendations were complex, and would lead to uncertainty and difficulty in the market place. It therefore recommended, in the alternative, that the sections in the Act remain as they are, subject to the knowledge provisions being brought into line with the current provisions of s 132 (see above).

12. *Section 135.* As previously indicated, the Committee recommended the extension of the import restrictions under s 135 to include all works and subject matter and all manner of copies, whether printed

or not, thus including discs, tapes, etc. The Committee also recommended that the section should be able to be invoked by the exclusive licensee as well as by the copyright owner.

The recommendations of the CLRC are, in brief:

(a) The sections of the Copyright Act should continue to apply to parallel imports, but subject to a number of important qualifications.

(b) Import of an article should be permitted if that article is unavailable in Australia. The onus should be on the importer to establish this.

(c) Import should also be permitted if the article is available in Australia but the importer has received a specific order in writing signed by the person requiring it; the person must state that he or she does not require the article for trade or commerce. The onus of establishing these matters is to be on the importer.

(d) An article is unavailable in Australia if the importer, after reasonable investigation, is satisfied that the article cannot be obtained in Australia from the copyright owner, assignee or licensee within a reasonable time, to take into account the time which is reasonably required in the industry for an Australian copyright owner to import or manufacture and market copies of the article.

(e) The periods which will be considered to be "reasonable" will be prescribed by regulations.

(f) An article is "available" in Australia if there is lawfully available an article which is substantially similar to that which the importer proposes to import. The Committee was unable to suggest a more precise expression than "substantially similar to": "It will be for the courts to apply these words to the infinite variety of circumstances that are likely to arise". The Committee, in considering the importation of books indicated, as an example of what is intended, an edition of a book which comprised essentially the entirety of the work the subject of the copyright.

The Committee acknowledged that the question of the availability of sound recordings would be different from that which applied to books. For example, a recording of a work by musician A will never be substantially similar to a recording of it by musician B. Hence there could never be substantial similarity, in the opinion of the Committee, unless a copy of the same recording is available. The Committee also considered that a recording would be unavailable in Australia if it was available only on, say, compact disc, but not on vinyl or tape.

(g) It should not be possible to rely on copyright in a label, mark or other work affixed to an article to prevent importation of the article. This recommendation avoids the result in the *Baileys Irish Cream* case (*R A & A Bailey & Co Ltd* v *Boccaccio Pty Ltd* (1986) 6 IPR 279).

(h) The knowledge provisions in ss 37 and 102 of the Copyright Act should be brought into line with the provisions in s 136 of the Act (as amended by the Copyright Amendment Act 1986).

Under s 136 it is only necessary to prove that the defendant knows, or ought reasonably to know, that the article is an infringing article (or would have constituted an infringement of copyright if it had been made in Australia by the importer).

(i) There should be no criminal penalties for unauthorised parallel importing.

(j) The importation provisions in s 135 of the Copyright Act should apply to all works and subject matter other than works, and reproductions of all kinds, not to printed copies of works alone.

CONCLUSION

It will be apparent that both of the matters discussed in this paper warrant considerable further study and evaluation since they vitally affect commerce throughout New Zealand. The process of reform requires that we attempt the difficult task of balancing New Zealand's economic interests and its international treaty obligations. In addition the process should now involve continuing dialogue with the Australian Attorney-General's Department to see if harmonisation is possible.

In order for harmonisation between New Zealand and Australia to be successful in the area of copyright protection for works which have been industrially applied it seems likely that long term policy goals and objectives need to be set by both countries. The existing vested interests in both countries created by the present regimes of protection would seem to make harmonisation overnight an impossible dream.

INTERNATIONAL DEVELOPMENTS PATENTS AND BIOTECHNOLOGY

Doug Calhoun

(Paper first presented to a Law Commission seminar
Auckland, 6 October 1989)

International Developments: Patents and Biotechnology

Doug Calhoun

INTRODUCTION

In an ever-shrinking world where communication of the written word or voice is instantaneous, moves towards harmonisation of intellectual property law have never been stronger. The Law Commission in early 1988 indicated it was seeking to identify areas for reform of intellectual property law. In July 1989 the Ministry of Commerce announced its intention to review all of the industrial property statutes.

The moves toward harmonisation have been greatly accelerated during the current GATT round of negotiations. Among the topics being negotiated in the round is Trade Related Intellectual Property Standards (TRIPS). This seeks to relate intellectual property standards to rules governing trade.

The first part of this paper reviews the existing patent conventions, the role that each is playing and the participation of New Zealand. There is also a review of the World Intellectual Property Organisation (WIPO) draft Harmonisation Treaty and fuller discussion of the TRIPS negotiations.

The second part of this paper focuses on the particular problems of patenting biotechnology and the way in which those problems might be addressed.

The third part of this paper discusses intellectual property rights in new varieties of plants and the overlap between plant variety rights protection and patent protection.

PARIS CONVENTION—20 MARCH 1883

The Paris Convention for the Protection of Industrial Property (Paris Convention), which sets certain international standards for patents, designs and trade marks, was first signed in Paris in 1883. It has been revised subsequently on 6 occasions, the last of these being the Stockholm text of 1967.

New Zealand has ratified the London text of the treaty, dated 1934. The main substantive and procedural provisions of the treaty are as follows:

- Industrial property is to be understood in the broadest meaning to include agricultural and extractive industries as well as manufacturing industries (article 1).
- Member countries are to provide national treatment to all industrial property, that is, nationals of foreign member countries are to have the same rights as nationals of each member country (article 2).
- There is a right of priority for 12 months whereby a priority date (the date of filing in the home country) is recognised in each member country provided an application is filed within 12 months of the priority date (article 4).
- Patents are national rather than international in coverage (article 4 bis).
- Compulsory licenses may only be granted for specifically defined abuses and then only from 3 years after the date of grant of a patent (article 5A).
- There is a grace period for the payment of renewal or maintenance fees (article 5 bis).
- The temporary presence of an aircraft or other vehicle in a member country is not to be regarded as an infringement of a patent within that member country if its presence were otherwise an infringement (article 5 ter).

Throughout the 1970s and early 1980s there was a series of diplomatic conferences focusing largely on the provisions of article 5A relating to compulsory licensing. These conferences became highly politicised along the lines of United Nations debates and in 1984 a formal diplomatic conference terminated without any agreement. The discussions in this area have to some extent been sidelined by other negotiations discussed below.

UNIFICATION OF PATENT LAWS—STRASBOURG CONVENTION—27 NOVEMBER 1963

This convention (although still in existence) has only been signed by 12 European countries and ratified by 9 of those. One of the provisions of the treaty is that WIPO members who are not members of the EEC could be invited by the Committee of Ministers of the Council of Europe to join the treaty. So far no country has been invited.

The treaty itself has 8 articles on procedural and substantive matters. Most of these have been subsumed in the European Patents Convention. Some of the language employed has appeared in the draft Harmonisation Treaty. The treaty is now of historical interest.

EUROPEAN PATENT CONVENTION—MUNICH CONVENTION—5 OCTOBER 1973

This convention and the accompanying rules establish a complete code governing the filing and examination of a single European patent application in the European Patent Office.

Although a single application is lodged and a single examination procedure is conducted, once the application has gone to grant it is divided out into national patents in the countries designated by the applicant at the time of lodging the application.

The European Patent Convention now applies to 13 member countries of the EEC.

COMMUNITY PATENT CONVENTION—LUXEMBOURG CONVENTION—15 DECEMBER 1975

The aim of this convention is to have one patent covering the entire EEC. Issues of invalidity would be handled centrally in the European Patent Office while alleged infringements would be handled in national courts.

The agreement cannot come into force until all the original signatories have ratified it. Denmark and Ireland are still to do so. There is an expectation that this convention will come into force in 1992 together with a number of other changes to the laws governing the community.

The convention provides for a transitional period of 10 years during which applicants for a European patent may choose to have them effective either in nominated states or in the community as a whole.

PATENT CO-OPERATION TREATY—TREATY OF WASHINGTON—19 JUNE 1970

This treaty allows for the filing of a single patent application designating all member countries (presently about 50). The applicant must convert the single international application into national applications ("the national phase") in designated countries and then prosecute each application in each country where it has been converted into a national phase.

In countries which have ratified chapter 1 of PCT the conversion must be done within 20 months from the filing date of the priority application. Prior to conversion a search will have been conducted by a searching authority so appointed under PCT and a search report produced. In countries which subscribe to chapter 2 of the convention an international examination will have been carried out in addition to the search and the conversion does not occur until 30 months from the initial date of filing of the application. Each Patent Office is entitled to conduct its own independent examination of applications converted to the national phase independently from the international examination before granting a patent.

Australia became a member on 31 March 1980. New Zealand is not a member although it has been courted by WIPO to join.

The arguments in favour of New Zealand becoming a member are that it will be of advantage to applicants in this country in that they can defer the expense of filing patent applications in individual overseas countries for a longer time than under present procedures. Prior to converting to the national phase they will

have had the benefit of an international search and possibly an international examination before having to make a decision to proceed. Experience in Australia has shown that the number of filings through the PCT route introducing new technology into the country has probably increased over what might have been expected had Australia not joined the treaty.

Arguments against joining PCT have centred on the costs of administration of what amounts to a second patent system operating in parallel with the one already administered by the Patent Office.

AUSTRALIA/NEW ZEALAND CLOSER ECONOMIC RELATIONS TRADE AGREEMENT (ANZCERTA)—1983

In 1988 the governments of New Zealand and Australia reviewed ANZCERTA with the aim of accelerating the implementation of free trade in goods, harmonising relevant business laws and administrative practices in the trans-Tasman market and widening the bilateral economic relationship by liberalising trade in services.

One of the protocols signed in conjunction with that review was a memorandum of understanding on the harmonisation of business laws, including laws protecting intellectual property. Since the signing of that protocol, officials from both sides of the Tasman have held discussions, inter alia, in respect of harmonisation of patent law.

In a paper published in 1989 by the Ministry of Commerce entitled *Impediments to Trans-Tasman Trade—Harmonisation of Business Law*, any differences in intellectual property statutes in general and patent statutes in particular were seen as being relatively minor. None were seen as creating a particularly significant barrier to trade and it was recognised that there is substantial harmony in this area of the law.

Since publication of that paper a Patents Bill has been introduced into the Commonwealth Parliament in Australia. It includes some substantive changes which reflect harmonisation principles internationally, such as the concept of absolute novelty. Consultation is continuing between officials and it is expected that any proposed changes to the New Zealand Patents Act 1953 as a result of the review announced by the Ministry of Commerce will reflect developments in Australia.

DEPOSITS OF MICROORGANISMS—BUDAPEST TREATY—28 APRIL 1977

One of the requirements of patent law is that patent specifications contain a sufficient description of the invention to put it into practice. Where an invention involves a new microorganism which may only be obtainable through the applicant or the patentee, it may not be possible for anyone not having physical access to the microorganisms to be able to put the invention into practice. In order to overcome this, a practice has been established of depositing organisms into culture collections to be available for such purposes.

It was recognised that there were many practical difficulties if an applicant seeking protection in a number of countries had to make a deposit in a national depository in each country where an application was filed. The Budapest Treaty

established procedures and a set of standards whereby the deposit of an organism in a single recognised culture collection would satisfy the requirements of the patent offices in each of the member countries.

The rules governing access to deposited organisms had to be very carefully balanced so as to ensure that deposited organisms would not be freely available to be exploited when they were not otherwise in the public domain. Under the rules set under the treaty, access to the organisms without the consent of the depositor is governed by national laws of member countries. Once a member country has notified the depository that a patent has been granted in respect of an organism deposited with that collection, then the collection is entitled to make it freely available.

Australia has acceded to the Budapest Convention and has established a culture collection for at least a limited class of microorganisms. New Zealand has not signed the treaty although in a July 1988 report the Industrial Property Advisory Committee (IPAC) recommended that New Zealand should do so.

A recent decision of the Supreme Court of Canada (*Pioneer Hi-Bred Limited* v *The Commissioner of Patents*, SC No 20388, 22 June 1989) adds some urgency to the need for reform in New Zealand. The decision was a final appeal from a decision of the Canadian Patent Office to reject an application for a new soybean variety which had been bred by classical breeding techniques. The Supreme Court of Canada ruled that the patent was invalid because it did not comply with the section of the Canadian Patents Act (s 36) requiring that the written description in a patent specification must enable the reader to put the invention into practice. While a reader could have obtained plant material from the applicant or a depository to do this, the Supreme Court stated that the Act required a written description. The New Zealand Patents Act 1953 also requires the patentee to provide a written description to enable a reader to put the invention into practice. If a New Zealand court were to take a strict "constructionist" approach to the New Zealand Act then it could well be that a number of New Zealand patents in the biotechnology area would be invalid on the same ground.

DRAFT TREATY ON HARMONISATION OF PATENT LAWS—WIPO

The title of this draft treaty summarises what it seeks to achieve. A sixth session of a committee of experts was held in April 1989. It is expected that a diplomatic conference to finalise the agreement will be held in late 1990 or some time in 1991.

Discussions so far have centred on 3 chapters. The first chapter relates to applications and procedures before industrial property offices. The second chapter relates to patentability and exclusions from patent protection. The third chapter relates to the rights protected by a patent and by a patent application.

In chapter I there are 10 articles spelling out procedural matters. The New Zealand Patents Act 1953 at present is out of line with 2 of these, one relating to early publication of applications and the second in relation to publication of search reports.

In chapter II there are 4 articles governing what is patentable. At present the New Zealand law does not comply with 3 of these. New Zealand would have to

introduce the concept of absolute novelty when judging whether an invention is new. The current limited grace periods would have to be extended. The whole contents approach for anticipation by pending applications would also have to be adopted.

In chapter III there are currently 8 articles defining the rights granted by patents. The New Zealand law is currently not in line with 6 of these. Changes would involve introducing

- a concept of contributory infringement;
- a reverse onus of proof for infringement actions in respect of new products derived from patented processes;
- a patent term of 20 years from date of filing;
- a grace period of 6 months for the payment of renewal fees;
- interim protection for pending unexamined applications;
- a prior user's right.

TRADE RELATED INTELLECTUAL PROPERTY STANDARDS (TRIPS)

One of the topics sought to be introduced during the current Uruguay round of the GATT negotiations was TRIPS. The term set for negotiations is more than half completed. It was agreed at the mid-term review that TRIPS would remain on the agenda. That is all that has been agreed, although in the meantime discussions have been continuing as to what the standards ought to be.

The policy behind TRIPS is that the lack of adequate protection and enforcement procedures for intellectual property is creating barriers to trade. For example, the United States software industry estimates it has lost billions of dollars in sales of its products because it is unable to compete with illegally copied local products in countries where inadequate protection is provided. If a TRIPS agreement is agreed in this round it will mean that countries whose nationals have lost money because other signatories have not complied with the TRIPS standards will be able to seek trade sanctions through the general GATT procedures.

The countries which have been seeking the strongest TRIPS have been the developed countries, led by the United States. In initial discussions it appeared that the standards might be established as a separate document within the GATT. However, as the complexity of the principles is becoming more evident and time is running out, it has become more likely that the standards will be established by reference to existing treaties and perhaps to the Harmonisation Treaty.

The negotiations between now and mid-1990 are the most critical because after that date the approaching end of the round will preclude much room for movement.

BIOTECHNOLOGY

THE TECHNOLOGY

Biotechnology has many meanings. For the purposes of this paper what is being discussed is the definition suggested by the committee of experts of WIPO regarding questions of biotechnology:

> Biotechnology includes all techniques using animals, plants, microorganisms and any type of biological material which can be assimilated to microorganisms, or which can create organic changes therein.

Industrial applications of biotechnology are not new. The processes of fermentation of sugars to manufacture alcohol or the use of the biological processes of yeast to make bread have been known for centuries. It has been developments particularly within the last 20 years, such as recombinant DNA techniques and the discovery and use of monoclonal antibodies, which have led to the promise of large scale recovery of biological products not previously possible.

THE DEVELOPMENT OF THE LAW INTERNATIONALLY

The American Intellectual Property Law Association publishes a quarterly journal. It published a combined issue in 1988–89 (Volume 16, Nos 3 & 4) entitled *Biotechnology Law Issues*. The two introductory paragraphs give some idea of the rate of change in the technology and how case law in the United States has lagged behind events:

> It is axiomatic that developments in case law—whether related to trade, environmental protection or patents—lag behind events and advances in whatever legal field is considered. With respect to patent law, for example, the burgeoning chemical industry after World War II created a flood of patent applications, yet basic questions of prima facie obviousness went unanswered until 1963, and key issues of enablement and written description were resolved clearly only in the early 1970s.
>
> Biotechnology patent and licensing law similarly trail behind advances in research, although the law has made great strides since *Diamond* v *Chakrabarty*, in the sense that laboratory advances that were revelatory just yesterday have become legally mundane today. Thus, the creation of recombinant DNA in 1972 for which Paul Berg received a Nobel prize in 1980, may be accomplished by workers of ordinary skill with a reasonable expectation of success. Moreover, the production of monoclonal antibodies in 1975 by Caesar Milstein and George Koehler, rewarded by a 1984 Nobel, may not generally require a deposited hybridoma for enablement and often can be reproduced by skilled workers without undue experimentation.

It will be seen from this brief excerpt that not only is the application of existing principles of patent law highly technical but there is also an entirely new vocabulary used by the scientists and picked up by the patent bar.

In 1984 WIPO convened a Committee of Experts on biotechnology related issues. These experts initially sought to identify issues. Then in 1986 WIPO circulated 2 questionnaires internationally asking what was the practice in each

country on the issues. One was to governmental organisations (such as the New Zealand Patent Office) and a second was to non-governmental organisations. By 1988 the committee had compiled a report summarising the results of the questionnaire and a second report giving suggested solutions. (The summary report is entitled *Industrial Property Protection of Biotechnological Inventions*, BioT/CE/IV/2 dated 24 June 1988. The suggested solutions paper is entitled *Revised Suggested Solutions Concerning Industrial Property Protection of Biotechnological Inventions*, BioT/CE/IV/3 dated 24 June 1988.) These discussions do not have a specific objective of establishing a separate treaty or necessarily becoming integrated into the general WIPO Harmonisation Treaty. However, they do provide a useful guide for the law reformer. Attached as Appendix A and Appendix B to this paper is a summary of both the WIPO paper and a paper prepared from a discussion project between the European, Japanese and United States Patent Offices prepared by the Fédération Internationale des Conseils en Propriété Industrielle (FICPI). The FICPI organisation is an international association of patent attorneys in private practice. The author, Mr Bannerman, is a partner of a firm in Washington.

The WIPO Committee of Experts is in favour of interpretations of existing statutes which provide the broadest possible protection for biotechnology. Where there are exceptions to what may be protected by patents the principle applying is that those exceptions should be interpreted as narrowly as possible.

In what promised to be the first skirmishes of a world wide battle between the American company, Genentech Inc and the British Wellcome Foundation, (*Genentech Inc's Patent*, [1987] RPC 553 and [1989] RPC 147) most of the issues which arise in biotechnology were considered. The invention related to tissue plasminogin activator (t-PA), an anticoagulant. Genentech were the first to be able to manufacture t-PA by recombinant means. An experienced patent judge, Whitford J, held the infringed claims of the patent to be invalid for lack of fair basis (called "support" under the 1977 United Kingdom Act) in the disclosure. The Court of Appeal (while in obiter comments agreeing with Whitford J's decision) unanimously held that the ground of fair basis was not a ground of revocation open to the Court under the 1977 Patents Act. However, they did find that the patent was invalid and the invalidity was founded under other grounds such as lack of inventive step newly established under the 1977 Patents Act. The judgment raised more questions than it gave answers. It is not being appealed to the House of Lords so answers will have to come from subsequent cases.

THE LAW IN NEW ZEALAND

The last court decision which could be said to be within the field of biotechnology in New Zealand was *Swift & Co's Application* [1960] NZLR 775. In that case the court held that a method which involved injecting an enzyme into a live animal one week prior to slaughter to tenderise meat after slaughter was an invention.

In 1980 the Assistant Commissioner of Patents (as he then was) issued an official ruling on the patentability of microorganisms. The ruling stated that to be patentable microorganisms had to be the product of a controllable reproducible synthetic process and the product of the process had to be predictable. The

ruling stated that claims to microorganisms would not be allowable if the micro-organisms occurred in nature or were the product of a non-controllable process, the product of which could not be predicted or predetermined.

Since the official ruling there have been no decisions of the Commissioner or of the High Court on the patentability of microorganisms or, more broadly, what may be referred to generally as biological products.

What is or is not patentable is currently being determined on an ad hoc basis by Patent Office examiners. Practitioners have complained of an unevenness in the application of the official ruling, that the official ruling is not applicable to many inventions for which applications are pending and that much of the official ruling is out of step with the suggested solutions of the WIPO Committee of Experts referred to above.

In July 1988 the last report of IPAC was released. IPAC noted that practice of the New Zealand Patent Office was out of line with that in other industrialised countries but it did not recommend any legislative change. Rather IPAC suggested that eventually a deserving case before the High Court would succeed in bringing about a change in practice.

In October 1988 the New Zealand Commissioner of Patents attended the WIPO sponsored fourth session of the Committee of Experts on Biotechnological Inventions and Industrial Property. Subsequently the Ministry of Commerce and the Commissioner asked for submissions from interested parties on the IPAC report. Among the submissions which were made was one from the New Zealand Institute of Patent Attorneys agreeing with the IPAC recommendation concerning procedural matters and calling for reform of substantive matters. In one portion of the submissions the Institute made a comparison of the 1980 ruling to the relevant suggested solutions made by the WIPO Committee of Experts which indicated the ruling was not in accordance with the suggested solutions. In August 1989 the Commissioner announced the establishment of a committee of examiners within the Patent Office to consider specific topics in relation to biotechnology. To some extent it will be possible to change the Patent Office practice by policy changes. However, other changes, particularly in the area of sufficiency of description and deposit of organisms will require a change in the law.

The discussion internationally has focused on the following 3 areas:

- what is proper subject matter;
- what qualifies as an inventive step;
- what constitutes a sufficient description for disclosure.

PATENTABLE SUBJECT MATTER

Section 2 of the New Zealand Patents Act 1953 defines an invention as a manner of new manufacture with some qualifying words relating back to the Statute of Monopolies of 1623. Section 17 of the Act sets out some exclusions from patentability. None of the exclusions in s 17 include living matter, plants or animals.

New Zealand is a signatory to the London text of the Paris Convention. Article 1(3) states:

> Industrial Property is to be understood in the broadest meaning and is to be applied not only to industry and commerce as such, but likewise to agricultural and extractive industries and to all manufactured or natural products, for example: wines, grains, tobacco leaves, fruits, cattle, minerals, mineral waters, beers, flowers and flour.

Since the Patents Act 1953 was intended to comply with the Paris Convention, where there is any ambiguity in the construction of the definition of "invention" in the Act the text of Article 3(1) suggests that a broader interpretation than that of the 1980 official ruling would be appropriate.

In the United States the definition of an invention is somewhat more particular than that in New Zealand and includes "compositions of matter". Since the *Chakrabarty* decision in 1980 the United States Patent Office has followed a practice of allowing patents for anything under the sun other than humans. Patents have been granted not only for cells but also for higher life forms such as plants and animals.

The European Patent Convention provides that patents may be granted for any inventions susceptible of industrial application, which are new and which involve an inventive step. Following from this very broad definition there are a number of exceptions. Article 53B excludes:

> Plant or animal varieties or essentially biological processes for the production of plants or animals; this provision does not apply to microbiological processes or the products thereof.

This last exception was a part of the Strasbourg Convention and was drafted at a time when the transfer of genetic material from one organism to another was thought to be within the realm of science fiction.

The Australian Patents Act 1952 has substantially the same definition of invention as does the New Zealand Act. The Australian Patent Office has tended in practice to give a more liberal interpretation to what is a manner of new manufacture and has granted patents for biologically pure cultures of discovered microorganisms and for whole plants. However the validity of the Australian Patent Office practice has not been tested in the courts.

