

## GENIUS AND JANUS: INFORMATION TECHNOLOGY AND THE LAW

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Sir Wilfred Fullagar, to whom this series of lectures is dedicated, was, like many great lawyers, educated as a classicist. It seemed appropriate therefore to draw upon a classical metaphor to illustrate the theme of this, the thirteenth lecture in the series. My concern will be to explain and to exemplify the relationship between technology and law. I shall consider the functions and methods of both, and shall try to demonstrate my contentions by the particular study of two areas in which the technology of computing interacts with the law of copyright. My title characterises information technology, to use a rather ugly and ungrammatical, but fashionable, apposition, as genius, and law as Janus. It might seem somewhat surprising to characterise computing in terms of genius. The relevant device has been characterised, plausibly enough, as the equivalent of a super-energetic moron. It may however be recalled that Edison once defined genius as ninety-nine per cent perspiration, and only one per cent inspiration. Given the energy of the machine, measured in millions of calculations per second, it requires very little in the way of the application to it of human inspiration to achieve results redolent of genius. As a result of its versatility, accuracy and speed, the computer has provided the conditions under which a new science of information technology has been made possible. It is not idle hyperbole to associate the notion of genius with the nurture of a new and useful branch of the tree of human knowledge.

Why then Janus? The Roman god was specially charged with the care of gateways, and by extension with beginnings. He looked both backwards and forwards, and his "temple" in Rome was aligned east to west, linking the rising and the setting sun. He was himself represented as a figure with two faces looking in different directions. As will emerge, one of the functions of the law is to draw upon the experience and dispositions of the past to regulate the events of the future. For such an enterprise Janus seems an eminently suitable characterisation.

This paper begins with some further general examination of the comparison between technology and law. More particular attention will then be paid to the application of the law of copyright to computer programs, and to the judgments of courts of law, by way of illustration of the general themes. In both areas the development of the law in three different jurisdictions within the common law tradition, namely Australia, the United States and the United Kingdom, will be compared.

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## 1. TECHNOLOGY AND LAW

An English government came to power in 1964 upon the basis of a promise to harness the white heat of technology. It is not apparent that white heat and black gowns have much in common. It is not long since the suspicions of solicitors inhibited the introduction of typed opinions. It was easier to be sure of the identity of the author if it was in recognisable hand-writing. The image of the Dickensian law office has died hard, and in the courts the outward manifestation of antiquity is sedulously maintained. It is however necessary to penetrate a little further beneath the surface. It can then be seen that there are a number of underlying similarities. Law and technology have common characteristics of practicality, instrumentality and complexity of structure. Both are eminently earthy enterprises. They are designed to solve problems which have occurred, and which human beings are interested in solving in the ordinary course of their lives. The results of their application are most often immediately and tangibly apparent to those who have invoked them. Because they are invoked in this way the disciplines are fundamentally instrumental. They are orientated towards the attainment of pre-set goals. Because these are problems occurring in the everyday world, and not merely in the laboratory or the library, they are usually complex. Many different strands of technology and different areas of law are likely to be needed to be used in combination to solve them. Technology may be seen as the application of the rules of science to the solution of practical problems, and law as the application to them of legal rules.

For this to amount to much more than a merely verbal similarity it would be necessary for rules of science and rules of law to be of a fundamentally similar character. It has been apparent for centuries that this is not the case, and it is doubtful whether even the most fervent natural lawyer ever thought that it was, though Montesquieu at times seemed to come close to doing so. It is well understood that scientific rules are not normative, but merely descriptive of the operation of the external world; they record conjunctions of events, or what happens as a rule. Legal rules by contrast are normative, and prescriptive of the operation of the external world; they provide for the conjunctions of events, or rule what is to happen. Wittgenstein began the *Logico-Tractatus* with what must be one of the most powerful opening sentences ever written, "The world is everything that is the case." Such a view elevates law to a meta-level, determining not so much what is, as what ought to be the case.

A number of consequences and contrasts can be deduced from such a view of the natures of technology and of law. It becomes apparent that technological rules are stated in a form determined by man's perception of the external world. Legal rules are dictated more by his personal perception of the world which he would wish to see. It follows from this that technology has much less freedom of movement than the law. The state of the external world can be determined sufficiently definitely for it to become impossible to argue for rules constantly contradicted by inconsistent observation. The rules just have to be

changed to accommodate the facts. Nor is there usually much choice in the formulation of the new rule, or exception. Law on the other hand is within the control of human beings. However little its application brings about the states of affairs intended by its authors, it can be maintained in exactly the same form. It is much less easy to establish its failure, and even if such failure can be established there may be no agreement at all upon an alternative formulation to put matters right. This aspect has its obverse also. Just as technology cannot stand still in the face of new observations and perceptions of the external world, so it is difficult for it to move unless there are some such new observations or perceptions. Laws on the other hand may always be changed. Legislators may always seek to improve even those which are working well. Technology must also rely upon the rules and observations of the past in order to reconstruct the future. Law on the other hand has the freedom to create wholly new concepts, often, but not invariably, analogised from the concepts and rules of the past. Finally since technology reflects the external world which is everywhere explicable in terms of the same general scientific rules, it is everywhere the same, however differentially it might be applied. Values are less universally shared, and local conditions and social customs differ to such an extent as virtually to compel the adoption of different legal rules in different places. The essential difference then is that while technology may advance it does so as a result of external pressure, but remorselessly, without deviation, and everywhere along lines dictated by observation of the world. Law can choose whether to move or stay still, whether to advance or retreat, in which direction to set off, how fast to move and may even invent its own means of transport while doing so.