The word "new" in the definition of invention has been interpreted by some New Zealand Patent Office examiners to mean new in the absolute sense. By this interpretation, anything which is naturally occurring cannot be new because it existed before it was discovered. This is a different interpretation of "new" than meaning what was prior published or known. The former interpretation is inconsistent in principle with the decisions of the (then) Supreme Court and Court of Appeal in the *Beecham* v *Bristol-Myers* litigation ([1980] 1 NZLR 192; [1981] 2 NZLR 600). In those decisions it was held that a claim in an application to one epimer had not been anticipated by publication of an earlier patent for a racemic mixture of the one epimer together with its other optical isomer. The one epimer had previously existed in the racemic mixture but nevertheless was found to be new when its unexpected property of being readily absorbed was discovered and the one epimer alone was isolated.

INVENTIVE STEP

The traditional test for obviousness is that it is an objective test conducted on a subjective basis. The question which is asked is whether the invention would have been obvious to a person skilled in the art at the date at which an application is filed. Many of the basic techniques in recombinant DNA are well established. Nevertheless there may be unexpected practical difficulties encountered in attempting to apply the techniques in specific cases. Also it may be that out of a range of possible products of the techniques some may have unexpected properties. By analogy, chemical processes for manufacturing many chemical entities which are useful as medicines are well established. The inventive step is the combination of the discovery of the therapeutic property of the chemical entity together with known techniques for producing the chemical compound. It is the combination which is inventive.

The science has moved so rapidly that there is a difficulty in proving inventiveness at the time the application was made, when 2 years later what had been an invention may be common place technology.

In the Court of Appeal decision in *Genentech* one of the judges (Mustill J) went so far as to state that the combination of discovery and a known means of applying that discovery industrially may not be enough to constitute an inventive step. This seems to be somewhat out of line with decisions of the American courts and with appeals from decisions of the European Patent Office.

ENABLEMENT

One theoretical basis for patents is that they are a form of social contract; in return for granting to the patentee a limited monopoly the invention goes into the public domain once the limited monopoly has expired. If after expiry anyone wishing to make use of the invention cannot do so there is a failure of consideration on the part of the patentee. Section 10(3) of the New Zealand Patents Act 1953 requires that every complete specification shall particularly describe the invention and the method by which it is to be performed and shall disclose the best method of performing the invention which is known to the applicant and for which the applicant is entitled to claim protection. If one takes the approach taken by the Supreme Court of Canada in the *Pioneer Hi-Bred* case cited above, a literal construction of this section means that if the written description in the complete specification on its own does not allow a third party to put the invention into practice then the patent is invalid irrespective of whether or not a deposit has been made of the organism.

When the Australian Patents Act 1952 was amended in 1987, s 40 of the Australian Act (which requires that a complete specification must fully describe the invention) was amended to state that the requirement of fully describing was met by a deposit of a microorganism and by satisfying specific requirements as to the deposit. IPAC recommended that there be a legislative change in New Zealand along similar lines.

Another provision in the Australian legislation requires that the deposit be made only where "a person skilled in the art could not reasonably be expected to be able to perform the invention without having a sample of the microorganism before commencing to perform the invention". As the technology advances and

more and more organisms become available in depositories, written descriptions which give reference to such deposits will be satisfactory to enable a reader to put the invention into practice. It is of interest that in the *Genentech* decisions one of the issues raised was that Genentech had failed to make a deposit of plasmids which were used in performing their invention. This attack did not succeed.

PLANT BREEDERS' RIGHTS

INTERNATIONAL CONVENTION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS (UPOV)—GENEVA—2 DECEMBER 1961

New Zealand is one of 19 countries (mostly European) that have ratified the UPOV convention. The version which New Zealand has signed is the most recent one dated 23 October 1978. This has been in force in New Zealand since 8 November 1981. Australia also recently ratified the UPOV Convention.

The type of right protected under this convention is a specific right relating to plants. It is most analogous to a registered design in comparison to patent protection. Each grant of plant variety rights relates to a single variety of plant.

To be eligible for a plant variety right grant, a variety must be distinct in at least one important characteristic from another variety of common knowledge. Plants within a population of the variety must be homogeneous. Plants of the variety must be stable in respect of their distinguishing characteristics from generation to generation. A variety is considered to be new if it has not been sold at a date earlier than a grace period of 12 months for sales within a member country and 4 years or 6 years for sales of plants outside of the member country.

There is no requirement that there be an inventive step. While the written description of the variety in general consists of a questionnaire completed by the applicant and objective descriptions by plant experts there is no requirement for a written description which is sufficient in itself. There is a requirement that plant material always be kept available for reference purposes during the term of the grant. There is an ongoing requirement that the reference material remain homogeneous and stable.

The minimum right which is protected under the treaty is the exclusive right to produce and sell reproductive material of the protected variety. Article 5(4) provides that domestic law may grant to plant breeders a more extended right than is generally provided under the convention. New Zealand took advantage of that provision in the Plant Variety Rights Act 1987.

There are certain exceptions to the protection generally offered under the convention:

- *Farmers' privilege* Because protection is restricted to the production for sale or the sale of reproductive material, farmers harvesting a grain crop may set aside seed for planting in the following season. Although that setting aside is in direct competition with the plant breeders' sale of seed it is not an act of infringement because of the current limitation on the rights.
- *Breeders' exemption* Article 5(3) provides that anyone may use plant material of a protected variety to establish a new variety and then sell

that new variety without payment of any compensation to the owner of the protected variety.

- *Limited number of species* Article 4 of the convention provides that it can be applied to all botanical genera and species. Signatories to the convention are under no obligation to extend domestic law to protect more than 24 genera or species. There have been complaints that this has resulted in a form of protectionism. Countries provide protection in respect of genera or species which are indigenous but exclude protection for genera or species sought to be introduced by plant breeders from other countries. New Zealand has, since the treaty came into operation, offered protection for all genera or species of plants.

Article 2(1) of the UPOV Convention provides that member states "may recognise the right of a breeder either by the grant of a special title of protection or by a patent". A member state whose national law admits more than one type of protection "may provide only one of them for one and the same botanical genus or species." Since this provision was contrary to the law in the United States there was a grandfather clause open for a limited period of time allowing an exemption from that article. The United States was the only country which took advantage of that clause.

REFORM OF UPOV

The Bureau of UPOV in Geneva has, in consultation with member countries, been seeking to revise the convention. The procedure followed has been very similar to that followed by WIPO in the draft Harmonisation Treaty. Texts have been circulated to member countries. After the member countries have made comments then the texts are revised and commented upon again. The fourth meeting of the current round of discussions took place in Geneva on October 9 and 10, 1989.

The substantive changes involve a new definition of the rights protected and a cutting back of the exceptions to protection outlined above. The prohibition on dual protection under Article 2(1) is also under consideration. The topic is discussed in this paper below.

UPOV prepared a paper (*IOM/IV/2*, dated June 22, 1989) outlining the proposed changes. The broadest proposal would give the grantee an exclusive right in respect of any act of reproduction of a protected variety. This would effectively eliminate the farmers' privilege. There is not universal acceptance of the proposal. It is also proposed that where a new variety is essentially derived from a protected variety there will be some form of dependency licence whereby the owner of the new variety will have to compensate the owner of the protected variety from which the new variety was essentially derived. There is also a proposal that all countries be required gradually to phase in protection for all genera or species.

The New Zealand Plant Variety Rights Office has consulted widely with interest groups and has prepared a position paper as a result of those consultations. Farmer groups remain opposed to the removal of the farmers' privilege. There was a general consensus that there should be some restriction on the breeders' exemption.

UPOV and WIPO have through an administrative and legal committee prepared a joint paper entitled *The Interface Between Patent Protection and Plant Breeders' Rights* (CAJ/XXIV/4, dated 3 April 1989). This document traces the history of industrial property protection for new varieties of plants. The first special law in respect of plants was the amendment to the United States Patent Act in 1930 which provided protection for vegetatively propagated plant varieties. The enablement requirements in respect of new varieties of plants were relaxed in that legislation. Other countries such as Belgium, France, Germany and Italy did grant patents for plant varieties until the early 1960s.

In 1961 the UPOV convention was signed. In 1963 the Strasbourg Convention (see above) made a clear division between the types. The Strasbourg Convention and the later European Convention both excluded plant and animal varieties from patent protection.

In 1970 the United States passed a separate piece of legislation (the Plant Variety Protection Act) providing protection for sexually reproduced plants. Subsequent to the *Chakrabarty* decision the United States Patent Office made a practice of allowing "utility" patents in respect of plants. The Australian Patent Office has also followed this practice.

Where difficulties in demarcation are most closely brought into focus is in respect of inventions which involve the transfer of genetic material from one plant to another. A common example is the transfer of a gene expressing herbicide resistance from one plant to another. A patent for such an invention would claim the gene itself (assuming it had not previously been discovered), the living material used to transfer the gene from one plant to another, the process of transformation and finally all plants into which the genetic material had been transferred. Approaching this new technology from the point of view of the patent system, the commercially most important aspect of the invention to protect is the plant or plants into which the genetic material has been transferred. The genetic material and the process for transferring it need only be used once. Once the gene has been transferred into the plant the plant is then capable of reproducing itself in its modified form containing the gene. It is the sale of these reproduced plants which is the commercial activity by which the breeder can best exploit the invention.

At the same time (approached from the perspective of the UPOV system) the genetic material will have been transferred into at least one variety of plant. That variety will now have a distinguishing characteristic whereby it will be eligible for plant variety protection as a new variety. According to the UPOV system each new variety of plant into which the genetic material has been transferred should be eligible for protection. One of the principles that the UPOV Bureau has been seeking to establish is that patent protection ought to be limited to those embodiments of the invention other than plants: that is to the genetic material, the transferring vehicle and the process of transferring. If this were established then the plant breeder would have to seek protection on a variety by variety basis instead of globally as can be done under the patent system.

The New Zealand Plant Variety Rights Office circulated the joint WIPO/UPOV paper for discussion to a working party representing interest groups within New Zealand. In an annex to the paper there were presented 4 different options as to a possible resolution of this overlap.

Following the discussion a commentary was prepared and circulated among participants. From this a final document was prepared. This document summarises the current New Zealand law on both patents and plant variety rights and comments on the proposals in the WIPO/UPOV paper. This discussion paper and the annex from the WIPO/UPOV paper are attached as Appendix B to this paper.

It will be apparent from the commentary that a full consensus was not reached on all of the issues. One of the reasons for this is that different interest groups have approached the problem with different perceptions. Also these different perceptions embody different language and there is still disagreement as to what some of the terms mean.

COMMENTARY

Several general comments can be made concerning proposals to reform intellectual property law. The first and perhaps most important observation is that every major international convention provides for national treatment, that is nationals of all other member states must be given the same treatment as nationals of member countries themselves. While in the past failure to do this may have given rise to some international criticism it was not subject to any enforcement. If the TRIPS discussions do set minimum standards then any amendment to intellectual property law will have to be examined to ensure that it meets the standards set in the TRIPS agreement or else New Zealand could be subject to trade sanctions under the GATT.

A second observation is that the subject matter of intellectual property laws is highly technical and any reforms must take this into account. Draft proposals ought to be subjected to the scrutiny of those who are involved day-to-day with the complexities of the subject matter and who can impart to the drafters of legislation the experience of those in other countries who have endeavoured to cope with the same changes.

Finally, it is suggested that anyone seeking to reform intellectual property law in the area of biotechnology be required to read the decisions of the United Kingdom Patents Court and Court of Appeal in the *Genentech* litigation. The case was argued in the Patents Court on the ground of fair basis. The judge found it difficult, but possible to come to an orthodox decision that the patent was invalid for lack of fair basis. The only problem was that the 1977 Act did not include fair basis as a ground for revocation. The attempt by the judge to read this ground back into the Act, by the unanimous judgment of the Court of Appeal, failed. The Court of Appeal judges then upheld the findings of invalidity, but for various reasons. What these reasons were and the principles which may be derived from them will be debated for years.

APPENDIX A

The Protection of Biotechnological Inventions

David Bannerman

FICPI has been studying a report prepared by the US Patent & Trademark Office as part of the tripartite discussion project between the EPO, the Japanese Patent Office and the US Patent Office and which is entitled 'Comparative Study of Patent Practices in the Field of Biotechnology Relating Mainly to Microbiological Inventions'. FICPI has also been studying a report prepared by the International Bureau of WIPO and published in 1988 in preparation for the fourth session of the committee of Experts of Biotechnology Inventions which took place in Geneva that year. These reports overlap to the extent that they both set out to compare the protection at present available for biotechnological inventions under different patent systems. The WIPO document goes further because the International Bureau also makes recommendations as to how such protections might be improved and of course if such proposals were widely adopted this would automatically lead to a much greater degree of harmonisation or consistency between the various patent systems than exists at present.

Taking the WIPO document first, this has been based on the replies received to two questionnaires distributed by the International Bureau in July 1986. The first questionnaire was addressed to governments and inter-governmental organisations and the second questionnaire was addressed to non-governmental organisations. Replies to the first questionnaire were received from 26 states and one inter-governmental organisation, which was the European Patent Office, and 16 replies were received from non-governmental organisations, including FICPI.

The objective of the first questionnaire, addressed to governments and inter-governmental organisations, was to find out the extent of patent protection available at present for inventions in the biotechnology field. The second questionnaire, directed to non-governmental organisations, sought the views of those organisations on possible improvements to the present situation.

The International Bureau Report is divided into two parts: the first part summarizes the answers received from governments and the EPO and is therefore a comparative analysis of the patent protection that is at present available for inventions in this field. The first part of the report therefore covers similar ground to the Trilateral Co-operation Document, except that the latter confines itself to a comparison of the position in the United States, Japan and the European Patent Convention countries.

Returning to the first part of the WIPO Report, the International Bureau has included its own 'observations' which are really recommendations for future harmonisation and which reflect a broad

consensus of the replies that they received. Those recommendations seem eminently reasonable on the whole and could largely be supported by FICPI.

Before looking at the replies to some of the questions in more detail and at the observations made by the International Bureau, it might be worth recalling the reasons for the difficulties that have arisen with patents and biotechnology. Firstly, biotechnology lies at the interface between science and nature and under most patent systems methods of obtaining modified plants and animals have traditionally been regarded as unpatentable because in the past those methods were all inherently biological and involved little or no human intervention in the technical sense. Thus, a separate system for the protection of plant varieties has been developed, and the possible conflict or overlap between plant variety protection laws and patent laws has caused a great deal of controversy at earlier sessions of the Committee of Experts. Technical development has a habit of outstripping patent laws as has also been remarked in the case of computers and information technology so that when for example the European Patent Convention was drawn up and included express exclusions to new plant and animal varieties, it was certainly never contemplated that modified plants and animals could be produced as a result of techniques such as genetic engineering, which involve a high degree of technical human intervention.

Certain types of invention in the biological field also pose ethical difficulties. In many patent systems the granting of patents for methods of therapeutic treatment or surgery has been regarded as unethical, and such methods are expressly excluded from patentability by the European Patent Convention. On the other hand, surgical and medical methods have never been regarded as unpatentable in the United States.

Another problem which is unique to biological inventions is the problem of ensuring repeatability of the invention described in the application by a person skilled in the art. Because, in at least certain types of biological invention, it is not possible to describe the invention in words in sufficient detail to permit it to be carried out by a person skilled in the art, the microorganism deposit system has evolved and that has become another source of difficulty, especially as regards the types of materials that can or should be deposited and the conditions under which such materials should be released to third parties, and in particular the timing of such release.

The WIPO paper began by considering the patentability of various classes of biotechnological invention, and for convenience considered products and processes separately. They reached the conclusion that there seemed to be no problem with patenting products, except where those new products were plant or animal varieties, plants or animals or parts of plants or animals. The replies from the EPC countries were of course dominated by Article 53 (b) which expressly excludes from patentability 'plant or animal varieties or essentially biological processes for the production of plants or animals'.

The International Bureau has recommended that any provisions, such as Article 53 (b) EPC, which exclude plant and animal varieties from patentability should be construed as restrictively as possible in that they are exceptions to the general rule that inventions should be patentable. In particular, where a claim concerns a method of producing a new plant or animal, the International Committee considers that the UPOV Convention presents no bar to the extension of the process claim to the products of the process, as provided for under Article 64 (2) EPC, for example.

The report also considered the patentability of various other methods such as surgical methods and methods of immunizing animals or human beings, and the recommendations of the International Bureau were that where surgical or diagnostic methods performed on an animal are excluded from patentability, that exclusion should extend only to such methods if practised in connection with a therapeutic or prophylactic purpose. Surgical or diagnostic procedures which are not for therapeutic or prophylactic purposes should be patentable, for example processes that relate to the commercial use of the animal in question.

Looking at processes for the treatment of plants or animals, or processes for producing new or modified plants or animals, for example immunization processes, regeneration of whole plants from cell cultures, and the breeding of animals, the general recommendation by the International Bureau is that a multi-step process in which at least one inventive step is not essentially biological or not essentially non-technical should be regarded as a patentable process. Thus if there is novel and inventive technical content at some stage in the process then the overall process should be regarded as patentable.

The report then went on to look at the protection of products of biotechnological processes. Many inventions in this field, and in particular in the area which is commonly referred to as genetic engineering, involve the construction of novel genes or novel plasmids. Both genes and plasmids consist of DNA, and DNA is a chemical compound. Thus, genes and plasmids are properly regarded as patentable as chemical compounds under those jurisdictions which permit the patenting of chemical compounds *per se* and they are not regarded as patentable in those countries which exclude the patenting of chemical compounds *per se*.

Plant and animal varieties are rather more difficult. Firstly, plant or animal varieties are regarded as always patentable only in the United States. In the answer from the US it was stated that plant varieties are regarded as patentable but that the situation as regards animal varieties has not been settled, but since then at least one patent to an animal (as opposed to an animal variety) has been issued in the US which may well open the door to the patenting of animal varieties in that country.

Even working from the basis that plant and animal varieties are generally regarded as unpatentable, the question must first be addressed as to what is meant by a plant or animal variety, for example whether a plant or animal variety includes a higher category of plants or animals such as a species, a genus, or a family.

Virtually all the replies indicated that any exclusion from patent protection of plants or animals or plant or animal varieties does not extend to microorganisms, the sole exception being Norway. On the other hand, many countries and also the EPO regard new varieties of multicellular fungi as plants or plant varieties. Widely differing answers were received to the question as to whether or not a higher classification of plants, such as a species, would fall under the exclusion for protection of plant varieties or animal varieties. Even amongst the EPC countries, widely differing views were expressed.

The International Bureau again takes the line that any exceptions to patentability should be construed narrowly, and in particular that any exclusion to plant or animal varieties should not extend to the patenting of categories of plants or animals other than 'varieties' and also should not extend to parts of plants or animal varieties other than propagating material such as seeds because, in their view, the protection of propagating materials such as seeds would be tantamount to protection of the variety itself.

The WIPO Report then went on to discuss repeatability and the role of a deposit in meeting repeatability requirements. There has been a question as to whether or not the deposit of a product which is claimed *per se* can replace the description of a repeatable process for the production of said product. Most countries now agree, although this has not always been the case, that a deposit of the product can replace a repeatable description of the process, and the recommendation of the International Bureau is that that should be the position.

The possible patentability of uses of novel biological material were considered, in the cases where the material itself is regarded as unpatentable. A wide variety of answers were received to the relevant questions. The recommendation of the International Bureau is that such uses should not be excluded from patent protection, and draws a parallel between that and patent systems under which chemical products *per se* are regarded as unpatentable, but uses of those products are patentable.

After having considered the types of subject-matter that should or should not be regarded as patentable, the WIPO paper then considered the scope of the protection that should be afforded in those cases where the inventions were regarded as inherently patentable. The question was addressed as to whether a process claim for the production of a modified plant or animal should extend to the plant or animal itself when produced by the process—for example as in Article 64 EPC—in the case where a claim to the novel product itself would not be allowable. Again, a variety of replies were received and, again, opposing views were put forward by different EPC countries. The International Bureau once again takes the liberal view that product protection by automatic extension on a claim to the process should subsist, even if the biological material concerned is *per se* excluded from patent protection.

Another unique feature of novel living matter is that it is self-reproducing, and the question arises as to the possible exhaustion of patent protection for novel living matter after the first sale of examples of the living matter by the patent owner or his licensee. In particular, should the purchaser have the right to reproduce further examples of the organism concerned or would such reproduction amount to

infringement of the patent? The replies from a number of countries, including France, Japan, Netherlands, Soviet Union and Sweden do not assume that the patentee's rights are exhausted by sale of a patented organism, whereas the replies from West Germany, Switzerland, United Kingdom, the United States and Denmark for example, express uncertainty and the replies from Italy, Spain and Israel assume that the patent owner's rights are exhausted once the patented organism has been legitimately sold.

A more specific question in this area is whether a farmer, having purchased patented seed (assuming that seed is patentable) would infringe the patent by production and/or sale of further generations of such seed. Yet again, a wide variety of different answers was received. The recommendation by the International Bureau is rather unclear but what they seem to say is that the purchaser should have the right to reproduce the patented product only if such reproduction is unavoidable and is not carried out for the purpose of reproduction. Looking again at the example of a farmer purchasing seed, for example wheat seed, clearly the farmer must have the right to produce further seed from the seed that he has purchased because the product that he is going to sell—grain—is of course seed. The WIPO view seems to be that the farmer should not have the right to produce seed if he intends to use that seed to grow further crops himself or if he intends to sell that seed for use in growing further crops.

The report next considered the requirements for the deposit of microorganisms. Virtually all countries now accept that if the invention can be repeatably described in words in the specification, a microorganism deposit is not required, and that conversely, an enabling disclosure is not required in the specification if the microorganism is deposited. Virtually all countries accept that if a microorganism which is a starting material for the invention is commercially available, then there is no need to deposit that microorganism for the purposes of the patent application.

As to what can be deposited, once again a variety of different replies was received. However, the most general view seems to be that any material that is capable of self-reproduction, either on its own or after introduction into a host organism, should be capable of being deposited. Microorganisms are examples of depositable materials which will self-reproduce on their own, and genes and DNA generally are examples of substances which have the inherent capability of self-reproduction, but require a host organism in order to do so. Biological materials that do not have the inherent ability to self-reproduce include the desired products of genetically-modified microorganisms, such as hormones and enzymes.

Regarding the time from which samples of the deposit can be released at the request of third parties, many countries permit the release of deposits from the date of first publication of the patent application. In other countries, most notably Japan and the Netherlands, samples of the deposit only become available when examination of the application in the Patent Office has been completed and the application is published for a second time for opposition purposes. Of course, in many cases the patent rights are not enforceable from the date of early publication, most notably in the case of the European Patent Conventions countries. On the other hand, in the United States publication of the patent documents takes place only at the time of grant and as samples from the deposit are not available until that date, a fully enforceable patent right exists from the date on which such samples become available to third parties. In almost all countries, the requester for a sample of the deposit must give certain undertakings, for example not to make the microorganism available to any other third party as long as the application is pending or the patent is in force. The United States has indicated that under their law it is not permitted to place any restrictions on the furnishing of samples after the grant of the patent.

The second part of the paper dealt with the replies from non-governmental organisations, including FICPI.

It is notable that the attitudes of the non-governmental organisations which represent patentees were generally similar, but tended to differ from the views of some of those organisations which represent agricultural or horticultural interests. Broadly, those organisations which represent patentees take the view that all inventions in the field of biology should be patentable provided that they can meet the normal requirements for patentability: novelty, inventiveness, repeatability, and industrial applicability. Several organisations, including FICPI and AIPPI, deplored the exclusion from patentability of plant and animal varieties by Article 53 (b) of the EPC. It was widely felt again by FICPI, and also by FEMIPI and the International Chamber of Commerce that whole categories of invention should not be excluded by legislation from patent protection, and that in any cases where it was felt that, for example,

on ethical grounds certain forms of exploitation should be prohibited, this should be dealt with by separate regulation rather than by patentability exclusions.

Some of the organisations that represent agricultural or horticultural interests, on the other hand, seem to consider that the protection at present afforded to plants under UPOV-style plant varieties protection is sufficient and that the possibility of obtaining patent protection should not be extended into the area which is at present regarded as the preserve of UPOV.

The views of the non-governmental organisations in the patent field seem to have found favour with WIPO in that in all cases where patentability is in question, WIPO recommendations press the point that any exclusions to patentability should be construed as narrowly as possible. Comparing the situation in the United States, Japan and the European Patent Office in particular, and with reference now to the tripartite study document, it is clear that of the laws applicable in the three areas only the EPC has express patentability exclusions, covering therapeutic and surgical procedures and plant and animal varieties (although arguably not plant or animal varieties obtained as a result of a microbiological process), and the EPO seem to be interpreting those exclusions quite narrowly as certain recent decisions from the Appeals Boards indicate. Nevertheless, if the present discussions on harmonization should go as far as changes in the relevant patent laws, FICPI should exert its influence in the direction of removing all exclusions to patentability for inventions that can meet the traditional criteria for patentability.

The other important area in which the laws in force in Japan, the US and the EPC countries differ is in the treatment of microorganism deposits.

For example, in Japan and in the EPC, if a microorganism deposit is required, this is to be filed not later than the filing date of the application, and at least in the EPC that is construed as not later than the priority date of the application. In the United States on the other hand, a deposit can be validly made after filing. In the US, the deposit does not become available to third parties until the patent issues and in Japan not until the patent application is published for the second time for opposition purposes. In the EPC on the other hand, deposits become available from early publication. It is true that a possible expert solution is provided for by Rule 28 under the EPC, whereby deposits are made available only to a nominated expert before the patent is granted or refused, but this expert solution is not widely used, probably because doubts have been cast on its legality and many have expressed the view that the German courts would be likely to find a patent invalid if it depended on a microorganism which was available only to an expert before grant of the patent. These inconsistencies have already caused a great deal of trouble for applicants.

The general view expressed by inventors in this field is that they do not like deposits of their microorganisms being released to third parties before grant of their patent, or indeed before they even know whether their patent application will be successful. The situation is particularly unfair to the unsuccessful applicant because he has effectively placed functional and self-reproducing examples of the invention in the hands of his competitors, which will probably have involved a great deal of know-how in their construction, and those competitors will be completely free to reproduce and use those microorganisms without reference to the inventor once the patent application has been refused.

If harmonization of laws is to take place FICPI should continue to press for a change in the EPC so that samples are not released until an enforceable patent right is in existence, in other words until grant of the patent has taken place.

APPENDIX B

Comments on WIPO/UPOV Paper CAJ/XXIV/4

The Interface Between Patent Protection and Plant Breeders' Rights

Prepared on behalf of the
New Zealand Plant Variety Rights Office
August 1989

1 INTRODUCTION

1.01 The Plant Variety Rights Office in New Zealand has consulted with interest groups on the overlap between patent protection and plant breeders' rights protection for plants over a number of years. It established a working party in 1988. The working party held two meetings as a result from which the Commissioner of Plant Varieties was able to present a New Zealand position to the October 1988 meeting of the Council of UPOV.

1.02 By 1989 the working party included representatives of plant breeder and farmer groups, the Commissioner of Plant Variety Rights, the Commissioner of Patents, representatives from the Ministry of Commerce (Industrial Property Advisors to the New Zealand Government) and a representative of the New Zealand Institute of Patent Attorneys. This paper was commissioned following the meeting of the working party on 8 August.

1.03 Because of the diverse interests represented in the working party discussions there was no single view on all of the points discussed. This paper indicates where a consensus was agreed to and where divergent views remained at the end of the discussion.

PART I: PATENT AND PLANT VARIETY RIGHTS LAW AND PRACTICE IN NEW ZEALAND

2 PATENT PROTECTION FOR PLANTS

(a) Patentability

2.01 The New Zealand Patent Office is unlikely to grant patents for inventions involving classical breeding techniques such as selections, discoveries or crossings by reason of the lack of

inventive step. However, where the invention involves the transfer of genetic material into plants, patents have been granted claiming as a monopoly: the genetic material itself, the transferring vehicle, the method of transferring the genetic material and plant material into which genetic material has been transferred.

2.02 Whether an invention is proper subject matter for letters patent depends on the definition of the word "invention". This is defined in the Patents Act as being a "manner of manufacture". The legislation makes no express exclusion of plants or biological processes. What is or is not proper matter for a patent depends on the interpretations of the courts. Where there are no directly relevant decisions the New Zealand Patent Office must set a policy which it believes follows the principles of the decisions of the courts. An invention involving transfer of genetic material into plant material is considered to be a manner of manufacture, while classical breeding is not.

2.03 The position of the New Zealand Office is in sharp contrast to that of the Australian Patent Office which has allowed patents for new plants and for processes for preparing new plants without making any distinction as to how the new plant was achieved. While the legislative definitions of "invention" in the two countries are very similar, the New Zealand definition and the Australian definition in practice include High Court decisions which import binding territorial differences. The last time (1960) that a court in New Zealand considered an invention involving a biological process* (the injection of an enzyme into livestock prior to slaughter to tenderise meat) it indicated in general statements that biological processes and products should not be rejected as a class, each application should be considered on its merits. The patentability of classical breeding techniques and plant resulting from them should be regarded as not finally settled in New Zealand.

(b) Inventive Step

2.04 The existence of an inventive step in relation to inventions involving plant material is a question of fact in each case. The question to be asked is whether the invention would have been obvious to a person skilled in the art. The need for an inventive step acts as a limitation on granting any broad patents for a minor or cosmetic change to a plant. As more and more genetic transfer techniques and vehicles become known and genes identified, it becomes increasingly more difficult for inventions to be unobvious. In classical breeding techniques a mere discovery with nothing more will not amount to an inventive step. However, crossings and selections may involve inventive skill and could possibly qualify.

(c) Enabling Disclosure

2.05 A patent is a social contract. In return for a limited monopoly the patentee must enable the public to put the invention into practice once that monopoly has expired. In New Zealand a patentee must, in the patent specification, "particularly describe the invention and the method by which it is to be performed" and "disclose the best method of performing the invention which is known to the applicant". In the case of inventions relating to plants into which genetic material has been transferred the practice of the New Zealand Patent Office is to require both a written description and an indication that the genetical material is available through a recognised depository or otherwise. The validity of this practice has never been tested in the courts. In 1988 an ad hoc government-appointed committee report recommended that New Zealand should accede to the Budapest Treaty on the deposit of microorganisms and to amend the legislation to clarify that such a procedure would result in valid patents.

3 PLANT VARIETY RIGHT PROTECTION

3.01 The New Zealand Plant Variety Rights legislation has, since 1981, provided coverage for all species of plants except fungi, algae and bacteria.

* Some would question whether this is a biological process.

3.02 The New Zealand legislation also provides reasonably strong protection. Acts which constitute an infringement of Plant Variety Rights are as follows:

(a) Selling or producing for sale reproductive material of a protected variety

(b) Propagating any protected variety of an ornamental or fruit producing plant for the purpose of commercial production of produce

(c) Propagating, selling or using imported reproductive material of a protected variety

(d) Importing produce of a protected variety from a country where plant variety protection is not available for that variety

(e) Using the denomination of a protected variety in connection with the sale of another variety.

3.03 The legislation does allow a farmers' privilege. It has been mooted that this privilege might be eliminated in any case where seeds collected by a farmer were then sown for the purpose of producing a commercial crop of grain. This matter is still being debated between breeders' groups and growers' groups.

3.04 The New Zealand legislation also allows a breeders' exemption.

4 OVERLAP OF PLANT VARIETY RIGHTS AND PATENTS FOR PLANTS

4.01 As mentioned above in paragraph 2.01 the New Zealand Patent Office does permit claims in patents to plant material into which genetic material has been transferred by a molecular biological technique. Any plant breeder who without permission produces a new variety which incorporates that genetic material would infringe the patent right by sale of the plant. However, there is a limitation under the Patents Act to the effect that a claim to a new substance shall not be construed as extending to that substance when found in nature. If such a breeder had found the new variety containing the genetic material existing in nature, sale of the new variety would not infringe the patent because of this exception to the patent right.

4.02 While New Zealand legislation does not expressly exclude patenting of plant varieties, no varieties have been patented and accordingly New Zealand has in practice complied with Article 2 (1) of the UPOV Convention. This position would change should the Patent Office issue such a patent. Under constitutional practice in New Zealand international treaty obligations can only be enforced when enacted in domestic law. The Patent Act 1953 was enacted much earlier than when New Zealand acceded to the UPOV treaty in 1978. The Patents Act has not been amended subsequent to that accession. It is unlikely that an attack on the validity of a patent which includes a claim to a plant variety would succeed on the basis that New Zealand had acceded to the UPOV treaty.

5 DEPENDENCY

5.01 There is no provision in the New Zealand Patents Act for the holder of a Plant Variety Right to be able to obtain a non-voluntary dependency licence from a patent holder whose patent would be infringed by the exploitation of the Plant Variety Right. The compulsory licensing provisions under the New Zealand Patents Act do provide for the grant of a compulsory licence if the patentee has refused a voluntary licence and the working or efficient working in New Zealand of any other patented invention which makes a substantial contribution to the art is prevented or hindered.

5.02 The Plant Variety Rights holder is not necessarily in a subservient position in the circumstance just outlined. The patent holder is not able (by virtue of the patent) to sell the protected variety without infringing the Plant Variety Right. The sensible solution is a cross-licensing arrangement under the two rights. The balance struck between the parties will very much depend

on the value of the transferred genetic material as compared to that of the variety into which it has been transferred.

6 NO PATENT PROTECTION FOR A PLANT VARIETY AS SUCH

6.01 Some working party members were in favour of the principle that there ought not to be patent protection for "a plant variety as such"; but at the same time were in favour of the current practice of allowing patent protection for plant material containing transferred genetical material. Others found it difficult to reconcile the two views. An underlying problem appeared to be different understandings of the words "plant variety as such".

7 SUMMARY

7.01 The New Zealand Patent Office refuses patent applications for classical plant breeding processes and products of those processes. This practice is opposite to that of the Australian Patent Office even though the definition of invention is very similar in each country. A relevant New Zealand court decision casts some doubt on the Patent Office practice and it may be that such inventions can be protected by patents in New Zealand.

7.02 Patents have been granted in New Zealand for plants into which genetic material has been transferred by molecular biological techniques. If there were a plant variety right for a new variety incorporating the genetical material (the subject of the patent) then commercialisation of reproductive material of the variety would infringe the patent. On the other hand the patent holder would not be able to sell the new variety without infringing the plant variety right. This mutual dependency would lend itself to a voluntary cross-licensing resolution.

7.03 The New Zealand Patents Act provides for compulsory dependency licence between two patent holders but not between one patent holder and a plant variety right holder.

ANNEX II
Examples as a Basis for Discussion of Assumed Situations Under Provisions of Both Patent and Breeders' Rights Laws with Indications of Possible Consequences

The approach is to assume for each situation changes in either or both patent law and breeders' rights law. This approach highlights the fact that an optimal system may require adjustments within both the breeders' rights and the patent fields.

"Possible consequences" are not necessarily considered by the International Bureau of WIPO or the Office of UPOV to be the consequences of particular changes but are mentioned solely as a basis for discussion.

FIRST ASSUMED SITUATION: No change concerning the patent system; changes concerning the plant breeders' rights system.

Changes

1. Availability of plant breeders' rights for all botanical species.

2. Extension of the scope of plant breeders' rights protection to cover all reproduction and, subject to exhaustion, the selling, marketing, using or the importing or stocking of material of a protected variety.

3. Extension of the exclusive rights concerning a protected plant variety to varieties essentially derived from the protected plant variety.

4. Retention of Article 2 of the UPOV Convention so as to forbid the granting of patents and plant breeders' rights for the same species; introduction of a collision norm to the effect that no acts concerning a variety for which a right has been granted in accordance with the provisions of the UPOV Convention shall be prohibited on the basis of some other industrial property right.

Possible Consequences

1. Plant breeders (for all species) will have a more satisfactory protection than at present; the protection for plant varieties would be similar to that available under the patent system. In relation to the exclusive right of reproduction the problem of exhaustion would not arise; claims for characteristics would not be possible.

2. The plant breeders' rights system and the legal certainty enjoyed by rights held would remain unimpaired; none of the practical problems for the plant breeders' rights system resulting from the granting of protection for plant varieties on differing criteria in two systems would arise.

3. The fact that patent protection is not available in some countries for plant varieties might, to some extent, discourage enterprises investing in research with respect to the creation of plant varieties by genetic engineering methods; however, these enterprises will be able to obtain patent protection for newly created genes, although the said protection may suffer from uncertainties in respect of extension to future generations and the freedom to exercise rights under patents would be restricted by the collision norm (i.e. no prohibition of the exercise of rights under the UPOV Convention on the basis of some other industrial property right).

SECOND ASSUMED SITUATION: No change concerning the plant breeders' rights system; changes concerning the patent system.

Change

1. Removal of any exclusion of plant varieties and essentially biological processes for the protection of plants from patent protection.

2. Extension of process patents for the production of plant varieties to plant varieties.

3. Extension of process patents for the production of living matter to products derived from the materials initially obtained by the patented process, whether such derivation is through replication or differentiation or through both replication and differentiation carried out in any sequence.

4. Extension of patent protection for products that consist of, or contain, genetic information as an essential feature of the invention to any matter containing the patented product or obtained from the patented product, provided that the said genetic information is contained and expressed in the said matter.

5. Limitation of the exhaustion principle in relation to acts committed with respect to material obtained through multiplication of a product constituting living matter (with the exception of multiplication that is a normal consequence of the fact that the product has been put on the market).

6. Dependency licences in favour of owners of plant breeders' rights who, in order to develop a protected plant variety, have to carry out an activity which is within the scope of protection of a patent.

Possible Consequences

1. The fact that patent protection is available for plant varieties may encourage enterprises investing in research with respect to the creation of plant varieties by genetic engineering methods. Moreover, these enterprises will be able to obtain patent protection for newly created genes, and the said protection will extend to future generations, subject to the possibility of dependency licences for the creators of new plant varieties.

2. The availability of patents for plants and for plant varieties will enable innovators to make claims in relation to characteristics of plants and thus to secure a wide scope of protection in relation to a species or, in appropriate cases, to complete taxa of a higher order in circumstances where the DNA sequences controlling the expression of the characteristic are unknown; this could remove areas of the genetic variability within a species from access to other innovators.

3. Protection available within the plant breeders' rights system for the activity of building "genetic structures" would be unsatisfactory; owners of breeders' rights would be vulnerable to plagiaristic breeding approaches in the absence of a dependency principle in the breeders' rights system.

4. The legal certainty provided by the fact that plant varieties can only be protected within one common system according to common criteria, will no longer exist. A patent documentation concerning plant varieties will have to be established.

THIRD ASSUMED SITUATION: changes concerning both the patent system and the plant breeders' rights system as in the first and second assumed situations but not addressing problems resulting from the interface between the two systems.

Changes

All changes mentioned in the first and second assumed situations.

Consequences

1. Innovators (in all species) will have more satisfactory protection than at present.

2. The fact that patent protection is available for plant varieties may encourage enterprises investing in research with respect to the creation of plant varieties by genetic engineering methods. Moreover, these enterprises will be able to obtain patent protection for newly created genes, and the said protection will extend to future generations, subject to the possibility of dependency licences for the creators of new plant varieties.

3. The availability of patents for plants and for plant varieties will enable innovators to make claims in relation to characteristics of plants and thus to secure a wide scope of protection in relation to a species or, in appropriate cases, to complete taxa of a higher order where the DNA sequences controlling the expression of the characteristic are unknown; this could remove areas of the genetic variability within a species from access to other innovators.

4. The legal certainty provided by the fact that plant varieties can only be protected within one common system according to common criteria will no longer exist. A patent documentation concerning plant varieties will have to be established.

FOURTH ASSUMED SITUATION: changes concerning both the patent system and the plant breeders' rights system and the provision of solutions to problems resulting from the interface between the two systems.

Changes

1. All changes mentioned in the first assumed situation, the collision norm is not introduced.

2. Maintaining the exclusion from patenting of "plant varieties", both "as such" and as the direct product of a patented process.

3. Provided that as stated in paragraph 2 patent protection is not available for plant varieties, extension of process patents for the production of living matter to products derived from the materials initially obtained by the patented process, whether such derivation is through replication or differentiation or through both replication and differentiation carried out in any sequence.

4. Extension of patent protection for products that consist of, or contain, genetic information as an essential feature of the invention to any matter containing the patented product or obtained from the patented product, provided that the said genetic information is contained and expressed in the said matter and provided that as stated in paragraph 2 patent protection is not available for plant varieties.

5. Limitation of the exhaustion principle in relation to acts committed with respect to material obtained through multiplication of a product, not being plant varieties, constituting living matter (with the exception of multiplication that is a normal sequence of the fact that the product has been put on the market).

6. Recognition of the mutual dependency of breeders' rights and patents, for example, where a patented gene is incorporated into a protected plant, with the consequence that the protected plant could not be marketed without the consent of both patent and plant breeders' rights owners.

Consequences

1. The fact that improved plant breeders' rights protection is available for plant varieties and that improved patent protection is available for other innovations involving plants may encourage enterprises investing in research with respect to innovation generally in the field of plants. Such enterprises will be able to obtain patent protection for genes and deploy such protection in relation to plant varieties which incorporate the gene. Plant breeders will be protected by the extension of plant breeders' rights protection to cover "essentially derived" varieties where varieties are transformed by the incorporation of a simple genetic factor by genetic engineering.

2. The improved patent protection would eliminate most of the problems which have been foreseen arising in connection with biotechnological inventions; the plant breeders' rights system and the patent system would be completely complementary.

3. The plant breeders' rights system and the legal certainty enjoyed by rights holders would remain unimpaired; none of the practical problems for the plant breeders' rights system resulting from the granting of protection for plant varieties on differing criteria in two systems would arise.

4. Patents would be unavailable for "characteristics" of plant varieties, but only in cases where the genetic sequences responsible for the characteristic have *not* been identified; where such sequences have been identified, they could be patented as such. This distinction, together with the improvements referred to in paragraph 2, above, would increase the legal certainty of the patent system in respect of inventions in the plant field.

PART II: COMMENTARY ON ASSUMED SITUATIONS (ANNEX II: CAJ/XXIV/4)

8 FIRST ASSUMED SITUATION

8.01 Referring to change 1 New Zealand already does provide plant variety protection for all botanical species.

8.02 There was support for suggested change 2 with a proviso from farmers who wished to retain the farmers' privilege. It goes beyond what the New Zealand law presently covers assuming that "material" has the broadest definition in the proposed Article 2 for the UPOV Treaty (IOM/IV/2 of 22 June 1989).

8.03 Change 3 was a change supported by all of the interest groups represented. The only reservations were in respect of a satisfactory definition of the words "essentially derived".

8.04 Change 4. As indicated earlier there is as yet no consensus in New Zealand as to whether Article 2 (1) should be retained or removed. The suggested collision norm would be an introduction of what amounts to a breeders' exemption under the Patents Act. This should be contrasted with change 3 of this assumed situation by which the breeders' exemption has been eliminated from Plant Variety Rights. Such a collision norm would represent a significant weakening of patent protection and an active discouragement to plant breeding using molecular biological techniques.

8.05 Another possible effect of such a provision would be that patent holders would be less likely to make their genetic material available to other breeders. Patentees would be precluded from being able to exploit their patents through reproduction of plant material while breeders who develop new plant varieties and acquire plant breeders' rights would be entitled to preclude the

patent holders. This would be a strong disincentive to making the genetic material available to other breeders.

9 SECOND ASSUMED SITUATION

9.01 Some members of the working party understood the proposal to remove "Any exclusion of plant varieties. . .from patent protection" as allowing the patenting only of varieties that clearly and without doubt meet the patenting requirement such as reproducibility and inventive step. On the other hand at least one member interpreted the proposal as opening the door to patenting of many or all varieties, including the products of classical breeding techniques which under a conservative as opposed to a liberal interpretation of patent law, would not be patentable. Because of this difference in understanding it is difficult at this time to comment on some aspects of the proposed changes with a single consensus voice. Bearing the above in mind it may be noted that changes 1, 2, 3 and 4 are already the case, wholly or largely, under New Zealand patent law.

9.02 The concern expressed in consequence 2 concerning the wide scope of protection in relation to a species or to complete taxa of a higher order is perhaps overstated. The policy of the New Zealand Patent Office is to examine very carefully the scope of protection for which "fair basis" can be found in the specification. Where an invention is not of a pioneering nature the scope of protection is limited to processes and products which are specifically exemplified.

9.03 There was no final consensus as to whether dependency licences (change 6) should be voluntary or non-voluntary. There was a general consensus that any non-voluntary dependency licence should provide an adequate return for the licensor.

9.04 The validity of the comment that there is a legal certainty in protecting plant varieties within one system is open to question. In any infringement suit it is open to the defendant to seek revocation of the Plant Variety Rights grant. A Plant Variety Right has a presumption of validity when granted, but it is by no means certain the court will uphold it.

9.05 The establishing of a patent documentation concerning plant varieties does not appear to be an insurmountable obstacle. The international patent documentation is constantly expanding with the issuing of new patents every week. The incorporation into that documentation of a plant variety database would not significantly increase the practical difficulties of that ever expanding database. Some however would stress that any decision on protection of plant varieties must be based on side-by-side comparative growing trials as distinct from a decision based on comparison of written descriptions prepared from different locations and/or seasons.

10 THIRD ASSUMED SITUATION

10.01 The suggestion to make all changes mentioned in the first and second assumed situations does not seem to be possible. Change 4 of the first assumed situation is incompatible with the changes to the patent system of the second assumed situation. It is presumed that the third assumed situation includes only the first three changes of the first and all of the changes of the second assumed situations.

11 FOURTH ASSUMED SITUATION

11.01 Most members of the working party when considering the changes in paragraph 3 and 4 interpreted the word "product" to include plant material to which genetic material has been transferred. One member however interpreted "product" to mean genetic material or transfer vehicle but *not* plant material. Depending upon which interpretation is taken the implications are very different.

11.02 The suggestion in consequence 6 that the patent system has some sort of legal certainty which can be increased is very doubtful. A patent is granted with a greater or lesser presumption of

validity depending on a large number of factors. No patent is granted with a legal certainty that it is valid.

12 CONCLUSIONS

12.01 It is difficult to state that any single presumed situation was favoured by all the interested parties. The difficulty was enhanced by different understandings of the terminology by members of the working party.

12.02 There was some expression of approval for the fourth assumed situation—but that was based on the understanding that "products" included plants into which genetic material had been transferred.

12.03 If on the other hand one understands that "products" excludes plants into which genetic material has been transferred, the third assumed situation comes closest to the current New Zealand law given that New Zealand patents are routinely granted for plant material into which genetic material has been incorporated and that New Zealand offers strong plant variety rights to all botanical species. The third assumed solution also comes closest to compatibility with the agreed observation that a patent in the field of transfer of genetic material can be most fully exploited through reproduction and sale of plants into which the genetic material has been transferred.

12.04 It was generally agreed that there should be appropriate cross-linking dependency licences systems either of a voluntary or non-voluntary nature. It was also agreed that voluntary licences are to be encouraged because they promote the transfer of know-how.

12.05 The value of non-voluntary licensing provisions was seen not so much in that they were an end in themselves but more that they encouraged voluntary licences.

COMPUTER TECHNOLOGIES AND LEGAL PROTECTION

Doug Calhoun

(Paper first presented to a Law Commission seminar
Wellington, 27 October 1989)

Computer Technologies and Legal Protection

Doug Calhoun

INTRODUCTION

In the seminar in Auckland on 6 October 1989, the Hon Mr Justice Gault posed a number of questions. One of those questions particularly applicable to the computer industry is whether intellectual property ought to be protecting innovation or whether it ought to be protecting investment. It is submitted that at this stage the successful pioneers of the computer industry have a greater interest in protecting the investment which they have made in innovation than in promoting further innovation which has been developed from their existing technology. It must be remembered that the business success of the established companies in the industry is based on previous innovation. The challenge for law reformers is to strike a balance which protects the investment which has been sunk into past innovation while at the same time not stifling further innovation.

If past innovation is protected by strong industrial property protection, it is an incentive for those who seek access to the market to create innovation outside of the field of innovation already protected by those who were there first. It also may have the effect of creating parallel but unrelated solutions to the same problem. When those solutions are mutually incompatible it may create inefficiencies for users if, for example, their data stored in electronic form cannot be easily transferred electronically into another user's system.

TYPES OF PROTECTION

There is attached as Appendix A a copy of a paper by an American firm of patent attorneys summarising patent and copyright protection for computer

software under United States law. This illustrates the sophistication of developments in the United States and the ingenuity which can be applied to the existing concepts of law. In New Zealand the approach of the Patent Office to the patentability of computer programmes is somewhat more conservative. Copyright law in New Zealand, particularly in relation to three-dimensional aspects of computer design, provides more comprehensive protection than in the United States.

The following is a brief summary of protection which is available:

PATENTS

One cannot obtain a patent for a mere principle or theorem. However, it is possible to obtain protection for a principle or theorem which has been applied some way industrially. The way in which this has been interpreted in respect of computer programmes is that one cannot obtain a patent for a programme per se but one can obtain a patent which claims a programme which controls an industrial process or a machine. Thus, for example, a programme for operating a pulp and paper mill to its peak efficiency would be patentable. A computer game probably would not be. If the programme is a "pioneering" invention then the patentee may well be entitled to broad protection extending to analogous ways of solving the problem solved by the invention. In copyright terms, the patentee is entitled to coverage for all expressions of the idea which is the solution to a problem industrially applied.

COPYRIGHT

Although in some countries the courts have been slow to accept that electronic signals stored on some storage medium which is not readable by the human eye is a literary work, most jurisdictions do not confuse the medium with the message and accept that computer software is a literary work which is capable of being protected by copyright. Most jurisdictions accept that the level of originality for copyright, while involving some skill, falls considerably short of a test for inventiveness. What is open to controversy is just what constitutes an idea and an expression of an idea as will be discussed below. A screen image displayed when a computer programme is being run can be reproduced by a different computer programme which achieves the same result on the screen. Those seeking fuller protection of their copyright also assert copyright in the screen image which is produced by the programme loaded into the computer. Such a screen image can be both a literary work and an artistic work.

MASK WORKS

In May 1989 an international treaty under the auspices of WIPO was signed in Washington by 40 countries establishing norms by which mask works and computer chips could be protected. The treaty allowed for such protection either by existing copyright, design or patent statutes, or by sui generis legislation. Three leading microchip manufacturing countries, the United

States, Japan and Holland did not sign the treaty. Many countries including Australia and the EEC countries have enacted legislation complying with the treaty. The pioneering law was the 1984 Act passed in the United States. The rights protected are the rights to reproduce a protected layout-design, to incorporate a protected layout-design into a microchip, and to import, sell or otherwise distribute the layout-design and microchip. A distinguishing characteristic of such legislation is that it permits reverse engineering of a layout-design or microchip and allows the investigator to construct a new chip based on the reverse engineering analysis, provided there has not been slavish copying.

REGISTERED DESIGNS

As another means of protecting screen images, applicants in the United States have been obtaining design patents for screen images of icons and interface symbols created by programmes. I am not aware of any corresponding designs which might have been registered in New Zealand. A case for registrability could be put up if the design could be considered to be a pattern or ornament and if an electronic display on a screen can be considered to be an industrial application to an article.

PASSING OFF/FAIR TRADING ACT 1986

In recent copyright litigation in the United States litigants have sought to extend copyright protection where the screen image and the commands by which the screen images may be attained have the "look and feel" of the programme of a plaintiff. Such an argument is more likely to be successful in a patent case than in a copyright case. It seems to this observer that the compartment of law which might be more successfully followed in this country is passing off or an action under the Fair Trading Act 1986. The success of such an action would depend very much on the facts of the case. However when a new entrant into the market advertises their software as being "industry leader compatible" the industry leader may well want to consider the passing off/Fair Trading Act 1986 approach to keeping the competitor at bay.

TRADE SECRETS

Another way of exploiting computer software or microchips is to endeavour to maintain the programme or the microchip as a trade secret. While this may not seem possible if a product is mass marketed and is susceptible of reverse engineering nevertheless attempts are made to do so. A primary tool if a programme is sold on mass marketed floppy discs is to use a shrink-wrap licence. Such a licence usually permits the user only to make one backup copy and obliges the user to maintain the programme stored on the disc as a trade secret. Authors of computer software which is to be used only in low volume applications, for example running a pulp and paper mill, are more easily able to maintain the software as a trade secret than is the case of mass marketed software.

The computer industry would certainly regard intellectual property protection in computer software and chips as being very important. In view of the importance of the industry public policy ought to support such protection. Where a disagreement would occur would be in striking a satisfactory balance between protecting investment in existing technology without stifling innovation which will result in the next generation of technology.

As an example of this, the *Plix Products* decision (*Plix Products Ltd* v *Frank M Winstone Merchants Ltd* (1984) 3 1PR 390; (1985) 5 1DR 156 (CA)) struck a balance in the design of new kiwifruit trays very much in favour of the established technology. The special circumstance of that case was that the works in which the copyright subsisted became the industry standard and made it almost impossible for anyone else to design a kiwifruit tray which met the standard and did not infringe copyright. This situation is in many ways analogous to the "bottleneck" cases in competition law exemplified by the *Auckland Airport* decision (*Auckland Regional Authority* v *Mutual Rental Cars (Auckland Airport) Ltd* [1987] 2 NZLR 647). It may be that where a copyrighted work is also an industry standard some form of dependency licensing may be required in order to allow innovation in ways of achieving the industry standard.

IDEAS/EXPRESSION DICHOTOMY

Compilers of Law Commission reports will be well aware of the desirability of a single standard word processor interface. Where it has received papers stored on the electronic memories of the word processors of independent authors it is not always possible to transfer the contents into the electronic memories of the Law Commission word processor without retyping.

An alternative approach to dependency licensing is to regard an industry standard interface as being an idea and a programme for achieving it the expression of an idea. This approach is consistent with the exclusion section (s 102(b)) of the United States Copyright Act 1976 which provides that copyright protection does not extend to any "idea, procedure, process, system, method of operation, concept, principle or discovery". While such an approach is attractive in the abstract it is difficult in application. Those who solve a problem for the first time and write a programme imparting the solution to the problem are creating an expression of an idea. However, to the person trying to improve on the original expression what they are improving on becomes in a sense an idea. Appendix B to this paper is a discussion paper prepared by two members of the American group of Association Internationale pour la Protection de la Propriété Industrielle (AIPPI) for the 1989 conference of that organisation. The difficulty in resolving the dichotomy is discussed at some length in Part I of that paper relating to the scope of protection.

DECOMPILING/REVERSE ENGINEERING

A characteristic of both the United States Mask Works Act 1984 and the international treaty which distinguishes it from the protection available under the New Zealand copyright legislation is the possibility of reverse engineering. It is a logical consequence of the idea/expression dichotomy. One should be entitled to analyse another's "expression" in order to determine what is the underlying "idea". It is in the construction of a new topography or microchip incorporating the idea but excluding the expression where the difficulty arises. One interpretation of what is permissible is that, provided there is sufficient originality to create a new work in which a right under the Mask Works Act 1984 exists, then there is no infringement of the protected work.

This provision sounds very much like the "breeders' exemption" in the UPOV Convention. By that exemption a breeder is allowed to use a protected plant variety to make a new variety by in some way discovering or breeding in a distinguishing characteristic. Once the new variety has been arrived at the second breeder is entitled to sell the new variety without compensation to the original breeder. It has been found because of the ease with which modern molecular biological techniques can create almost overnight new varieties the balance was tipped too strongly in favour of the new breeder without protecting the investment of the first breeder.

Allowing reverse engineering and re-expression is in stark contrast with the result of the decision in the *Plix Products* case. There the evidence was that the designer of new kiwifruit trays had given to him what amounted to a decompilation of the design parameters of the standard kiwifruit tray. He executed a drawing which seemed to be an original work incorporating the "idea" of the standard tray.

Such reverse engineering and re-expression also seems to be beyond the current provisions of fair dealing under the Copyright Act 1962. It is a commercial application beyond an activity normally protected by the concept of fair dealing.

If decompiling is to be permissible then protection by way of trade secrets would probably no longer be possible. Although it may be possible by contract to oblige purchasers to refrain from any reverse engineering of a microchip, such a prohibition may be contrary to competition law.

OWNERSHIP OF COPYRIGHT

Whatever was the rationale in the existing copyright legislation for determining the ownership of commissioned works, it does not make it simple to protect the investment of commissioners of software. This is highlighted in the possibility that a commissioner may acquire a programme which is both a literary work in the source code and an artistic work in a screen image. If the commissioner omitted to obtain a written assignment of the copyright then there could be a curious stand-off where the commissioner would own the artistic copyright in the screen image while the programmer owned the literary copyright in the programme. Although individual computer programmers may not agree, it would make more sense for copyright in both literary

and artistic aspects of computer programmes to be owned by the commissioner.

Some questions have been raised about who should have title to any copyright in works generated by a computer. An analogous situation has been dealt with under the New Zealand copyright legislation with respect to photographs. Ownership of the film rather than who took the photograph determines ownership of copyright. Analogous rules can be evolved in respect of computer software which has been itself compiled by computer software.

LOOKING FORWARD

Probably owing more to benign neglect than anything else New Zealand has avoided undue experimentation with what is appropriate protection for computer technologies. At present the balance in copyright law seems to be tipped in favour of protecting the investment of past innovation rather than encouraging innovation by derivation from existing technology.

Those who advocate a shift to sui generis legislation for semi-conductor topography and microchips should bear in mind the recent decision under the United States Mask Works Act 1984 (*Brooktree Corporation* v *Advanced Micro Devices* 14 IPR 85). The judge stated that in spite of appearances this was legislation to which ordinary principles of copyright applied. There seems to be little persuasive evidence that repealing existing New Zealand copyright provisions for industrial articles and resurrecting them in special legislation limited to microchips themselves will change the extent of protection available. Perhaps what should be examined is the possibility of retaining copyright protection for all three-dimensional articles, but exploring a new approach to the idea/expression dichotomy and to reverse engineering. This might strike a balance more acceptable to critics of the existing regime, while still protecting investment in existing innovation.

It also seems to be counterproductive to expressly exclude computer programmes from patent protection. This approach has been followed in the European Convention and the British Patents Act 1977. It seems to be interpreted in the United Kingdom as not changing the law and the British Patent Office has accepted claims along the line outlined above in this paper.

APPENDIX A

Patent Versus Copyright Protection for Computer Software Under United States Law

Oliff and Berridge
August 25, 1989

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I. INTRODUCTION

Both patent and copyright law have undergone major evolutions in the United States with respect to protection of computer related subject matter, and both are currently in a substantial state of flux. Congress, the administrative agencies responsible for issuance of patents and registrations of copyrights, and the courts have all struggled to keep up with the rapidly developing and increasingly sophisticated technology. New issues are constantly being raised and contested as the computer industry becomes increasingly aggressive in asserting proprietary rights in computer hardware and software. In many areas, traditional doctrines are being modified and the traditional distinctions between copyright and patent protection are becoming increasingly blurred. Many of the new developments in patent and copyright law are exceptionally controversial, and have potentially far reaching consequences with respect to the ability to develop new technology and to access information generally.

In view of the multiplicity and complexity of the issues involved, and the unsettled state of the law in many areas, the following is designed to provide a general overview of the distinctions between patent and copyright protection for computer software, and highlight the more significant issues.[1]

II. DIFFERENCES IN THE SUBJECT MATTER PROTECTED

A. IDEAS NOT PROTECTABLE

Ideas in the abstract, including mental processes, as well as phenomena of nature, are not protectable under any basis. The basic distinction between patent and copyright protection is that copyright protects the expression of an idea, whereas patents protect the physical embodiment of ideas (in a form subject to protection, see below).

a. Copyright

The current federal copyright statute, which is the only source of copyright protection in this country, expressly provides that:

> In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.

Thus, as this distinction has traditionally been viewed, a description in a textbook of a device, such as a computer, for example, or its method of operation, is subject to copyright protection, but the copyright in the description (the "work") does not protect the computer or the method of operation described. It is well settled, though, that computer programs, even operating system programs which control the operation of a computer, as a general matter constitute protectable expression (assuming that the particular program constitutes a work of authorship and is not the only or one of the few superior ways of implementing the underlying control and processing algorithms, see below). Further, under a recently formulated doctrine, the overall organisation, sequence and structure of a computer program is subject to copyright protection. As the courts have begun to apply these concepts to more and more individual fact situations, the idea/expression dichotomy has become muddied.

(1) IDEA/EXPRESSION IDENTITY Even if an expression otherwise constitutes protectable subject matter, it is well established that copyright protection will be denied to a work if there is only one or a very limited number of superior ways of expressing an idea, on the principle that granting protection would preclude the free use and exchange of ideas. In the computer program context,

[1] The focus of the overview is on computer software, as opposed to hardware or semiconductor chip protection.

protection is denied to routines which inherently cannot be performed or executed except in certain limited ways.

A corollary to the idea/expression identity doctrine is that copying of the elements of an otherwise protectable work which are essential to practice of the underlying method or process will not be deemed an infringement of copyright. Thus, for example, instruction sets for games and contests and the like are given only relatively limited protection.

b. Patent

Congress has elected to limit the availability of patent protection to the following classes of subject matter: processes, machines, manufactures and composition of matter. These categories can be grouped together as physical objects and instrumentalities, and physical operations. Provided a physical object is useful (primarily an issue with respect to drugs), there typically is little question that it falls within the scope of protectable subject matter. Despite the express inclusion of processes within the scope of protectable subject matter, there has been considerable debate concerning the extent to which physical operations are subject to protection as statutory "processes."

(1) NATURAL LAWS AND MATHEMATICAL ALGORITHMS ARE NOT PROTECTED It has long been established that mathematical formulas, scientific principles and phenomena of nature are not patentable. Thus, for example, Alexander Graham Bell was not permitted to obtain a patent on the principles of telegraphy which he discovered. However, the *application* of a law of nature or a mathematical formula to a known structure or process falls within the scope of protectable subject matter. Thus, for example, antennas whose configurations are determined according to mathematical formulas have long been recognized as patentable subject matter, and patents for such products have been permitted to express the dimensions of and relationships between the elements of such structures using the mathematical formulas. However, in the case of machines and processes which utilize computer programs incorporating mathematical expressions of scientific laws or formulas, or which otherwise perform mathematical computations, the law recognizing such subject matter as potentially within the scope of protectable subject matter is of only relatively recent vintage.

The following basic doctrines have evolved:

- Algorithms for solving mathematical formulas, and programs for implementing such algorithms, are by themselves *not* patentable. Patent claims which are so broad that they effectively preempt use of a mathematical algorithm are not valid. Thus, in the leading Supreme Court case in the area, a claim directed to a programmed method for converting BCD numbers to pure binary numbers was invalidated on the basis that the method could only be practically implemented with a computer, and the claimed method would preempt such implementation.

- The foregoing principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment, i.e., simply reciting a field of use limitation is not sufficient; and insignificant post-solution activity, such as resetting an alarm limit, for example, will not transform an unpatentable principle into a patentable process.

- When a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect, e.g., transforming or reducing an article to a different state or thing; or the algorithm is implemented in a specific manner to define structural relationships between the physical elements of the claim or to refine or limit process steps, then the claim is patentable.

- In evaluating a claim containing a mathematical algorithm, it is not proper to dissect the claim into its old and new elements, and then to ignore the presence of the old elements in the analysis of whether the claim defines protectable subject matter. Stated more broadly, a "claim drawn to subject matter otherwise statutory

does not become nonstatutory simply because it uses a mathematical formula, computer program or digital computer."

- A claim does not preempt a mathematical algorithm simply because the claimed program involves manipulation and computation of mathematical data.

The cases have not been totally uniform in applying the foregoing principles to specific fact situations. Some illustrative examples are set forth in the following subsections.

(a) Conversion and simulation programs One category of programs for which patent protection is generally granted despite the highly mathematical nature of the subject matter are conversion and simulation programs which are used to convert or manipulate imputed data describing physical or electrical processes into an enhanced form more useful for human analysis. In some cases, the data manipulation is based on a mathematical model of the relationship between the physical or electrical phenomena; and in other cases, mathematical formulas are used to estimate or extrapolate unavailable data based on existing information. In many cases, the program as claimed is not used to control a larger chemical, mechanical or electrical system or process, but rather is claimed as part of a system for collecting and displaying data. Generally speaking, claims which merely recite the format and method for making calculations in such systems are deemed to be nonstatutory, and claims which more narrowly claim the program as part of the system are deemed statutory. Such programs have been judicially reviewed in the contexts of X-ray technology, radar interpretation, and seismic wave analysis, among others. For example, claims directed to method and apparatus for producing cross-sectional maps from seismic data, a method of seismic exploration utilizing a program for simulating continuous waveform responses based on spherical seismic data, and a computerized method for image processing to eliminate artifacts in a display specifically based on X-ray data produced by a computerized axial temography scanner have all been determined to recite statutory subject matter. (In the last mentioned case, though, claims more broadly directed to a "method of displaying data" by making certain calculations and displaying the results of those calculations were deemed to be nonstatutory.)

(b) Internal computer operation Several cases have addressed the patentability of the internal operations of a computer in view of the necessarily mathematical nature of those operations. For example, an apparatus claim was upheld which is directed to a programmed read only memory (ROM) designed to establish a data structure to permit operations in a multi-program environment in which information stored in "scratch-pad" memory is altered. The focus of analysis in such claims is *what* the claimed computer hardware is doing, *not* how it does it. Similarly, method and apparatus claims were upheld which are directed to a compiler program for converting source code programs into object code such that the computer is converted "from a sequential processor . . . to a processor which is not dependent on the order in which it receives program steps" on the basis that the claims related to management of the internal operations of the system and did not involve mathematical formulas.

(c) Artificial intelligence programs Another class of programs which has been addressed are so-called artificial intelligence programs which evaluate data and produce decisions for the human user, typically based on structures and analytical formats established with data based on expert knowledge. In the one reported case to date addressing the issue of whether such subject matter is statutory, the claims were directed to method and apparatus for identifying areas of malfunction in a complex system in which the complex system is divided up into numerous arbitrary elements, each of the elements is tested using various tests, the test data is analyzed to develop values associated with each system element eventually indicating areas of probable malfunction in the system, and the results of the analysis are displayed in various formats depending on the nature of the complex system being tested. As broadly recited, the claims were held to be directed to nonstatutory subject matter on the basis that the claims recite a mathematical algorithm which is being used to replace the mental thinking process of the human user, rather than being applied to physical elements or process steps in otherwise statutory subject matter.

(d) Computer languages Under the current Patent and Trademark Office guidelines, which are not contradicted by any reported cases, claims drafted to a program instruction set separate from an operating environment are not deemed patentable. As stated by the guidelines:

> Such a computer language listing of instructions, when not associated with a computing machine to accomplish a specific purpose, would not constitute a machine implemented process, but would constitute nonstatutory subject matter as the mere idea or abstract intellectual concept of the programmer, or as a collection of printed matter.

However, where programs are recited in the context of a specific application, they generally are regarded as being directed to statutory subject matter. For example, claims directed to a program for translating text from one language to another have been upheld as claiming statutory subject matter.

(2) USER INTERFACES/DISPLAY SCREENS Although not yet the subject of any reported cases, the Patent and Trademark Office has begun to issue patents directed to the computer/user interface. One example (copy attached) is Patent No. 4,646,250, which describes the claimed subject matter as generally relating to "computer/user interfaces and, more particularly, to a data entry screen which provides a means for identifying to a user those fields where data has been entered and those fields in which data must be entered." Other examples include Patent Nos. 4,486,857; 4,642,768; 4,648,062; 4,730,252 and 4,736,308 (copies attached).

In addition, the Patent and Trademark Office has also started issuing design patents for screen icons (see below).

(3) APPLICATIONS PROGRAMS Patents are presently being routinely issued for a broad range of data processing applications programs. Some examples include:

(a) Text and graphic processing Numerous patents have been issued directed to the software aspects of text and graphics processing. One patent of interest is No. 4,730,252 (copy attached), which explicitly claims a program. (To the extent the hardware environment in which they function is similarly claimed, accounting, database management and spreadsheet programs are analogous to text and graphics processing programs as being statutory subject matter.)

(b) Business methods In recent years there has been a dramatic increase in patents issued by the Patent and Trademark Office in the area of business methods, which has traditionally been viewed as not subject to patent protection. Examples of such patents (copies attached) include: Patent No. 4,346,442, which is directed to Merrill Lynch's "Cash Management Account" data processing system and method for banking and securities brokerage, and the validity of which as statutory subject matter has been upheld by a U.S. District Court in an infringement litigation; Patent No. 4,694,397, which is directed to similar subject matter; Patent Nos. 4,674,044 and 4,677,552, which are directed to automated trading systems; and Patent Nos. 4,642,768; 4,648,038 and 4,736,294, which are directed to financial software.

B. TYPES OF SUBJECT MATTER PROTECTED

1. Copyright—Work of Authorship

a. De Minimis Expression

In order for any expression to be eligible for copyright, it must, as a general rule, constitute a "work of authorship", that is, it must possess some minimum level of creativity or be the result of sufficient intellectual labor over and beyond simple independent effort. Although the requisite level of creativity is not very high, being variously described as more than merely trivial, and amounting "to little more than a prohibition of actual copying," it has traditionally been accepted that copyright does not exist in short phrases, slogans, blank forms, standardized charts, titles and the like. In the context of computer programs, copyright protection has been denied on this basis in the case of simple command or instruction statements and programs involving very few and simple

steps. (However, some recent cases have recognized copyright in the overall "look and feel" of user interfaces, see below.)

The requirement for authorship also nominally applies to data bases and other compilations (see below), but in this area there are a number of courts which will protect data bases simply because substantial effort and cost was expended in creating the data base, even if the collection, selection and organization of the data was only a routine administerial activity not requiring significant intellectual decision making on the part of the creator.

b. Compilations and Derivative Works

(1) DATA BASES The copyright statute expressly recognizes copyright in "compilations," that is, "works formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship." As noted above, there is a substantial body of case law that will protect compilations based solely on the effort and expense involved, regardless of whether intellectual activity was required to select, coordinate or arrange the compilation.

(2) DERIVATIVE WORKS Another class of works based on preexisting works which is subject to copyright protection are "derivative" works, that is, works "based upon one or more preexisting works, such as a translation, . . ., abridgement, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole represent an original work of authorship, is a 'derivative' work."

In the case of computer programs, different versions of the same program written in different languages, as well as the source code and object/machine code versions of a program, for example, are deemed to be translations. In addition, depending on the nature and extent of the changes, each new upgrade or revision of a program may constitute a derivative work.

(3) SCOPE OF PROTECTION The protection for compilations and derivative works is expressly limited by the copyright statute, in both cases, protection for a work employing preexisting material in which copyright subsists does not extend to any part of the work in which such material has been used unlawfully. Further, the copyright in a compilation or derivative work extends only to the material contributed by the author of such work, as distinguished from the preexisting material employed in the work, and does not imply any exclusive right in the preexisting material. The copyright in such work is independent of, and does not affect or enlarge the scope, duration, ownership, or subsistence of, any copyright protection in the preexisting material.

Thus, for example, in the case of data bases and the like which consist of items of data in the public domain, it is not a violation of the copyright in the compilation to copy isolated items from the data base. However, there is no clear line defining when the copying of individual items becomes so extensive that it constitutes an infringement of the compilation copyright.

c. Program Structure

A number of recent cases have recognized copyright in the detailed structure, i.e., the sequence and organization, of complex programs. As the rule for distinguishing idea from expression in this context was originally articulated:

> [T]he purpose or function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea. . . . Where there are various means of achieving the desired purpose, then the particular means chosen is not necessary to the purpose: hence, there is expression, not idea.

This exceptionally broad definition of "expression" is a highly controversial development which is still being refined.

2. Patent–Within Prescribed Category of Patentable Subject Matter

As noted above, Congress has limited the types of subject matter available for protection. However, these categories are quite broad, and from the perspective of computer programs, the more significant limitation on protection is the prohibition against protection of ideas, mathematical formulas, scientific principles, etc., discussed above.

3. Designs

(a) Copyright One area where the subject matter protectable by copyright and patents overlaps somewhat is in the case of designs. Under copyright, subject to the basic idea/expression limitation noted above, "pictorial, graphic and sculptural works" are protectable. Pictorial, graphic and sculptural works are defined to include "two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints and art reproductions, maps, globes, charts, diagrams, models and technical drawings, including architectural plans."

In accordance with the idea/expression dichotomy, only the diagrams, models and technical drawings themselves, not the subject matter depicted therein, are protected under U.S. copyright law. Thus, under U.S. law, the copyright in architectural plans for a building does not protect the building depicted in the plans. Further, works of artistic craftsmanship are protected, but only insofar as their form, and not their mechanical or utilitarian aspects are concerned. Further, the design of a "useful article" (an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information, and articles which normally are part of useful articles) is deemed to be a protectable pictorial, graphic or sculptural work:

> only if, and only to the extent that, such design incorporates pictorial, graphic, or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article.

(1) USER INTERFACES/DISPLAY SCREENS The display output of programs is a feature which is separately protectable under copyright independent of the specific program used to generate the displays. Copying of the code will necessarily entail copying of the displays produced thereby, but copying of a display does not ordinarily require copying of the associated code.

Although there are potentially separate copyright issues involved in the two aspects of a program producing display outputs, the Copyright Office currently permits only one registration to be obtained for such works, taking the position that the registration in the work covers all of the copyrightable elements in the work.

In addition, under the recently formulated and still developing "look and feel" doctrine, various menu screens, input formats and the structure, sequence and organisation of the user interface of data programs are protectable to prevent the development of competitive programs having user interfaces with the same "look and feel" of the original program, even though the form of data tables and blank forms have traditionally been viewed as uncopyrightable.[2]

(b) Patent Under U.S. design patent law, "ornamental designs" "for" "articles of manufacture" are subject to protection. The definition of ornamental design has been liberally construed to encompass "the appearance presented by the object which creates a visual impact upon the mind of the observer," and includes ornamental designs of all kinds including surface ornamentation as well as the configuration of goods. Although to be patentable an ornamental design must be embodied in some article, unlike copyright law, there is no limitation on how the design is to be embodied in the article. Further, the design can be incorporated in only a portion of an article and still be eligible for design patent protection. The only significant limitation on the type of design eligible for design patent protection is that the design not be primarily functional, e.g., the elements of the design are

[2] This is also a highly controversial development.

not dictated by functional considerations or required elements of the function of the article to which the design applies.

Despite the broad definition of designs subject to design patent protection, it has only been relatively recently that software companies have sought design patent protection for their products. The primary focus of these efforts have been to protect display screens or other output, and in particular the symbols, icons and other ornamental display features associated with the user interface of a program. Examples of design patents for various icons are attached.

III. ADDITIONAL REQUIREMENTS FOR PROTECTION

A. ORIGINALITY VERSUS NOVELTY AND UNOBVIOUSNESS

In order to qualify for copyright protection, a work of authorship (as defined above) need only be original, that is, the independent work of the author. There is no requirement that the work be novel (new and unique). It is thus theoretically possible that two authors could independently create the identical work, and each would be entitled to copyright protection. (Because of the nature of the exclusive rights comprised in a copyright, such a situation would not create a conflict between the respective rights.) As noted above, to the extent a work is based on or employs preexisting materials (i.e., constitutes a compilation or derivative work), the copyright in that work extends only to the material contributed by the author, and only to the extent that the material constitutes a work of authorship. It is thus possible for a particular version of a computer program to be subject to several different copyrights, or for only some portions of the program to be subject to any copyright.

In the case of patents (whether utility or design), the invention must be both novel and unobvious, that is, the intention must be different from what was previously known in the prior art, and, the differences must be such that the invention as a whole would be unobvious to one of ordinary skill in the art to which the subject matter pertains (a "designer of ordinary capability who designs articles of the type presented," in the case of design patents) at the time the invention was made. [3]

B. COPYRIGHT ARISES AUTOMATICALLY WITH FIXATION OF THE WORK

Under the current U.S. copyright statute, copyright arises in works qualifying for copyright protection automatically, by operation of law, as soon as the works are "fixed" in "any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device." (In the case of computer programs, a work is "fixed" when "its embodiment in a copy made by or under the authority of the author is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."

1. Registration Required for Domestic Works as Condition for Enforcement

Although copyright is created automatically, as discussed above, and a copyright need never be registered in the U.S. Copyright Office in order to preserve the copyright, registration is a condition

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[3] One of the major criticisms being voiced about the current spate of software patents being issued is that the Patent and Trademark Office has inadequate information about the true state of the prior art, and is thus issuing patents which are not valid.

for bringing an infringement lawsuit under the U.S. statute in the case of "Berne Convention" works[4] whose "country of origin" is the United States.[5]

In addition, in the case of infringement causes of actions which arose prior to March 1, 1989, registration of the copyright (and recordal in the Copyright Office of instruments of transfer by the plaintiff if the plaintiff is claiming ownership of the copyright or of the exclusive right(s) under the copyright which the plaintiff seeks to enforce by virtue of a transfer of rights) *is* a precondition for filing an infringement lawsuit for *all* Berne Convention works, regardless of their country of origin. This is true even if the lawsuit is not filed until after March 1, 1989. (In addition, registration prior to the commencement of infringement of an unpublished work, or prior to any infringement commenced after first publication of a work, or within three months of the first publication of the work regardless of when infringement commenced, is required in order to be able to recover statutory damages or attorney fees.)

2. Notice Required on Copies Publicly Distributed Prior to March 1, 1989 to Preserve U.S. Copyright Rights

Prior to the effective date of the Berne Convention Implementation Act of 1988, March 1, 1989, a copyright notice in the form prescribed in the copyright statute was required to be placed on all copies of a coyrighted work publicly distributed anywhere in order to preserve the copyright in the United States. Prior to the Berne Convention amendment of the copyright statute, omission of the notice when required resulted in invalidation of the copyright in a work unless the omission is excused or is cured under conditions specified in the statute. Although the Berne Convention Implementation Act abolished the notice requirement, it also expressly provides that it does not provide any copyright protection for any work in the public domain in the United States prior to March 1, 1989.

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[4] A work is a Berne Convention work if:

"(1) in the case of an unpublished work, one or more of the authors is a national of a nation adhering to the Berne Convention, or in the case of a published work, one or more of the authors is a national of a nation adhering to the Berne Convention on the date of first publication;

"(2) the work was first published in a nation adhering to the Berne Convention, or was simultaneously first published in a nation adhering to the Berne Convention and in a foreign nation that does not adhere to the Berne Convention;

"(3) in the case of an audiovisual work—

"(A) if one or more of the authors is legal entity, that author has its headquarters in a nation adhering to the Berne Convention; or

"(B) if one or more of the authors is an individual, that author is domiciled, or has his or her habitual residence, in a nation adhering to the Berne Convention; or

"(4) in the case of a pictorial, graphic, or sculptural work that is incorporated in a building or other structure, the building or structure is located in a nation adhering to the Berne Convention.

For purposes of paragraph (1), an author who is domiciled in or has his or her habitual residence in, a nation adhering to the Berne Convention is considered to be a national of that nation. For purposes of paragraph (2), a work is considered to have been simultaneously published in two or more nations if its dates of publication are within 30 days of one another."

[5] The country of origin of a Berne Convention work is the United States if:

"(1) in the case of a published work, the work is first published—

"(A) in the United States;

"(B) simultaneously in the United States and another nation or nations adhering to the Berne Convention, whose law grants a term of copyright protection that is the same as or longer than the term provided in the United States;

"(C) simultaneously in the United States and a foreign nations that does not adhere to the Berne Convention; or

"(D) in a foreign nation that does not adhere to the Berne Convention, and all of the authors of the work are nationals, domiciliaries, or habitual residents of, or in the case of an audiovisual work legal entities with headquarters in, the United States;

"(2) in the case of an unpublished work, all the authors of the work are nationals, domiciliaries, or habitual residents of the United States, or, in the case of an unpublished audiovisual work, all the authors are legal entities with headquarters in the United States; or

"(3) in the case of a pictorial, graphic, or sculptural work incorporated in a building or structure, the building or structure is located in the United States.

Consequently, even though use of a copyright notice is no longer mandatory, public distribution of a work without a notice prior to March 1, 1989 potentially may have vitiated the U.S. copyright in the work. Once the copyright has lapsed, the work passes into the public domain, and may be copied and used freely by anyone.

C. PATENT PROTECTION DOES NOT COMMENCE UNTIL ISSUANCE OF PATENT

Unlike copyright, U.S. patent protection does not become effective until the date of issuance of the patent.

1. Written Application Required to Obtain Patent

In order to obtain a patent, a written application must be filed which adequately discloses the invention. The disclosure requirements for design patents are relatively straightforward. Basically all that is required is a drawing containing sufficient views of the article embodying the design to fully illustrate all features of the design for which protection is sought. In the case of utility patents, a much more complex disclosure is required:

a. Enabling Disclosure

One of the disclosure requirements is that the "manner and process of making and using" the invention must be described "in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same."

As a general matter, the enablement requirement does not require detailed description of features well known in the art or details which can be implemented by one skilled in the art without more than "routine" or "reasonable" experimentation. (No precise standard has been formulated for determining what is routine or reasonable experimentation.) Nor is it necessary to describe every conceivable way of making and using the invention.

Under the current Patent and Trademark Office guidelines for determining the adequacy of a disclosure in the case of inventions incorporating computer programming, the use of a functional block diagram format for representing system components may be sufficient in some circumstances. In other circumstances, much more detailed descriptions are required, including timing charts and detailed program listings. The Patent and Trademark Office evaluates block diagram disclosures on the basis of whether the disclosed blocks include other system hardware and/or software components in addition to a computer, or the combination of blocks is totally within the confines of a computer, with no interfacing with external apparatus beyond normal input/output devices (as is commonly the case in pure data processing applications). Generally, in the absence of either the program itself or a reasonably detailed flowchart which delineates the sequence of operations the program must perform, the likelihood that a programming application whose software disclosure includes only a flowchart will be challenged increases as the complexity of functions are the generality of the individual components of the flowchart increase. Also evaluated is the difficulty of and amount of effort which is required to convert a flowchart into a program. If mere routine coding is sufficient to achieve the conversion, then the flowchart is clearly adequate. However, if substantial time, experimentation and creativity are required to implement the program from the disclosed flowchart, then the flowchart may not be deemed a sufficient disclosure. Further, there should be disclosure of the computer system which executes the program if the disclosed listing or flowchart requires the use of a proprietary computer system not generally known or available in the art, or reference to an identified prior art computer system which is suitable for execution of the disclosed program.

In the case of systems incorporating other components in addition to computer components, the Patent and Trademark Office looks to whether the components depicted as blocks are themselves

complex assemblages which have widely differing characteristics and which must be precisely coordinated with other complex assemblages. Even if the particular components are individually known in the art, a block diagram may not be sufficient to show how each would be interconnected to function in a disclosed complex manner, or to show essential timing between various system elements.

b. Disclosure of Best Mode

In addition to providing an enabling description of the invention, a utility application must also disclose the "best mode" contemplated by the inventor at the time of filing the application for carrying out the invention. The purpose of the best mode requirement is to "restrain inventors from applying for patents while at the same time concealing from the public the preferred embodiments of their inventions which they have in fact conceived." Generally speaking, the best mode requirement is violated only when there is a showing of an intentional concealment. However, a number of patents have been invalidated where it has been shown that an embodiment of a component was known by the applicant to provide superior results, or a component is integral to implementation of the claimed invention and unique, and the embodiment/component was not disclosed.

c. Claims Defining Invention and Patentably Distinguishing the Prior Art

In addition to adequately describing the invention, the application must include at least one claim "particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." It is the claims which define the scope of protection. Although, as noted below, the claims as a general rule are not limited to the specific disclosed embodiments, in the absence of an express indication in the patent to the contrary or an estoppel created as a result of claim amendments or arguments presented during prosecution of the patent application in order to distinguish the prior art, features or aspects of an invention which are disclosed but not claimed are not protected by the patent.

IV. DIFFERENCES IN SCOPE OF PROTECTION

A. PATENT PROTECTION IS BROADER

1. Scope of Patent Claims

a. Utility Patents

The scope of a patent is defined by its claims. In order for a claim to be infringed, an accused device/process/composition must include every element of the claim or its substantial equivalent. The claims as a general rule are not limited to the specific disclosed embodiments in the absence of an express indication in the patent to the contrary or an estoppel created as a result of claim amendments or arguments presented during prosecution of the patent application in order to distinguish the claims over the prior art. Under the doctrine of equivalents, an element in an accused device/process is an equivalent if it performs substantially the same function in substantially the same way to achieve substantially the same result as the claimed element.

b. Design Patents

The test for design patent infringement is whether, in the eye of an ordinary observer, giving such attention as a purchaser usually gives, the resemblance between the accused design and the patented design is such as to deceive an observer, inducing him to purchase one supposing it to be the other. This test is often supplemented by a "point of novelty" test which requires that the similarity between the patented and accused designs be attributable to novel elements of the patented design.

2. Types of Patent Infringement

There are three basic types of infringement—direct, inducing and contributory infringement. Direct infringement occurs by making, using or selling a patented invention within the United States during the term of the patent thereof. Inducing infringement occurs by actively encouraging someone else to infringe. Contributory infringement occurs by selling "a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practising a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use."

For the past five years, it has also been an act of infringement to supply or cause to be supplied in or from the United States without authority from the patent owner "all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside the United States in a manner that infringes the patent if such combination occurred within the United States." It has similarly been, for the past five years, an act of infringement to supply in a similar manner any non-staple component of a patented invention that is especially made or adapted for use in the invention, knowing that the product is so made or adapted, and intending that such component will be combined outside the United States in a manner that would infringe the patent if done within the United States.

The patent statute was also amended within the past year to make it an act of infringement to import into the United States or sell or use within the United States a product which is made by a process patented in the United States if the importation, sale or use of the product occurs during the term of the process patent, and if the product has not been "materially changed" by a subsequent process and has not become a "trivial and nonessential" component of another product.

B. COPYRIGHT PROTECTION IS SUBJECT TO SIGNIFICANT LIMITATIONS

In general, a U.S. copyright is infringed if any of the exclusive rights provided by the copyright statute are violated; or if copies of a copyrighted work acquired outside the United States are imported into the United States without the authority of the U.S. copyright owner, unless the importation is only for the private use of the importer, for the use of the United States government or any state government, or, with limitations, for the use of certain non-profit organisations.

The principal exclusive rights provided by the copyright statute which are potentially relevant to computer programs are to do and to authorize the following:

- to reproduce the copyrighted work in copies;
- to prepare derivative works based on the copyrighted work;
- to distribute copies of the copyrighted work to the public by sale or lease or other transfer of ownership, or by rental, lease, or lending;
- to "perform" the copyrighted work publicly (e.g., recite, render, or play the work either directly or by means of any device or process, and in the case of an audiovisual work, to show its images in any sequence); and
- to "display" the copyrighted work publicly (i.e., to show a copy of the work either directly or by means of some device or process).

1. Limitations on Exclusive Rights

a. Fair use

The copyright statute expressly provides a number of limitations on the exclusive rights granted to copyright owners. One of these is the "fair use" limitation, which provides that the "fair" use of

a copyrighted work for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research is not an infringement of copyright. The statute provides that fairness of the use must be based on consideration of at least: the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; the nature of the copyrighted work; the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and the effect of the use upon the potential market, for or value of, the copyrighted work.

b. Ability to Transfer and Display Particular Copy

Another limitation on the exclusive rights in copyright is that the *owner* of a particular copy (not someone who obtained possession by rental, lease, loan or otherwise, without acquiring ownership of the copy), which copy is lawfully made in accordance with the statute or by any person authorized by the copyright owner, is entitled, without the authority of the copyright owner, to sell or dispose of the possession of that copy, and to display that copy, either directly or by the projection of no more than one image at a time, to viewers present at the place where the copy is located.

c. Copying and Adapting Computer Programs

The copyright statute further provides that it is not copyright infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that program provided that:

- such new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or;

- such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

Any exact copies prepared in accordance with the foregoing may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.

2. Independent Creation Not Infringement

The exclusive rights in copyright do *not* prevent the independent creation of a work substantially similar to the copyrighted work. In order to establish infringement, it must be shown that the accused work was copied from the copyrighted work.

3. Substantial Copying Required

In the absence of literal, exact copying, there must be substantial similarity between the accused work and portions of the copyrighted work subject to protection sufficient to show there has been copying. In the context of computer programs, particularly those implementing functional algorithms, this is often an exceptionally difficult task. A determination must be made about which aspects of a work are unprotected ideas, and which are protectable expression. A determination must also be made as to the uniqueness and importance of the duplicated material to the original work and the need to permit subsequent authors to express functional objectives using relatively restricted and/or standardized forms of expression.

4. Duration

Copyrights in the United States have a substantially longer duration than patents. The term of utility patents is 17 years from the date of issue, subject to the payment of maintenance fees 3½, 7½ and 11½ years after issuance. The term is 14 years for design patents, with no requirement for maintenance fees.

Copyrights for works created on or after January 1, 1978 last for the life of the author plus 50 years after the author's death if the author is an individual; and 75 years from the year of first publication or 100 years from the year of creation, whichever expires first, in the case of anonymous works, pseudonymous works and "works made for hire" (works prepared by an employee within the scope of his or her employment and certain classes of specially commissioned or ordered works if the parties expressly agree in writing that the work is to be considered a work made for hire).

In view of the relatively short useful life of most computer programs, the difference in duration of patents and copyrights is not a significant factor in the effectiveness of the two forms of protection.

5. Territorial Scope

a. International Character of Copyright

In all countries which are a party to the Berne Convention, which includes Canada, 10 Latin American countries, and just recently the United States in the Western Hemisphere; virtually every major state in Western and Eastern Europe (but not the Soviet Union); 24 African states, and 10 from Asia and the Pacific, including Japan, copyright in a work falling within a broad range of categories is recognized in all of the Berne Convention countries.

Further, subject to some qualifications, most notably with respect to the United States, the Berne Convention countries have dispensed with registration, notice and other formalities as conditions for the existence or enforcement of copyright. In addition, each Berne Convention country gives to foreign authors the same protection as the country gives to its own authors. (Berne Convention countries are also supposed to recognize so-called "moral rights" of authors, which exist during the author's lifetime, are independent of the author's copyright, and survive transfer of the copyright. Under the moral rights, an author has the right to claim authorship in his works (the right of "paternity"); and to object to any distortion, mutilation or other alteration therof, or any other action in relation to his works which would be prejudicial to his honor or reputation (the right of "integrity"). However, the recognition actually given to moral rights by Berne Convention countries varies considerably from country to country, with the United States giving the least recognition.)

b. U.S. Limitations on Enforcement of Berne Convention Rights Independent of U.S. Copyright Statute

In bringing the U.S. copyright statute into nominal compliance with the requirements of the Berne Convention, Congress expressly provided that the Berne Convention provisions are not separately enforceable in an action brought pursuant to the Berne Convention itself; and that the adherence of the United States to the Berne Convention, and satisfaction of U.S. obligations thereunder, do not expand or reduce any right of an author, whether claimed under Federal, State or common law, with respect to the moral rights recognized under the Berne Convention.

c. Enhanced International Reach of U.S. Patent Law

Traditionally, the reach of U.S. patent law had been limited to acts of infringement occurring within the United States. However with the amendments discussed above which were made last year and five years ago, the reach of U.S. patent law has been expanded substantially to reach

foreign activities which impact on the ability of owners of U.S. patents to protect the U.S. market from competitive products which employ the patented inventions.

6. Remedies

a. Injunctions

Both the patent and copyright statutes provide for the issuance of preliminary and permanent injunctions to prevent further infringement of a patent/copyright.

b. Damages

(1) COPYRIGHT The copyright statute provides for the award of either (but not both) i) the copyright owner's actual damages and any additional profits of the infringer; or ii) statutory damages (provided the registration requirement noted above has been satisfied). Statutory damages "for all infringements involved in the action, with respect to any one work, for which any one infringer is liable individually, or for which two or more infringers are liable jointly and severally" can range from $500 to $20,000 "as the court considers just." The court also has the discretion to reduce the statutory damages to $200 if the infringer establishes that the infringement was innocent.

(2) PATENT The patent statute provides for the award of damages "adequate to compensate for the infringement", which can include the patentee's lost profits, but not those of the infringer, and which in no event can be less than a "reasonable royalty" for the use of the invention by the infringer.

c. Attorney Fees and Enhanced Damages

The patent statute provides that the court may increase the damages up to three times the amount found or assessed, which is done when the infringement is found to be willful and deliberate; and that the court may assess reasonable attorney fees in "exceptional cases."

The copyright statute provides the court with the discretion to increase the statutory damages up to $100,000 when willful infringement is proved; and to award reasonable attorney fees to the prevailing party as part of the costs. If the copyright owner is not entitled to statutory damages for failure to satisfy the registration requirement noted above, if applicable, the actual damages cannot be increased. Further, as noted above, in order to be entitled to attorney fees, the copyright owner must have satisfied the registration requirement, if applicable.

d. Criminal Penalties

The copyright, but not the patent statute, also provides for criminal penalties, in the case of any person who "infringes a copyright willfully and for purposes of commercial advantage or private financial gain," "with fraudulent intent, removes or alters any notice of copyright appearing on a copy of a copyrighted work," or "knowingly makes a false representation of a material fact in connection with a registration application".

APPENDIX TO
Patent Versus Copyright Protection For Computer Software Under United States Law

U.S. Patent No. 4,646,250 1
U.S. Patent No. 4,486,857 2
U.S. Patent No. 4,642,768 3
U.S. Patent No. 4,648,062 4
U.S. Patent No. 4,730,252 5
U.S. Patent No. 4,736,308 6
U.S. Patent No. 4,346,442 7
U.S. Patent No. 4,694,397 8
U.S. Patent No. 4,674,044 9
U.S. Patent No. 4,677,552 10
U.S. Patent No. 4,642,768 11
U.S. Patent No. 4,648,038 12
U.S. Patent No. 4,736,294 13
U.S. Patent No. 295,631 14
U.S. Patent No. 295,632 15
U.S. Patent No. 295,762 16
U.S. Patent No. 295,764 17

APPENDIX B

ETATS-UNIS D'AMERIQUE
UNITED STATES OF AMERICA
VEREINIGTE STAATEN VON AMERIKA

REPORT Q57

(Summary: page 89/Résumé: page 90 /Zusammenfassung: Seite 91)

in the name of the American Group of A.I.P.P.I.
International Patent and Trademark Association

by Ronald S. Laurie
and William L. Keefauver

PROTECTION OF COMPUTER-SOFTWARE

INTRODUCTION

The Resolution on Question 57 which was passed by the A.I.P.P.I. Executive Committee at its 1988 meeting in Sydney observed that copyright is now accepted as the proper form of protection for computer software as a matter of principle and affirmed several points on which definite conclusions could be reached.

The Sydney Resolution also identified seven areas which required further study in the context of Question 57. The first two of these (application of the idea-expression distinction and legitimacy of decompilation) were recognized as representing major questions which give rise to substantial difficulty and which therefore require some consideration at length. The other items represent somewhat narrower issues and therefore require less discussion.

The views of American intellectual property law specialists differ widely on some of the more difficult issues dealt with in this report, particularly in regard to the *scope* of copyright protection for computer software. For this reason, the discussion is intended to aid in providing a basis for a continuing dialogue at an international level rather than to present the U.S. "position" on these issues.

1. Scope of Protection

Under U.S. law, in order to establish a case of copyright infringement it is not sufficient to prove that the accused work was "copied," in the broadest sense of the word, from the protected work. In other words, it is not enough to show merely that the defendant used, referred to, was inspired by, or had in mind the plaintiff's work during the creation of the accused work. It must also be shown that the defendant appropriated (by incorporation into his own work) more than a deminimis amount of *protected expression* from the plaintiff's work. The formulation of the test for copyright infringement is that the two works must be "substantially similar" at the level of protected expression.

Similarities at the level of ideas (as well as similarities of unprotected, e.g., public domain or non-original, expression) are not entitled to be considered in determining appropriation as opposed to copying.

The so-called idea-expression dichotomy is found in Section 102 (b) of the U.S. Copyright Act which provides that protection shall not extend to any "idea, procedure, process, system, method of operation, concept, principle or discovery." The doctrine traces its judicial origins to the landmark case of *Baker v. Selden* decided by the U.S. Supreme Court in 1879.

The idea-expression dichotomy has recently been applied to computer programs in a number of highly publicized, and controversial, U.S. court decisions, the most prominent of which is *Whelan v. Jaslow*. In considering these decisions, one must appreciate that the idea-expression dichotomy is more often than not an explanation of the result reached in a particular case, rather than the formulation of a test used by the court in reaching that result. This is not surprising because, as recognized many years ago by a leading American jurist, Judge Learned Hand, the terms "idea" and "expression" have no meaning in the abstract. They are simply labels used to characterize the defendant's copying of certain elements of the plaintiff's copyrighted work as acceptable or unacceptable, appropriate or inappropriate, permissible or impermissible, lawful or unlawful, etc.

Thus, judges, relying on their intuitive sense of right and wrong and assisted by counsel's arguments and citation of previous copyright decisions (most of which have limited applicability to software) determine whether a defendant acted rightly or wrongly and *then* characterize the similarities between the two programs in issue as ideas (therefore no protection; no infringement) or expression (protection; infringement) depending on the desired result.

This decisional process is basically sound, subject to the qualifications discussed below, and in fact there is little disagreement among American intellectual property lawyers as to the correctness of the *result* in any particular software copyright case, including *Whelan*. The criticism and controversy arises from the superficial analysis of program similarities and differences in these decisions and from the gratuitous "rules" laid down as to how one distinguishes idea from expression in computer programs generally. Faced with an unfamiliar and technically complex subject matter, courts have felt compelled to *locate* the line between idea and expression, rather than merely deciding on which side of the line the case at hand falls.

The result is that judges invariably find the dividing line to be at or very near one end or the other of the idea-expression continuum. That is, either: (a) everything other than the "purpose or function" of the program (viewed externally) is protected because it is expression (as in *Whelan*); or (b) everything other than the literal program code (and mechanical translations or close paraphrasing thereof) is unprotected because it is idea. The perceived appropriateness or inappropriateness of the defendant's conduct in taking/using certain elements of the plaintiff's program usually determines which extreme is chosen for the dividing line. In the great majority of cases the defendant's conduct could be fairly characterized as "misappropriation" and the line has been drawn at the extreme which provides maximum protection. Thus, while the particular holding of the case can be justified on purely copyright principles, it has been largely motivated by (and silently rationalized under) more generalized notions of unfair competition.

The mischief in formulating rules which place the idea-expression line for software at or near one end or the other of the spectrum is that, in most cases, the boundary between permissible and impermissible copying lies in that uncharted region *between* overall purpose and literal code which has come to be described as "structure, sequence and organization." More importantly, the "extremist" approach tends to mask the reality that the dividing line in regard to computer programs, or any other copyrighted material for that matter, cannot be determined in the abstract.

Computer program copyright cases can and should be (but have not been) analyzed by using Judge Learned Hand's "levels of abstraction" approach under which the program is described at a number of levels from maximum conceptual generality (the "purpose" of the program) down to maximum programmatic specificity (the literal code). Such an approach will not, in and of itself, distinguish idea from expression, but it will provide a court with the vocabulary and conceptual framework it needs to focus the analysis of program similarities at other than the highest or lowest levels. The levels of abstraction approach is applicable to all literary works; however it is especially well suited to computer programs because it parallels the structured or layered ("top down") methodology used to create most programs. Thus, program similarities can be identified at various levels above the literal code, e.g., the algorithms which are implemented by the code and, at progressively higher levels, the definition and interrelationship of subroutines, modules and larger

functional units. A policy decision can then be made (see below) as to whether the level at which the similarities exist is below the idea-expression boundary.

In order for judges to properly apply a levels of abstraction analysis, it is essential that they understand, with the assistance of counsel and expert testimony, the process by which a computer program comes into being. In particular, courts must appreciate which elements in the process programmers regard as creative or stylistic and which they regard as standard, routine, banal, trivial, mechanical or functionally dictated.

In addition, courts must recognize that because computer programs are essentially functional, they are "different" from other more traditional literary works and special rules may need to be applied. Some of these rules already exist. For example, the "nature" of a work has long been recognized in copyright law as a highly relevant factor in determining the scope of protection to which the work is entitled. Of particular relevance to software is the principle that the scope of protection should be proportional to the range of expression which is available to the author to present the underlying ideas. This principle has been applied to give fictional works broader protection than factual, historical or biographical works. The functional character of software would seem to make it more like the latter category of works than the former. The programmer is given a function to be performed and a set of fairly strict rules (the programming language) with which to perform the function. These constraints serve to narrow, to varying degrees, the range of expression which is available to implement the function.

As discussed above, in order to properly engage in a levels of abstraction analysis of computer programs, a court must understand the creative and stylistic aspects of programming. This understanding will provide the necessary tools to define the levels but it is only the first step in the analytical process. Once the levels have been identified, the public policy considerations which underlie the idea-expression dichotomy should be used to decide which is the highest level (in terms of generality) to which copyright protection should be extended, i.e., the highest level at which similarities may be considered in determining infringement.

Under U.S. law, there are two policies which act to limit an author's rights to the expressive, as opposed to the conceptual, aspects of his or her work. One reflects society's interest in the "free flow of ideas", and the other involves the relationship between the patent and copyright laws.

The first of these policies is based on the belief that the public interest in the unrestricted dissemination of information takes precedence over the incentive to individual creativity provided by copyright protection when there is a conflict between the two. In the context of computer programming, it is widely recognized that one generation of programs is "built on the shoulders" of the previous generation, and that to inhibit this developmental process would be to restrict the availability of better, and less expensive, software products.

As to the second policy, it is generally agreed that the exclusionary monopoly afforded by a patent should only be granted in exchange for certain consideration on the part of the patent owner. This consideration includes a sufficient advance over the prior art, full disclosure of the preferred embodiment, and specificity of the protected subject matter (via the patent claims). In contrast, the copyright owner has no obligations of advance, disclosure or specificity. As stated by the U.S. Supreme Court in *Baker v. Selden*, to give the copyright owner an exclusive property in the "art" (i.e., idea) without benefit of an official examination as to novelty, "would be a surprise and a fraud on the public." Because of the utilitarian nature of software, courts must be careful not to give patent-like (idea level) protection to a copyright owner. This is particularly applicable in the area of compatible software where the availability of the copyright defense of "independent creation" is problematical.

To summarize, the context of idea-expression and levels of abstraction, the relevant policy issue is, "At which level of abstraction should copying be permitted in order to allow the authors of future programs to utilize those features?" The answer will vary from case to case, and what is expression in one type of program may be determined to be idea in another. But as more and more cases are decided using this approach the scope of protection for various types of computer programs will become more clearly defined and the uncertainty and confusion created by some of the recent decisions will hopefully disappear.

2. *Permissible Decompiling*

In the U.S., the legitimacy of decompilation (which term will be used herein to include disassembly) has been hotly debated for the past several years. Clearly, decompilation of a computer program requires the making of a copy of the program, and if unauthorized is copyright infringement in the absence of some legal defense, excuse, or justification. In the case where the program which ultimately results from decompilation is itself infringing the intermediate copy is but a step in furtherance of the unlawful objective. However, where the ultimate program would not otherwise be infringing the issue is whether the intermediate copying taints the final product. Those who support the legitimacy of software reverse engineering argue that the intermediate copying is justified on several related copyright grounds including fair use, idea-expression merger and "incidental" copying.

Under U.S. law, the fair use doctrine does not seem to provide much support for the legitimacy of decompilation. This is because under several U.S. Supreme Court decisions (*Sony, Harper & Row v. Nation*), if the copying is for a commercial purpose, the use is presumptively not fair.

The idea-expression dichotomy provides that copyright does not protect ideas. Because decompilation is the only way to gain access to the unprotected (by copyright) ideas in a program, the intermediate step of making a copy of the program could be viewed as "incidental" to a lawful purpose, and therefore excused, provided and end result is not infringing. A related argument is based on the idea-expression "merger" doctrine. Under this doctrine if otherwise protectable expression is inseparable from the underlying idea, then copying the expression will not constitute infringement. This principle reflects the policy decision that the public interest in the free flow of ideas must supersede the incentive to creativity provided by copyright when the two come into conflict. In the case of object code, one may argue that, in practical effect, the idea is inseparable from the expression because the idea cannot be determined without decompilation. In other words, it is the very act of decompilation which makes the expression intelligible and thereby allows the ideas to be identified and extracted.

These copyright theories are reinforced by a fundamental principle of trade secret law. A number of U.S. Supreme Court decisions (e.g., *Kewanee v. Bichron*) have held that absent enforceable contractual restrictions reverse engineering is a permissible method of gaining access to trade secrets contained in a product which has been placed on the market.

With regard to the question of whether the copyright owner should be allowed to contractually prohibit decompilation, the better view would seem to give the copyright owner this right, provided the contract results from a negotiated, arms-length transaction, and the prohibition is supported by consideration. Where there is consideration given in exchange for the forbearance from exercising a right which others, not under a similar contractual restriction, may exercise, there appears to be no good reason to deny the parties the freedom to bargain away this right.

3. *Definition of Software*

The definition of a computer program in the U.S. Copyright Act is "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." Many forms of representing programmatic functionality with varying degrees of relationship (proximity) to the actual circuity which performs the arithmetic or logical operations satisfy the statutory definition.

It is essential, however, to distinguish the instructions from the material object in which they are "fixed" and to identify the computer which executes those instructions. Thus, while the matter was unsettled for a number of years, it is now clear under U.S. law that a computer program, or a novel or any other copyrighted material for that matter, stored in a read-only memory (ROM) is protectable despite the fact that the ROM may be classified as "hardware". In the case of microcode, which translates object code macroinstructions from an applications or operating system program into electrical signals which directly operate the computer's arithmetic/logic circuits, the intermediate and somewhat ambivalent status of the microcode is reflected by the use of the term "firmware." The question of whether microcode is copyrightable as a computer program is the

subject of pending litigation in the U.S. (*NEC v. Intel*) and a decision is expected before the end of 1988. Those who take the position that microcode is copyrightable argue that it squarely meets the statutory definition of a computer program, i.e., a set of instructions (groups of microinstructions forming individual microprograms) which bring about a certain result within a computer (the execution of a macroinstruction).

If a ROM can contain a computer program, then it is difficult to distinguish other forms of programmed logic devices such as PLAs (Programmable Logic Arrays) and PALs (Programmed Array Logic) on the basis of their internal construction. Specifically, all forms of programmed logic devices (ROMs, PLAs, PALs) are combinations of individual logic elements called AND-gates and OR-gates.The only difference between a ROM and a PAL, for example, is that in one the AND-gates are "programmed" (i.e., selectively connected) and in the other the OR-gates are programmed. Such a technical difference does not seem to justify a difference in the legal characterization of the information embodied in the device as copyrightable or not. In the case of any programmed logic device, the relevant question for purposes of copyrightability as a computer program is whether, regardless of the internal structure of the device, it supplies "instructions" to a "computer." In order to answer this question, one must focus not on the particular nature of the logic device but rather on the function which it performs in the larger system of which it forms a part. That is, one must ask, where are the device's output signals going and what are they doing once they get there?

Some writers have suggested that even a *non*-programmed (random) logic circuit which is indistinguishable from a programmed logic device in terms of its external operation (inputs and outputs) should also be considered as "embodying" a computer program. Whatever the status of programmed logic devices vis-à-vis computer programs, it seems that in the case of random logic the message and the medium truly merge and copyright protection should not be available.

4. *Author of Computer-Generated Work*

In order to identify the author of a work generated by a programmed computer, one must examine the individual contributions of those persons who played a role in bringing the work into existence. A corporate body can be *legally* considered to be the author of a computer program, as in the case of a work made for hire, but ultimately corporate authorship must derive from some human creativity.

The obvious candidates for the role of author are the creator(s) of the program which produces the work in question and the user(s) of the computer under control of that program. If either the programmer or the user contributes creative authorship to the resulting work, then technically he or she would be an author, and if both contribute creative authorship, then they would be separate or joint authors, depending on their intent. For example, one may imagine a program which merely asks the user a sequence of questions which are to be answered "yes" or "no." In such a case, it may be argued that the user does not contribute sufficient creativity to the process of bringing the work into being to qualify as an author, notwithstanding the fact that "but for" the user's intervention the work would not have been fixed. Thus, the user's responses may be considered merely as "data" for the program controlling the computer. On the other hand, the user's answers may be regarded as a highly simplified way to "write" a computer program. While the strict application of copyright rules may designate the programmer, the user, both, or neither as the author, there are policy reasons why the user should be considered to be the sole author regardless of how minimal his or her creative contribution may have been.

Finally, it is possible, at least in theory, that no one contributes sufficient creativity to resulting work to be an author, e.g., where the computer "randomly" generates a series of words or musical tones. In such a case, either the work is not copyrightable because there is no human authorship present, or, alternatively, human authorship is not required and the computer is the author. While there appears to be no definitive authority under U.S. law for requiring an author to be *human*, the policy which underlies copyright protection, i.e., providing an incentive for creativity, would seem to be wholly inapplicable in the case of a non-human author.

5. *Private Use*

There is no general "private use" exemption in U.S. copyright law. However, a number of statutory limitations on a copyright owner's rights, in the nature of private use, may apply. One of these limitations is provided by the fair use doctrine. Another, which is specifically limited to computer programs, is found in section 117 of the U.S. Copyright Act. This section gives the *owner of a copy* of a computer program the right (more accurately, a defense to copyright infringement) to make or authorize the making of copies and/or modified versions of the program as an essential step in the owner's use of the copy in a computer. In addition, the owner of a copy of a computer program is given a limited right to make archival copies, which must, however, be transferred along with the original.

Until recently, section 117 has been interpreted narrowly in terms of the "use" which the owner of the copy is allowed to make. Thus, it was held in several cases that the only permitted use of the copy is for its "intended" purpose, i.e., the execution of the program by the owner of the copy on a computer. A recent decision (*Vault v. Quaid*) takes the position that the owner of the copy is not limited to the use which was intended by the copyright owner, but may make any use of the program in a computer (in that case, decompilation for the purpose of defeating copy protection). Another aspect of the "intended use" question is whether the owner of a copy of a program designed for execution on a particular computer may, pursuant to the section 117 adaptation right, decompile the program for the purpose of adapting it to operate on a different computer. In this case, the relevant question would seem to be whether the adaptation is truly "essential" to the use of the program by the owner of the copy, and the answer may well be different under different factual situations.

The copyright owner should be free to contractually limit the use of the program to a specific type or model computer, or even to a specific machine (e.g., by designated serial number) provided the restriction results from an arms-length negotiated transaction. In the case of so called "shrink-wrap" licences the validity of these and other restrictions present difficult issues under the law of contracts (see below). In addition, in the U.S., "restrictions on use after sale" are not favored under the antitrust laws. The important point is that under U.S. law only the owner of a copy of the program has the right to use it in a computer, and, with the exception of the limited right to make archival copies, the owner of the copy has no right to replicate or adapt the program except as necessary for its use in a computer.

6. *"Shrink-Wrap" Licences*

The validity of "shrink-wrap" or "boxtop" licences is still unresolved in the U.S., although the reasoning in the recent case of *Vault v. Quaid*, if adopted by other courts, would make it less likely that such "agreements" will be upheld. The validity of these licences is purely a matter of contract law, specifically involving issues of contract formation and the enforceability of "contracts of adhesion." The central issue is whether treating the transaction by which an end-user acquires a program as other than a sale violates the reasonable expectations of the acquiring party. It may be argued that as more and more software users become familiar with the terms of shrink-wrap licences, treating the transaction as something other than a sale will not conflict with their expectations notwithstanding that the transaction has many of the usual indicia of a sale.

Even if the license agreement as a whole is valid, individual provisions within it may be unenforceable on the basis of "unconscionability." One of these might be, for example, a prohibition on the transfer of the program to another without prior written approval by the copyright owner. Another might be a prohibition on disclosure of alleged trade secrets in the program. In any event,even if the shrink wrap agreement is wholly or partially unenforceable, the copyright owner still has the option of obtaining, subsequent to the initial transaction, a signed agreement from the end-user based on additional consideration, e.g., free updates, support, etc.

7. *Liquidations*

At the present time, the U.S. Bankruptcy Act provides that any "executory" contract may be terminated by a trustee in bankruptcy of either party to the contract in order to preserve or enhance the value of the bankrupt estate. This provision has caused a great deal of concern to licensees of technology, including but not limited to computer software. A licensee of a computer program who, pursuant to the terms of the license, only has access to object code is in a particularly difficult situation in that he is dependent on the licensor for maintenance. In such a case, it is common for the parties to agree that a copy of the source code will be placed in escrow to be released to the licensee upon certain conditions, including bankruptcy of the licensor or the licensor's inability to maintain the program. Such escrow agreements will almost always contain executory obligations, and thus the licensor's trustee in bankruptcy has the power to terminate the escrow agreement and prevent the licensee from obtaining a copy of the source code.

For the above reasons, legislation has been proposed in the U.S. which would amend the Bankruptcy Act to exempt intellectual property license agreements. This legislation has been approved by both houses of Congress and is expected to be signed into law by the President in the near future.

SUMMARY

The separation of copyrighted expression from unprotected ideas presents special problems in the case of computer programs because of the functionality of the subject matter. However, despite the fact that software differs from more traditional literary works in this regard, the "levels of abstraction" approach which has been used in the U.S. for many years seems especially well-suited to software because it parallels the way in which programs are usually created. In order to properly apply a levels of abstraction analysis however, courts must distinguish those elements in a program which programmers regard as creative or stylistic from those which they regard as standard, routine, trivial or functionally dictated. In addition, in determining the highest level of program generality which should be entitled to copyright protection under an idea-versus-express analysis, courts must be mindful of public policy considerations favoring the free flow of information as well as the relationship between patent & copyright protection.

While the matter is not settled under U.S. law, many argue that decompilation of an object code program, for the purpose of gaining access to the unprotected ideas contained therein, should be permitted in the situation where the program which ultimately results from decompilation is not itself infringing.

As the storage medium which contains a computer program becomes more "hardware-like" the presence of authorship becomes more difficult to discern. However, one must always distinguish the physical media or device from the information embodied therein. Under U.S. law, any device which provides "instructions" to a "computer" should be considered to embody a computer program. The difficulty arises in determining what is an instruction and what is a computer.

While a technical analysis might lead to the result that the author of a computer-generated work is the programmer, the user, both, or neither, there exist policy considerations which favor regarding the user as the author regardless of how minimal his or her creative contribution may be.

Questions of private use rights, the enforceability of "shrink-wrap" licences and the effect of liquidation or bankruptcy of a software licensor do not present particularly difficult policy issues and are capable of resolution under existing principles of national copyright and contract law.

THE ECONOMICS OF PROPERTY RIGHTS, INTELLECTUAL PROPERTY AND CANADIAN COPYRIGHT AND PATENT LAW REFORM

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(Paper first presented to a Law Commission seminar
Wellington, 27 September 1989)

The Economics of Property Rights, Intellectual Property and Canadian Copyright and Patent Law Reform

Lee McCabe

THE ECONOMICS OF PROPERTY RIGHTS

Property rights are as fundamental to economics as scarcity and rationality. Economics is concerned with the allocation of scarce resources to their most productive use and relies on the rational behaviour of economic actors responding to market signals to achieve this.

The property rights approach to economic analysis achieves a generalisation of the standard theory of production and exchange by placing emphasis on the interconnectedness of ownership rights, incentives, and economic behaviour. The theory promises to explain a wider class of real events, to demonstrate the mutual interdependence of the legal system and economic phenomena, and to provide a series of testable propositions about economic behaviour.

DEFINITION

Property rights can be defined as the sanctioned behavioural relations among persons that arise from the existence of goods and pertain to their use (E G Furubotn and S Pejovich 1974 *The Economics of Property Rights* Cambridge, Mass Ballinger Publishing Company). These relations specify the norms of behaviour with respect to goods that all persons must observe in their daily interactions with other persons, or bear the cost of non-compliance. The term "good" is used for anything that yields utility or satisfaction to a person. Most economists assume that everything of value (both tangible and intangible objects, such as skills) has an owner, and that the owner's

powers of control will be used to maximise his or her utility. Put another way, a property right is a socially enforced right to select uses of an economic good. It is assigned to a specific person and is alienable in exchange for similar rights over other goods. Its strength is measured by its probability and costs of enforcement which depend on the government, informal social actions and moral norms.

Exchange is the means through which the prevailing property rights assignments in an economy affect the allocation of resources. Trade generates contractual agreements, not so much to exchange goods, but to exchange bundles of property rights to do things with those goods. The extent of exchange and the terms of trade are dependent on the existing rights assignments in the community and depend on the bundles of rights that can be transferred legally.

OWNERSHIP RIGHTS AND LIMITATIONS

While there are many kinds of property rights, the right of ownership is the best known. Right of ownership in an asset consists of 3 elements: the right to use the asset, the right to appropriate returns from the asset and the right to change the asset's form or substance. The owner of an asset has the legal freedom to transfer all the rights (to sell a house) or some of the rights (to rent a house) in the asset to others at a mutually agreed price. The right of ownership is an exclusive right but it is not an unrestricted right, as it is bound by those restrictions that are explicitly stated in the law. Such restrictions may range from the substantial to the minor.

The attenuation of private property rights in an asset, through the imposition of restrictive measures, affects the owner's expectations about the uses to which that owner can put the asset, the value of the asset to the owner and others, and consequently, the terms of trade. Attenuation, in whatever specific form it takes, implies the existence of limitations on the owner's rights to change the form, place or substance of an asset, and to transfer his or her rights in it to others at a mutually acceptable price. An asset can be defined not only by its technical properties but also by the particular set of legal restrictions governing the use and exchange of the item. For example, 2 physically identical houses constitute different assets when the property rights attached to each are different, and they will have different market values.

PROPERTY RIGHTS STRUCTURES AND ECONOMIC INCENTIVES

The scope and content of property rights over resources affect the way that people behave in a world of scarcity. In other words, individuals respond to economic incentives, and the pattern of incentives present at any time is influenced by the prevailing property rights structure. The property rights approach gives a greater role to the individual decision-maker within an organisation. The business manager, for example, is no longer regarded as a passive agent, but is assumed to seek his or her own interests and to maximise utility subject to the limits established by the existing organisational

structure. This approach is different from classical economic analysis which assumes the manager will act solely to maximise firm profits; the new approach reflects the perspectives of both the individual and the organisation's position in the decision-making process.

Another important difference is that explicit account is taken of the fact that many different patterns of property rights can exist in human societies. Thus models need not be confined to those implying profit maximisation and a limited set of ownership conditions that are necessary for the emergence of the classical capitalist firm. By considering the effects of various property rights assignments on the penalty/reward system, detailed analysis of the interrelations between institutional arrangements and economic behaviour becomes feasible. This means that economic behaviour taking place in quite varied socioeconomic environments can be discussed in terms of a single analytical framework.

TRANSACTIONS COSTS

Adding to the flexibility and comprehensiveness of the theory is the recognition that transactions costs are positive in virtually all cases. Indeed, the costs incurred by individuals in defining, policing, negotiating and enforcing resource rights and contractual agreements may often be very large. The existence of a structure of transactions costs within an economy does not, however, affect the relevance of the basic market logic; the concept of economic efficiency remains, but it becomes possible to explain the conditions under which markets will function well or not.

The rejection of profit maximisation as the objective function and the shift to utility maximisation opens up new possibilities for studying different patterns of managerial behaviour, and permits greater insight into the way firms operate when faced with different institutional conditions. This is so because regardless of the number, character or diversity of the goals established by an individual decision-maker, they can always be incorporated into some type of utility function. At the same time, the institutional background translates into a corresponding set of constraints and the utility function can be maximised subject to these. Classical marginal analysis for pricing and output determination is maintained while each decision-maker is assumed to be motivated by self-interest and to move efficiently toward the most preferred operating position open to them.

A GENERAL THEORY OF EFFECTIVE COMMODITIES

To generalise, society can be said at any given time to consist of individuals with initial endowments composed of quantities of various "effective commodities" (specific commodities plus associated property rights). Assuming there are m decision-makers and n effective commodities, the system's initial allocation can be described by a matrix A, where any element in the matrix, $a(ij)$, indicates the quantity of the effective commodity j held by individual i.

With an extensive network of markets and institutional conditions favourable to trade, the m decision-makers can be expected to exchange effective commodities in an effort to increase their utility levels. This generates a complex production-exchange process resulting in a reconstituted matrix at the end of the period. Through trade, each person will secure a new set of effective commodities and achieve equilibrium at a higher level of utility than was possible in the pre-trade situation A. The new matrix, B, will reflect different holdings of effective commodities and will be Pareto optimal, so that no person's utility level can be increased without decreasing at least one other person's.

With a change in the law affecting conditions of ownership, the set of effective commodities in the system and the distribution of welfare will be altered, from B to say, G, with s effective commodities. Another production-exchange process will occur and a new equilibrium of H will be determined that is different from the distribution based on matrix B.

The difference is not a movement from one point on the original welfare frontier to another. The shift from the A,B matrices to the G,H matrices involves the creation of a new welfare frontier altogether. Changes in the legal restrictions on property rights and freedom to use resources will directly affect the productive capabilities of the economy and the position of the welfare frontier. If G represents a situation where property rights have been attenuated significantly relative to A, then there will be a reduction in allocative efficiency and the welfare frontier will lie within the "less attenuated" economy.

PROPERTY RIGHTS AND SOCIETAL WELFARE

Conventional economic theory gives little attention to the relation between property rights and welfare. In the real world though, laws and regulations concerning property exert a system-wide influence on the allocation of resources, the composition of output, the distribution of income and so on. It is also true that the sharpness of specification of property rights and their development over time affect welfare. The logic of competition (the consideration of alternative uses for resources) indicates that a more complete and definite specification of individual property rights diminishes uncertainty and tends to promote efficient allocation and use of resources.

The property rights approach is also more adaptable to the analysis of economic change. A dynamic economy characterised by technical progress, the opening of new markets, the introduction of new products and changes in resource endowments will generate new price configurations and provide opportunities for the restructuring of property rights. This changes the cost-benefit calculations that decision-makers perform when attempting to maximise their levels of utility. Such changes tend to create opportunities for individuals to capture profits by engaging in activities that were not previously considered profitable. To do so, however, requires the formation of definite contractual agreements that allow the participants to claim the expected benefits. It also may be necessary to change contractual forms in order to lead to a new set of property rights assignments.

PROPERTY RIGHTS ANALYSIS OF STATE OWNED ENTERPRISES

One application of the property rights approach is the comparative analysis of state owned enterprises (SOEs) and private firms. Private firms are owned by individuals whose wealth is increased or decreased by the commercial performance that firm managers generate. Individual owners have strong incentives to monitor the behaviour of managers and employees, so as to enhance the present value of the firm. The participants in the share market will similarly monitor the firm's performance and outlook, with their assessment being reflected in share prices. The share market provides an efficient and low cost means of trade in firm shares, thus disseminating information about the firm's performance and future prospects. In addition, the possibility of corporate takeover is always present and this exerts a disciplining force on incumbent managers.

In SOEs the taxpayer-owners do not have individual property rights; they cannot sell their shares in the SOE if they judge it to be poorly managed or buy additional shares if they assess it positively. It is possible that taxpayer-owners might capture some benefits from increased efficiency of SOEs through tax reductions. However, these benefits would be spread over many taxpayers and would be difficult to distinguish from the effects of other government fiscal decisions. In addition, the costs of monitoring the performance of SOEs and attempting to influence the behaviour of managers—that is, the transactions costs of managing this asset—are too high for individual taxpayer-owners.

The near impossibility of bankruptcy and the lack of threats of corporate takeover complete the differences between private firms and SOEs. The consequences are predictable: because of inadequate monitoring and the lack of performance-based rewards and sanctions, managers and employees will tend to work less diligently and will acquire various perquisites. This analysis assumes that the SOE board of directors would be unable to provide the direction to the SOE management, over the longer term, that private shareholders would.

Such theoretical analysis creates a strong case for the privatisation of SOEs if economic efficiency and taxpayer-owner utility maximisation are the objective functions.

AN ECONOMIC APPROACH TO INTELLECTUAL PROPERTY RIGHTS

Economists view intellectual property rights, conveyed through patent and copyright, as rights granted by governments to allow inventors and creators to capture the economic returns from the inventive or creative outputs they produce and to encourage the production and dissemination of such works. Remedial action for infringement of these rights is available through civil proceedings and there is no role for state enforcement. In this way copyright and patent are similar to other property rights.

COPYRIGHT

The function of copyright legislation is to define and protect the property rights of creators. In an economic framework, copyright protection is intended to provide economic returns to producers but only when this is also in the long-run interest of society as a whole. Copyright protection increases the cost to consumers of using existing copyright material. However, this is balanced by the larger quantity and a wider variety of outputs. For this reason, creators and consumers have a common interest in effective copyright legislation. In the absence of copyright protection, it would be possible to copy an original literary work, for example, and in this way prevent the creator from receiving all of the returns from this work.

In the economic approach, property rights conferred by the state are designed to produce the maximum benefits for society as a whole. Thus it may be desirable to place limitations on such rights in order to promote a more broadly based social welfare.

Creators of copyright material clearly favour the form of copyright that generates the largest incomes for them. Copyright by its nature confers some degree of monopoly power but since copyright works compete with each other, the degree of monopoly will be limited in many cases. This is because copyright protects only the form of expression of an idea; independently created outputs are protected even if identical. Thus the extent of monopoly is limited relative to patents, for example.

Finally, in performing a cost-benefit analysis of a copyright system, economists view royalty payments to foreign creators by nationals of small countries as costs without benefits. This is because these payments have no impact on the volume or variety of foreign creative works. However, governments may choose to become party to international treaties that will impose net outflows in copyright payments as part of a broader international trade strategy.

PATENTS

A patent is a time-limited monopoly granted by the state to provide an incentive for the creation and improvement of new and useful technology. A Canadian patent confers to the patentee the sole right to make, use or sell the invention (whether it be a product, process or apparatus) and to prevent others from doing so during the life of the patent.

Patents embody information. Once information is produced it is a public good: that is, the use of it does not diminish the stock and it cannot be appropriated by individuals. If the best allocation of resources is to be achieved for society such information should be available at minimal charge. However, if the information about an invention was made freely available as soon as it was discovered, there would be no incentive for any private individual or firm to incur the risks and expense involved in undertaking research or investing in new processes or products.

If resources are to be devoted to research and development in a free market economy, a reward for inventions is necessary. Patents are a device for ensuring that such a reward is made possible.

The patent system gives a benefit to society in that it encourages early publication of inventions, but it extracts a cost in that it gives a monopoly to inventors (or their agents), and therefore denies society free exploitation of the invention until the patent expires. One consequence is likely to be that prices for goods embodying the invention are higher than they would be in free market conditions, as long as the patent remains in existence. In the absence of a patent system, however, it is likely that there would be much more industrial secrecy than at present, and the publication of information about new inventions would be long delayed. In addition, particularly where products could easily be copied, it is possible that innovation would be much reduced if patent protection were not available.

Considerations such as these have led governments to conclude that some special incentive is needed in the case of inventions—an incentive not available for industrial investment generally—and this explains their support for the patent system. It is argued that the patent system is needed, not so much to support invention, much of which would occur anyway, but to support the more costly development and innovation.

Of the studies of the patent system, Taylor and Silberston (C T Taylor and Z A Silberston 1973 *The Economic Impact of the Patent System* Cambridge, Cambridge University Press) is one of the more comprehensive. They found the general impact of patent protection on inventive and innovative effort, and on prices and profits, to be marginal. The only exception of real importance is pharmaceuticals, which is an industry heavily dependent on patents.

The patent system has a differential impact on small inventors and those in large firms. It also has different impacts on industrialised and developing countries. Small inventors rarely have access to the funds needed for innovation and commercial exploitation. They usually have to rely on large firms for this. Problems may arise when arrangements for exploitation are being made between individual inventors and large firms, although the holding of a patent by the individual inventor does give the inventor considerable safeguards. Consequently, small inventors are among the strongest supporters of the patent system.

As far as countries are concerned, the great bulk of patents originate in large, highly industrialised countries. Most patents registered in small, developing and newly industrialised countries originate from abroad. In these circumstances some of these countries feel that they are maintaining the patent system for the sake of rich countries and their multinational firms, and they sometimes give only limited protection in certain fields (for example pharmaceuticals) as a result. It is, however, difficult to deny that technology transfer between countries is facilitated by the patent system.

THE CANADIAN EXPERIENCE IN COPYRIGHT AND PATENT LAW REFORM

COPYRIGHT

(This section is based on D A Smith "Recent Proposals for Copyright Revision: An Evaluation", *Canadian Public Policy*, XIV:2: 175–185 1988.)

Canadian copyright legislation has been little changed since 1924 and is ineffective in dealing with many current policy issues. Copyright revision began with the appointment of the Ilsley Commission in 1954. This was followed by a directive to the Economic Council of Canada in 1966 and its Report on Intellectual and Industrial Property in 1971. The Department of Consumer and Corporate Affairs (CCA) was established in 1968, with a Bureau of Intellectual Property headed by an Assistant Deputy Minister (Assistant Secretary level in New Zealand). The Bureau had complete responsibility for all forms of intellectual property, including policy development, legislation revision, international treaty negotiations and administrative operations.

In 1977 CCA published *Copyright in Canada: Proposals for a Revision of the Law* and between 1980 and 1983 it published a further 16 research studies to further examine issues not adequately treated in the 1977 report. In 1984 CCA and the Department of Communications jointly produced *From Gutenberg to Telidon: A White Paper on Copyright.* The White Paper was then referred to the House of Commons Sub-Committee on the Revision of Copyright which produced a report entitled *A Charter of Rights for Creators* (the Charter) in October 1985. These proposals became the basis for the amendments to the Act introduced by the government in 1987. Many of them differ from the White Paper recommendations and the major items will be discussed below. The Charter proposals can be seen as an attempt to increase the welfare of the creative community, with little regard for treaty obligations, possible international reactions and market realities. In contrast, the White Paper accepts the treaties and domestic and international market conditions as constraints within which a copyright system is designed to maximise total societal welfare (a property rights approach).

INTERNATIONAL OBLIGATIONS AND THE RECIPROCITY PROPOSALS

The Charter's reciprocity proposals are key to its approach. They are intended to limit the international outflows of copyright payments by providing protection on a reciprocal basis with other countries. Quantitatively the most important of these works are sound recordings and performances of performers, neither of which were protected under existing United States legislation. The feasibility of these proposals is questionable since they are contrary to the Universal Copyright Convention which requires national treatment for non-Convention works.

In addition to being of questionable legal status, the reciprocity proposals ignore the relationship between copyright policy and other international trade issues. The United States has placed some emphasis on intellectual property issues in the current round of GATT negotiations and it could be expected to take retaliatory measures if copyright protection was diminished.

Indeed, article 2004 in the Canada/United States Free Trade Agreement calls for co-operation in improving the protection of intellectual property. The reciprocity proposals could hardly be thought to be consistent with the FTA article.

From an economic perspective the reciprocity proposals make little sense because Canada is a net importer of copyright works. Canadians would be less well off since their increased payments to foreigner creators would have no effect on the supply of offshore copyright works. While a small number of Canadian creators would become better off under the proposals, greater benefits could be provided to the creative community through direct subsidy payments rather than through the copyright system. All of the above suggests that the reciprocity proposals are seriously flawed and are not appropriate principles upon which to build other aspects of copyright policy.

PERFORMING RIGHT FOR CANADIAN PERFORMERS

The proposed right would be exercised collectively by Canadian performers and would be provided to non-nationals only on a reciprocal basis. This recommendation of the Charter is contrary to those of the White Paper and an economic study of the subject (S Globerman and M Rothman 1983 *An Economic Analysis of Performer's Right* Ottawa: Supply and Services). Both conclude that a performer's right would have little impact on either the numbers of performances produced or the revenues generated. This is because performers are already compensated through contracts with recording and TV firms; there would be no net additional revenues created nor would there be any increase in the demand for performances. There would be an increase in transactions costs through the operation of the collective. This appears to be another attempt to generate revenues for Canadian performers through the copyright system that might be done more efficiently through a direct subsidy programme.

PERFORMING RIGHT FOR SOUND RECORDINGS

The Charter recommended that sound recordings be protected as a separate category of copyright material. This would generate revenues for record companies from the sources from which the performing rights societies now collect. This proposal would be contrary to the 1971 Copyright Act amendment which was passed to prevent sound recording licences (SRLS). Since 90% of records made in Canada in 1971 used United States master tapes, this would have created massive revenue outflows from Canada.

To limit outflows the Charter recommends that they should be granted only on a reciprocal basis. Since no such rights exist in the United States it is assumed that this will continue to be the case. Leaving aside the weakness of the reciprocity issue, there is no domestic economic rationale for the proposal. The logic of making radio stations pay record companies for playing recorded music is not at all convincing from a societal perspective. It will provide no incentive for the production of copyright music. Indeed, it may take royalties from copyright holders such as composers. A detailed economic study of the issue concluded that there would be limited benefits and

substantial costs associated with introducing SRLs (J Keon 1983 *An Economic Analysis of a Performer's Right* Ottawa: Supply and Services).

REGULATION OF COLLECTIVES

A major responsibility of the Copyright Appeal Board is dealing with the potential monopoly power of collectives. In particular, the Board would monitor the pricing behaviour in a market structure with few sellers. An important economic consideration when increasing copyright royalties is the trade-off between the incentive effect of higher prices for producers and the restrictive effect on consumers. Thus it is not at all clear that higher royalties will generate higher gross revenues for creators as a group or what the impact on individual producers will be.

Because of technology that permits copyright works to be reproduced at low cost by a diverse group of users, the collective enforcement of copyright is a more attractive option than individual enforcement. The White Paper viewed the Board as being concerned with collectives abusing monopoly power in setting tariffs and generally regulating the operations of collectives. This would also involve adjudicating disputes between collectives and their members. The Charter recommended against this without giving convincing reasons for it. With the proposed creation of new rights, there would be a number of new collectives springing forth. There is no assurance that they would operate in the same manner as existing performing right societies, which are generally supported by their members.

OTHER ISSUES

The 3 other major issues were reprography, home taping and computer software. The major area of reprography concern was with educational institutions: it appeared that a consensus was being developed amongst the interested parties around proposals for the collective enforcement and distribution of reasonable copyright royalties.

The home taping of audio and video materials was the subject of an empirical study that surveyed a representative sample of Canadian households in the early 1980s (a detailed annotation of the study is not available, but it was done by J Keon and published as one of the copyright revision series by Ottawa: Supply and Services). The study concluded that this problem was one of relatively small proportions. It found that active "home tapers" were also high consumers of audio and video recordings and it was not clear what effect increasing the cost of home taping would have on the purchase of copyright works. For example, if "home tapers" were allocating a fixed budget to this consumption item, introducing an excise tax on blank tapes, let's say, could very well reduce their purchases of original materials as well as blank tapes. It was also found that taping of television broadcasts was largely done for rescheduling purposes, that is to view programmes that would otherwise not be viewed. In addition, it would be difficult to equitably distribute the revenues collected for the purposes of compensating those who suffered royalty losses. Finally, the bulk of the royalties collected would flow out of the country and thus represent net costs to Canadian society.

There was consensus that protection of software under copyright was not appropriate, due to rapidly advancing technology and the diminishing value of much software. Work was proceeding in WIPO on developing international agreement on an appropriate kind of protection.

CONCLUSIONS

In May 1987 the government decided to separate the proposed legislation into different "packages" and to introduce each separately in order to implement necessary changes in non-contentious areas. The performing rights for both performers and sound recordings were not included in the first package.

This result can be interpreted as a defeat of the "creators first" approach of some culture community advocates. But it also can be seen as the failure of the property rights approach advocated by a team of public service economists and lawyers, supplemented by external expert researchers. One reason for the latter outcome is the wide range of issues impacting on different well-organised interest groups whose individual interests often appeared to be at odds with that of the general public. Promoting the "public good" is difficult in such circumstances. The ability of the creator groups to mobilise the energies of public servants in cultural policy portfolios added to the strength of their arguments.

Furthermore, the low level of public knowledge and concern with copyright policy left the interests of society in general being defended by apolitical public servants. They were clearly at a disadvantage in responding publicly to the representatives of the cultural community. Finally, the wide range of the Consumer and Corporate Affairs (CCA) mandate (CCA has policy, administration and enforcement responsibility for competition law, federal consumer affairs law, federal corporate law, bankruptcy law and intellectual property law) and the variety and complexity of copyright issues made it difficult for CCA Ministers to become sufficiently comfortable with the subject to discuss the issues confidently either in public or with their Cabinet colleagues.

PATENTS

Patent legislation in Canada has been revised more frequently than copyright, but it has been no less controversial. It was the subject of review by the Ilsley Commission and by the Economic Council of Canada. In 1976 CCA published the *White Paper on Patent Law Revision.*

In the 1960s concern was raised over the level of competition in the drug industry and the exploitation of monopoly powers created by drug patents. Three major studies were undertaken during this period:

- the 1963 Restrictive Trade Practices Commission Study, which recommended the abolition of drug patents;
- the 1965 (Hall) Royal Commission on Health Care, which advised national price controls and compulsory licenses to import, manufacture and sell drugs;

- the 1966 (Harley) House of Commons Committee on Drug Costs and Prices, which recommended compulsory licences to import drugs in all forms.

In 1969 the government amended the Patent Act to provide for compulsory licensing to import drugs into Canada. This was intended to reduce barriers to entry to the industry and lower prices to consumers by relying on market forces and increased competition from generic suppliers. The Canadian policy was different than most other OECD countries, since those countries relied on regulation and other direct policy instruments to control prices and to influence the performance of pharmaceutical firms. From this point on the major issue in patent policy was the impact of compulsory licensing.

THE CANADIAN PHARMACEUTICAL INDUSTRY AND EVENTS AFTER 1969

(The material in this section is derived from Consumer and Corporate Affairs Canada 1983 *Compulsory Licensing of Pharmaceuticals: A Review of Section 41 of the Patent Act* Ottawa: Supply and Services.)

The Canadian pharmaceutical market, comprising about 2% of world sales, is dominated by multinational firms which supply 90% of the drugs in Canada. While there are 138 firms in the industry, the largest 20 control more than two-thirds of the market. Fifteen are United States multinationals, 3 are Swiss and 2 are British. Despite the large number of firms and relatively small share of the total market that each firm holds, competition within the industry is less extensive than might be expected. This is because supply and demand for one therapeutic class of drug has little or no impact on the other 37 classes. Firms tend to specialise in a limited range of therapeutic classes, resulting in high concentration levels. In 1982 the leading 2 firms in any one class accounted for between 25% and 100% of sales.

The market for pharmaceutical products differs from most consumer products in several ways that tend to reduce price competitive behaviour. In the case of prescription drugs (accounting for two-thirds of total sales) it is the doctor, not the consumer, who chooses which drug will be prescribed. That choice is usually based on factors other than price. Moreover, unlike most consumer products, the prescription drug is a necessity to the consumer because it represents a choice between good and bad health, or even between life and death.

The manufacture of pharmaceuticals can be divided into 2 processes: synthesising of chemicals to produce the active ingredients of a drug, and compounding of the active ingredients into final dosage form. Neither of these processes is labour intensive, dependent on the proximity of raw materials or greatly influenced by transportation costs. This allows production facilities to be located in a wide variety of alternative sites. Chemical synthesising is often done in countries offering the greatest financial incentives and tariff-free access to large markets. All other markets are then supplied by shipping active ingredients in bulk or final form to branch plants in market countries. The absence of "arm's length transactions" in active ingredients within multinational firms has caused some observers to suggest that costs of raw materials are inflated to lower apparent profits and taxes in final market countries. A sample of 14 major drugs in Canada revealed that intra-

firm prices were more than 3 times higher than the prices paid for the same drugs in the open market.

Between 1969 and 1982 the Commissioner of Patents granted 290 compulsory licences for 62 drugs. As of January 1983, 43 of the 62 drugs had been marketed by compulsory licensees and 21 of the 50 best selling drugs faced competition from compulsorily licensed generic products. Generic companies purchase active ingredients from independent chemical manufacturers on the international market and compound them into final dosage form in Canada. Generic products accounted for 9% of total sales in 1982 and 4 firms (2 Canadian and 2 United States) dominated the generic market.

The 43 drugs that have entered the market were introduced within an average of 11 years after the original. Two generic drugs were marketed within 5 years of the original, but 24 appeared 10 or more years later. For the drugs introduced by the originator since 1969, 15 have been subject to compulsory licences, with an average lag of 8 years between the originator's drug and the generic.

The first generic product usually enters the market at 10% to 20% below the cost of the original; this differential is maintained if the patentee changes the price of the original. Prices are usually driven further down only with the entry of additional generic products. Various studies have documented the price lowering effects of generic competition in Canada. A United States-Canada comparative study found that it would have cost $375 million in the United States to purchase the $193 million worth of 29 licensed drugs that were sold in Canada in 1982, a difference of $183 million. The government policy to rely on market forces and competition was clearly working and little impact on industry employment, output or profit trends was registered.

THE REVIEW

In June 1983 CCA published *Compulsory Licensing of Pharmaceuticals: A Review of Section 41 of the Patent Act* "to foster informed discussion on the issue .... and to focus discussion on realistic alternatives for change".

In April 1984 the (Eastman) Royal Commission on the Pharmaceutical Industry was established. In February 1985, it reported that compulsory licensing was "an effective component of an appropriate patent policy for the pharmaceutical industry, but that its terms should be modified". The major recommendations in this regard were:

- a period of exclusivity from generic competition for new drugs of 4 years from receiving the Health Department Notice of Compliance (NOC) which effectively authorises marketing;
- the creating of a fund financed by firms holding compulsory licences based on the value of the licensee's sales and the industry's world-wide ratio of R & D to sales, plus 4%;
- a distribution scheme for those firms whose patents are compulsorily licensed based on the value of sales of their patented products by compulsory licensees, their ratio of R & D to sales in Canada and other factors, plus 4%.

This was a variation on the variable royalty scheme designed to reward those patentee firms for performing research and development in Canada. A number of other recommendations were made concerning the approvals of new drugs, their distribution, marketing and research and development activities (details of all recommendations are contained in the Eastman Report).

In November 1987 amendments to the Patent Act were passed. (It should be noted that the Conservative party came to power after the September 1984 federal election. In March 1985 the "Shamrock Summit" was held in Quebec City where President Reagan and Prime Minister Mulroney discussed the drug patent issue. The previous pharmaceutical policy had been implemented by the Liberal governments of Prime Minister Pierre Trudeau.) The amendments permitted pharmaceutical patentees to enjoy a period of exclusivity from compulsory licensing for 7 to 10 years from NOC and created a Patented Medicine Prices Review Board with powers to systematically collect detailed cost and revenue data and to revoke benefits in the case of excessive prices. Thus a new regulatory body was the trade-off for the periods of exclusivity that were roughly what the existing system of licensing had been generating. However, the trend of diminishing effective periods of exclusivity, particularly for successful new drugs, was effectively terminated.

OTHER ISSUES

The other issues dealt with involved a new Patent Office fee structure, greater co-ordination with the United States and European Patent Offices to accelerate the patent examination and grant process and a special programme to enhance the technological information dissemination role of the Patent Office. The new fee structure was designed firstly to implement a cost recovery initiative and secondly through the use of renewal fees, to purge the files of patents that patentees chose not to continue to protect. Thus patents that were not being worked and were unlikely to be worked in future could be removed from the files. This would make the files more manageable and allow the provision of better service to clientele.

The co-ordination efforts with the other Patent Offices were a reflection of the world-wide trend to improve their operational efficiency and facilitate the recognition of patents granted in other jurisdictions. Finally, the Patent Office had been given a new mandate to disseminate the data in its files in order to better serve the public information and technological advancement goals of the patent system.

CONCLUSIONS

The resultant Canadian policy solution to the pharmaceutical patent issue is a melange of compulsory licensing and a new regulatory regime. The Board has detailed industry monitoring authorities at the firm and product level (see the Patented Medicines Regulations, *Canada Gazette*, Part II, 28 September 1988) and disciplinary powers to deal with drug prices that it judges to be excessive (see *Patents, Compulsory Licenses and the Patented Medicine Prices Review Board*, mimeo, 15 August 1988). The 1987 amendments have

introduced many additional limitations on the property rights of all pharmaceutical firms in Canada, have placed additional requirements for entry into the industry (data provision) and have introduced operational uncertainties through the Board's potential exercise of its disciplinary powers. It is difficult to assess the eventual impact of the new environment on the Canadian pharmaceutical industry. However, property rights theory would suggest that increased property rights limitations and increased uncertainties may have reduced the welfare frontier for Canadian society.

INTELLECTUAL PROPERTY: THE FUTURE

Jack Hodder

(Address to the Joint Conference of the Institute of Patent Attorneys of Australia and the New Zealand Institute of Patent Attorneys, Queenstown, 30 March 1988)

Intellectual Property: The Future

Jack Hodder

Fully conscious of Chinese and other proverbs which foretell doom to those who attempt to foretell the future, I offer the following predictions as a prelude to what I have to say:

- Human inventiveness will continue to create new ideas, new technologies and new schemes for commercial exploitation of both.
- The quality of life and level of economic activity in industralised societies will depend increasingly heavily upon such ideas, technologies and exploitation.
- New Zealand will continue to be a small country more influenced by the world than influencing it.
- Australia will continue to be more or less 1200 miles away—the nearest populated land mass, and with more or less friendly inhabitants.
- There is unlikely to be any shortage of work for patent attorneys, barristers, and law reformers on both sides of the Tasman in the intellectual property area.

Those predictions are modest but I would emphasise them. They form the fundamental bases from which the New Zealand law reformer must start when considering that area known as intellectual and/or industrial property.

As my invitation to address this distinguished gathering is based on my current status as a professional law reformer, as opposed to any ability to make predictions, it may be appropriate to say something of the New Zealand Law Commission.

The Law Commission Act 1985 establishes the Commission as a central advisory body for the review, reform and development of the law of New

Zealand. There is an emphasis on systematic review, reform, and development, and also on clarity. The Commission currently has a full complement of 6 Commissioners, including its President, Sir Owen Woodhouse, former President of the Court of Appeal. It is my inclusion in that membership which brings me here today.

Law reform commissions are to be found throughout the common law world. Our Commission is somewhat unusual in having a "self-start" power. Most law reform agencies are required to respond to references or requests from a Minister or the government of the day. Our Act requires that we respond to any such requests from the Minister of Justice, but does not limit our work to such requests. And it is in an exercise of that self-start power that our Commission has resolved to include in its 1988 and continuing programme the topic "Aspects of Intellectual Property".

In deciding to include "Aspects of Intellectual Property" on its programme, our Commission was conscious of the demise of IPAC, and of the importance of industrial and intellectual property in the commercial world. We begin with no particular preconceptions, but are proposing to develop some priorities with the assistance of a small advisory group or committee.

We see the primary function of the committee as advising on priority areas to which the Commission might commit research resources, and it is intended that it act as a primary sounding board for suggestions developed by such research. We are presently of the view that the committee should be small as this has advantages in the logistics of meetings and speed of dispatch of business. However, it is not meant to be the only sounding board or source of advice and the Commission's general approach—which involves a high degree of consultation—will be applied to all matters in this area as in others.

Before leaving the Commission, I might mention that a number of its other activities are likely to have an impact in the intellectual property field. The following are examples that come to mind:

- Company law—the Commission has a brief to review the law relating to companies, and the law on company names may well require some rationalisation; I am aware that a submission by the New Zealand Institute of Patent Attorneys is in the process of preparation and, having had something in the nature of a sneak preview of its outline, look forward to reading the detail with considerable interest.[1]
- Aspects of damages—the question of whether exemplary damages are available, or should be, is one which is as relevant in the intellectual property field as in most others. Our courts have not denied their power to award such damages in this area (as they have in England: see the *Catnic* case [1983] FSR 512), although there are no cases outside the special Copyright Act 1962 provision (s 24(3)) of which I am aware. But there are a number of anomalies in the area of exemplary damages, and also a continuing debate as to whether they achieve the object which is normally claimed for them.
- Limitation—some of you may be aware that the Commission has produced a discussion paper which has recommended an overhaul of limitation laws based on a 3 year standard limitation period which

may be extended in the absence of knowledge up to a 15 year long stop. It would be fair to say that the main focus of enquiry has been in the area of latent damage as illustrated in professional negligence and building collapse cases. Nevertheless, there are some implications beyond the obvious in the intellectual property field, not least the difficulty where the infringements are backdated upon the sealing (or extension) of a patent, the application for which has wandered through the Patent Office processes with the usual lack of speed.[2]

- Arbitration—although many intellectual property disputes get to court in a very short time on interlocutory applications, there appears to be more interest being paid in this and other areas to the resolution of disputes outside the orthodox court system. It is in that context that the Commission has taken up the question of a review of New Zealand's arbitration laws.[3] At this time our legislation is modelled on superseded English legislation. There is a basic question as to whether we might follow the improved English model, the uniform Australian legislation, or an international standard as provided by the UNCITRAL Model Law on arbitration.
- Reciprocal enforcement of judgments—discovery of the variety and complexities involved in enforcement of judgments and awards from abroad has stimulated us to include this topic on our work programme, in the belief that it will be of particular relevance in disputes involving commercial relations between Australia and New Zealand.
- Legislation—last, but not least, we have a broad reference from the Minister in the area of legislation. One of the objects of this is to improve the quality and clarity of the form in which legislation is passed. In somewhat simplistic terms, the object is "plain English". We have not yet focussed on how to render much of the Trade Marks Act 1953 or the term "manner of manufacture" in the Patents Act 1953 into such English, but we are happy to accept suggestions.

THE ECONOMIC CONTEXT

The economic significance of intellectual and industrial property rights needs little emphasis to an audience such as this. I mention it partly to indicate that it will not be overlooked by our Commission. We have noted for example, that the Ministerial working party on science and technology commented in their November 1986 report, *Key to Prosperity* (at page 84) that

> protection for innovation and new technology is very important. It encourages research and development as companies know they can at least obtain some form of protection for the investment risk, time, and effort involved.
>
> The heavy reliance in New Zealand on offshore markets requires comprehensive international coverage, the costs of which often become prohibitive. Subsequent international enforcement and foreign legal environments add additional burden to New Zealand enterprises.

For the avoidance of doubt, as legislation sometimes misleadingly says, I should point out that it is unlikely that our Commission has jurisdiction to deal with the working party's recommendation for 150% tax deductions in relation to R & D expenditure. The argument for that was based on tax neutrality with Australia, but it has been rebuffed in New Zealand by the revenue ministers with a localised version of the "level playing field" argument.

The New Zealand intellectual property law reformer must also have regard to the interesting if inconclusive discussion paper prepared by our Department of Trade and Industry, *Intellectual Property Protection—A Business Perspective* (June 1987) and the Australian Copyright Council's 1987 report, *Copyright—An Economic Perspective.* The latter report highlighted the fact that copyright-based industries in Australia grew at an annual rate of 6.1% in the 1981–1986period or twice the average 3% achieved over the economy as a whole in that period. The report also contained an estimate that the contribution of copyright-based industries to GDP in Australia was of the order of 4.5%.

THE TRANS-TASMAN CONNECTION

The acronym CER—for closer economic relations—has become well known on this side of the Tasman in recent years as representing an important, if not always perfectly understood, trade relationship with Australia. Anecdotal evidence suggests that it is not so well understood on the other side of the Tasman. The primary idea is the removal of impediments to trade between our 2 countries, and in the business law area the favoured process for facilitating such trade is described as "harmonisation". This is a somewhat elastic phrase and seems to represent uniformity of laws and practices to some people, but a mere removal of tariff barriers to others. The CER agreement is under review during the course of this year with expectations that current work by officials in Canberra and Wellington will result in Prime Ministerial statements of substance in the second half of this year.

From an intellectual property perspective, this arrangement is likely to be of continuing importance, particularly for New Zealand. Among the implications of CER in this area are:

- An increasingly critical focus on non-tariff barriers to trade—including intellectual property licensing arrangements—and attempts to achieve a high degree of uniformity between competition laws. Some of the philosophies underlying the EEC resolution of the competition/intellectual property conflict are likely to find their way into this area, notwithstanding that CER does not involve a common market.
- Models for change will increasingly be sought in Australia, rather than in the United Kingdom, and CER may prove decisive where the policy choice between models offered by each country are otherwise evenly weighted. This point can be overstated, and it is important to recognise that both countries exist in an international environment in which United Kingdom proposals are likely to remain both accessible and influential.

- Some attention to removal of barriers on the supply of services between the 2 countries. This is undoubtedly a question of some sensitivity, but may mean that people in Canberra and Wellington (not the Law Commission) are going to be asking why it is that firms based in Sydney (or Auckland) cannot set up branch offices in Auckland (or Sydney). The underlying (if not immediate) proposition is that services ought to be available for supply from one side of the Tasman to the other without impediment from professional or licensing restrictions.
- Increased institutional cooperation—between patent offices, law reform agencies, professional bodies, and commercial interest groups.

So much for generalities. For the law reformer, as well as for this audience perhaps, the real interest in the future lies in changes in substantive law, and there seems no harm in embarking on a wholly "without prejudice" (but necessarily selective and superficial) tour through the conventional but not exhaustive subdivision within the intellectual property field, namely copyright, patents, trade marks and names, and trade secrets.

COPYRIGHT

Having mentioned the demise of the United Kingdom as a model for law reform in this part of the world, I proceed to an early contradiction by suggesting that progress in the copyright field in this country is likely to be influenced by the final shape of the legislation currently before the United Kingdom Parliament. At the present time, our Department of Justice has the Copyright Act 1962 under review. It published a discussion paper in 1985 and has received and analysed submissions, but further progress in the review does not appear to have a high priority.

As many of you will know, a Copyright, Designs and Patents Bill was introduced into the Westminster Parliament in October 1987 as a blueprint for intellectual property protection for the next 30 years.[4] The Bill presently runs to 190 pages and 277 clauses and has been making slow progress through the legislative maze. After 40 hours in the committee stages of the House of Lords—where the originality of the word "miaow" in Rossini's cat duet was debated vigorously—the United Kingdom Government withdrew to reconsider some of the major features of the Bill.

The copyright and designs parts of the Bill owe much to the Whitford report of 1977 (*Copyright and Designs Law*, Cmnd 6732), and do appear to be drafted in a coherent sequence and reasonably accessible language. Thus the very first section provides:

> (1) — Copyright is a property right which subsists in accordance with this Part in the following descriptions of work—
>
> (a) original literary, dramatic, musical or artistic works,
>
> (b) sound recordings, films, broadcasts or cable programmes, and
>
> (c) the typographical arrangement of published editions.

The benefits of copyright are promptly spelt out in s 2:

> 2 (1) The owner of a copyright in a work of any description has the exclusive right to do the acts specified in Chapter II [to copy, to publish, to perform, to broadcast, to adapt: cl 16] as the acts restricted by the copyright in a work of that description.
>
> (2) The author of certain descriptions of copyright work has the rights conferred by Chapter IV (moral rights), whether or not he is the owner of the copyright.

As to ownership and authorship, the Bill presently provides (among other things) that the author of the work is the first owner of any copyright in it, except where it is made in the course of employment. Thus the author would retain copyright in a commissioned work. The Bill also makes provision for computer-generated works: the author is to be taken to be "the person by whom the arrangements necessary for the creation of the work are undertaken" (cl 9(3)).

But perhaps the central feature of the copyright provisions to an Australasian observer is the new recognition of moral rights. By way of background, it may be recalled that moral rights—sometimes summarised as disclosure, withdrawal, paternity, and integrity—are part of the European approach to intellectual property and reflected in the Berne Convention, but not the Universal Copyright Convention. The debate over recognition of such rights has resulted in (among other things) the failure of the United States to ratify the Berne Convention and its role in forming the UCC. Doubtless the accession of the United Kingdom to the European Economic Community has had some impact on the appearance of moral rights provisions in the current United Kingdom Bill.

The moral rights provided under the Bill are:

- A right to be identified as the author of a copyright work (or director of a copyright film), provided that such a right has been asserted in writing or on an assignment; the right does not apply to certain works—such as computer programmes and typefaces, or in certain circumstances—such as fair dealing, and usage in examination questions or parliamentary and judicial proceedings.
- A right not to have the copyright work (or film) modified. "Modification" means any addition to, deletion from, alteration to or adaptation of the work (other than a translation into another language oranother musical register). Thus this provision would seem to be sufficiently wide to meet, for example, Woody Allen's complaint about the adding of colour to black and white movie films.
- A right not to have any works falsely attributed to a person as author (or director).

The Bill provides that such moral rights are not assignable but may be bequeathed on death either with or separately from the copyright. The remedies for infringement of moral rights are injunction and damages. Such infringment is "actionable as a breach of a statutory duty owed to the person entitled to the right", but the damages for infringement of the right to be identified as author (or director) cannot include compensation for injured feelings. Further, an injunction in relation to an infringment of moral right

by modification of a copyright work will not be permanent if a defendant makes a disclaimer in terms satisfactory to the court identifying the modification in question and disassociating the author (or director) from it.

Although the Bill does not contain provisions for a levy on blank tapes to compensate for unauthorised private recording, there has been much excitement over the "fair dealing" provisions where a distinction is drawn between private study and research on the one hand and commercial research on the other. Predictions of opposition from industry representatives and from library administrators have been fulfilled. The Bill also contains provisions protecting computer software and cable and satellite transmissions. But there appear to be few innovations in relation to enforcement of copyright. The photocopier and the taperecorder and the ubiquitous fax machine are about to be joined as enemies of enforcement, according to recent literature from our computer supplier, by "imaging" technology which combines the impact of the photocopier and the data retrieval system. Human inventiveness strikes again ...

PATENTS

The United Kingdom Bill has little to say about patents, except for proposing a system whereby county courts may be designated to deal with patent disputes up to a certain monetary limit. The figure of £100,000 has been mentioned as a possible limit, and this could well remove any significant number of patent actions from the Chancery division. I might mention in passing that yet another of the Law Commission's tasks is a review of the court system, and the question of which court should hear disputes first is one of the issues being addressed.[5]

Here, as in Australia, there are a significant number of disputed applications for patent extensions in progress. These extensions relate to pharmaceutical products whose marketing has been delayed by regulatory requirements. We now have 2 High Court decisions on this topic, with extensions of 8 years being granted in both cases. Both are the subject of appeal proceedings at the present time.

In this context, the topic of the proper term of the patent monopoly comes into focus. This has been the topic of a 1983 IPAC report in this country which recommended retention of the standard 16 year patent term but with an automatic extension of 4 years on the grounds of local regulatory delay where this could be shown. That approach has the support of the Department of Trade and Industry publication referred to earlier. And there is obvious force in the report's concluding comment on

> the expensive and time-consuming procedure for both the applicant and the Commissioner of Patents which now exists under the inadequate remuneration prolongation provisions of s 31 of the Patents Act 1953, and the uncertainty that is caused for those seeking to enter the market on the expiry of the patent.

Developments in biotechnology are currently testing the boundaries of the patent system, including the traditional distinction between invention and discovery. These developments add an ethics debate to the usual ingredients

of intellectual property disputes, and law reform. I would be prepared to predict that we will see much caution in these matters, but one area which might be deserving of early attention is the patentability of medical treatment. This question came before our courts a few years ago in the *Wellcome Foundation* case. In 1979 the Chief Justice took a robust approach to earlier authority and held that the way was open for such methods—in that case, of treatment of meningeal leukemia or neoplasms in the brain by the use of certain known compounds—to be protected by the grant of a patent. Our Court of Appeal took a rather more cautious view and suggested that any change would involve "a value judgment . . . on issues of social advantage" and should be the result of considered decisions made through the legislative process (see [1983] NZLR 385). That process will not begin spontaneously, and a considered analysis by a law reform agency may be an essential first step in an informed debate on this topic.

The *Wellcome Foundation* decision confirmed the trend—which may be traced to the 1959 *NRDC* decision of the High Court of Australia (*National Research Corporation* v *Commissioner of Patents* (1959) 102 CLR 251)—whereby "inventions" are not limited to the production, improvement or preservation of some marketable commodity, but extend to the production of an effect with economic significance. However, the definition of "invention" by reference to a phrase ("manner of new manufacture") in the Statute of Monopolies, 1623, cannot be said to be a masterpiece of clarity for a modern audience, and seems a suitable case for law reform treatment in due course.

TRADE MARKS AND NAMES

As mentioned earlier, the question of company names is under active consideration in relation to our current review of company law. This is an area where there is a substantial risk of overlap with protection through the Companies Register, the Trade Marks Register, passing off actions, and actions under our Fair Trading Act 1986 for misleading or deceptive conduct (borrowed from the Australian trade practices legislation).

In fact, we have already had cases which indicate that the fair trading cause of action can be successfully pleaded with (and may come to supersede) passing off. In a recent decision by our Court of Appeal, a High Court decision granting an injunction in relation to the name "Taylors" was upheld on both the passing off and misleading causes of action. The Court of Appeal was considering the misleading conduct provision for the first time and took the opportunity to endorse certain aspects of the jurisprudence which has developed under the Australian Trade Practices Act 1974.

It might also be noted here that our Court of Appeal has taken the view (making specific reference to CER) that, in the passing off context, an Australian company's reputation and goodwill can extend to New Zealand (and vice versa) and, at least if there is a sufficient business connection with this country, will be entitled to protection here. That was said in the context of the contest over the use of the name "Budget" in relation to rental cars in this country. A recent decision of our High Court on the use of the name "Midas" suggests that the business connection required between the countries is likely

to be minimal for protection to be granted. In that case the New Zealand activity involved no more than negotiations over local franchising.

The impact of our Trade Marks Act 1953 on comparative advertising of the "bootstrapping" kind was clarified to some degree in the *Villa Maria* case (*Villa Maria Wines Ltd* v *Montana Wines* [1984] 2 NZLR 422), but the relevant statutory language remains, as the English Court of Appeal observed nearly half a century ago, a "masterpiece of obscurity". And, although some of us are appreciative of the historic significance of trade marks—being suitably impressed by the information that sixteenth century English goldsmiths were nailed by their ears to the pillory for putting false trade marks on goldplate—it may be time for some rethinking of both the drafting and policy issues in this area.

Another provision in the Trade Marks Act 1953 which looks like a suitable candidate for early attention is that relating to "trafficking" in trade marks. It will be recalled that in the House of Lords' decision in the "*Holly Hobbie*" case, Lord Bridge commented that the relevant provision has "become a complete anachronism ... the sooner it is repealed the better". (See *Re American Greetings Corporation* [1984] 1 All ER 426). The problems which arise with character merchandising as a result of this provision are well known to this audience, and we will be keeping a close eye on the review which is understood to be taking place in Australia in this area.

TRADE SECRETS

As you may be aware, the New Zealand Government has recently announced its intention to proceed to enact the recommendations of our Securities Commission which are designed to curb insider trading by providing civil remedies. The Securities Commission's report on this matter was published at the end of 1987 (*Insider Trading: Report to the Minister of Justice by the Securities Commission*, December 1987) and (among other things) concluded that a pragmatic approach to the practices which concerned it was more suitable than a property-based approach relating to the use of information. In so doing, the Securities Commission declined to follow the American jurisprudence in this area where proprietary rights and information are currently the basis for proscription of insider trading.

In the recent United States Supreme Court decision relating to the *Wall Street Journal* scam (*Carpenter* v *US*, judgment 16 November 1987)—where a combination of journalists and brokers took advantage of the fact that particular companies were to be mentioned in forthcoming issues of the Wall Street Journal—the Court upheld convictions under Federal wire and mail fraud legislation, stressing the importance of the proprietary rights. It was not enough for the defendants to argue that the *Wall Street Journal* had suffered no monetary loss—"it is sufficient that the *Journal* has been deprived of its right to exclusive use of the information". In other words, the newspaper had a property right in keeping confidential and making exclusive use, before publication, of the schedule and contents of columns involved in the defendants' schemes.

One is tempted to speculate that the more important authority cited in the Securities Commission's report was the English satirist Anthony Trollope, who wrote of the nineteenth century London financial scene that:

> A certain class of dishonesty, dishonesty magnificent in its proportions, and climbing into high places, has become at the same time so rampant and so splendid that there seems to be reason for fearing that men and women will be taught to feel that dishonesty, if it can become splendid, will cease to be abominable.

Nevertheless, as the recent litigation in both our countries over the *Spycatcher* book has demonstrated, the law of confidential information and trade secrets is far from straightforward. That may be good reason for looking closely at the 1986 joint report of the Alberta Institute of Law Research and Reform and a Federal Provincial Working Party on *Trade Secrets*. The report recommended the replacement of the common law by a new Trade Secrets Protection Act which would create two new statutory torts:

- the improper acquisition of a trade secret, and
- unauthorised disclosure or use of such a trade secret.

The report suggests a functional definition: that the information must be potentially capable of being used in a trade or business; must not be generally known in that trade or business; must have some economic value from not being known; and must be subject to reasonable efforts to maintain its secrecy. There is a recommendation for a remedy whereby the offending party may be required to pay the other party a royalty as a precondition for continued use of the trade secret. There are also recommendations for criminal offences to be created in this area, but it is suggested that the Canadian criminal code be clarified to suggest that a trade secret is not property and hence not within the standard theft provisions of that code. In this country, and possibly in Australia, there may still be scope for an argument—relying on such reasoning as in the *Wall Street Journal* decision—that information is property capable of being stolen.

CONCLUSION

For the courts and those who practise in them, intellectual property has been a growth area during the past decade. That may be the mark of Nature abhorring a vacuum, it may be the mark of an increasingly litigious society, or it may be a mark that the relevant laws are uncertain and/or outmoded. The Law Commission has a brief to diminish the force of the last of those. But it has no monopoly of wisdom or expertise in this (or any other) area, and needs and seeks the advice and assistance of your profession. Given the impact of CER as discussed earlier, that invitation extends to the profession on both sides of the Tasman. And it permits a final modest prediction of the future: we shall be seeing a lot more of each other.

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[1]See NZLC R9 *Company Law: Reform and Restatement* (1989)
[2]See NZLC R6 *Limitation Defences in Civil Proceedings* (1988)
[3]See NZLC PP7 *Arbitration (discussion paper)* (1988)
[4]See now Copyright Designs and Patents Act 1988 UK
[5]See NZLC R7 *The Structure of the Courts* (1989)

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V. R. WARD, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND—1990
13550J—90PT