If a legislator is to be regarded as the author of the law in the sense discussed above he might be excused for failing to recognise his situation. He is unlikely to regard himself as a repository of arbitrary and unlimited powers to change the law. He will be painfully aware of the mass of constraints upon his freedom of action. This should give the theoretician pause. Perhaps the contrasts sketched above are too vividly painted. Perhaps there really is more similarity between technology and law in their methods of achieving their respective goals than that analysis establishes. It is worth glancing at the nature of the practical constraints upon legal change. They all reflect, at different levels, the context within which law has to be applied. Just because law is, like technology, a practical discipline operating in the real world, it cannot ignore social and political forces operating in that world, any more than technology can ignore electrical and magnetic forces. It is just that the forces relevant to the formulation of legal rules are mediated by human values, while the forces relevant to the formulation of scientific rules are mediated by human perception. In practical terms it would be just as, if not more, difficult to govern modern England by re-enacting the laws of the seventeenth century, as it would be to solve engineering problems by reference to its technology. Social, economic and political factors will all have their part to play in restricting a

legislator's freedom of action. It is true that they are to some extent malleable, but there are limits of tolerance which must be respected in law as much as in technology. Nor is it true in practical terms that lawyers are free to mould their own linguistic and conceptual tools. In theory there is nothing to stop the coining of new words and institutions, but the caution and conservatism of human beings should never be under-estimated. Some brilliant innovators like Bentham have seen their coinings stick, "international" and "codification" for example. But other coinings, like those of Kocourek from "allophylaxis" to "zygnomic", have hardly had the same success. Even Hohfeld, who had the good sense to use well-established words with no more than slightly restricted connotations, met with little success in proposing "no-right" as a noun correlative to privilege. Nor is it any easier to invent new concepts than new words with which to express them. Because of the need for consistency of interpretation and application, lawyers tend to cling to the formulations of the past, but the words comprising these formulations often themselves express quite complex legal ideas. The very language of the law, and the need to use that language, help to inhibit the development of new concepts and new institutions. It is extremely difficult to construct any new tool completely divorced from the concepts of the past. In the area of technology this is exemplified by the quite extraordinary difficulty experienced in providing a satisfactory regime for the protection of intellectual property in computer programs. The aim of this paper is to explore the extent of such constraints in the inhibition of the development of a satisfactory framework for the technology of computing. Given that the technology has been developed, the law must cope with it. This paper sets out to consider how far the law has been free to adapt itself, and how far it has chosen to do so. It was originally planned to contrast the application of the law of copyright to one type of data, primary legal materials, and to one type of technology, computer programs, in each of the three jurisdictions of the United States, the United Kingdom and Australia. At that time the contrast between them could scarcely have been more marked. In relation to both case and statutory materials the United States denied copyright protection while in each case Australia recognised it; in the United Kingdom it was more difficult to be sure, but it seemed, on the whole, that protection was available for statutory materials, but not for judicial opinions. In relation to computer programs the United States had new legislation specially designed to address the problem, but Australia and the United Kingdom were still relying on their old general copyright legislation. The difference between Australia and the United Kingdom was that the Australian legislation was construed to exclude protection for source programs encoded on chips of silicon, while the general view was that in the United Kingdom, similar, but not identical, provisions, did afford protection. In the United States it was clear after the new legislation that such programs were protected. This neatly balanced kaleidoscope was upset when the Full Federal Court reversed a lower court decision, and found that the old Australian legislation did protect source programs on chips. In the

meantime however in the aftermath of the previous holding new legislation had been prepared, and has now been enacted. Its impact is still to some extent uncertain.

This late flurry of change, in its way, serves to illustrate both the freedom of, and constraints upon, different forms of legal change. It is certainly still well worth while to examine these aspects of the interaction of law and technology in a little more detail.

## 2. COPYRIGHT IN PRIMARY LEGAL MATERIALS

The presentation of the law has been affected by a number of different technologies over the ages. At an early stage it progressed from inscription upon tablets to writing upon scrolls, and even these technologies have occasionally been ascribed some legal significance.<sup>1</sup> Much more important was the invention of printing by moveable type. So important indeed in political terms as to attract claims to a royal monopoly, and in this very context of the provision of legal primary materials, such claims were bolstered by implausible and untrue claims to royal provenance, both of the older technique of hand-production and of the newer mechanical one. The underlying motivation for such claims were clearly discernible in financial considerations, for parliament was beginning to flex its muscles on questions of supply, and more nakedly in the desire to control opinion. As it gradually became necessary to find some legal vestment for such claims, so the old device of licensing under the royal prerogative was applied in this area. The system was largely administered by the Company of Stationers, and regulated by the Court of Star Chamber. Following the demise of that Court, it seemed more prudent upon the restoration of the monarchy to proceed by Act of Parliament, so Royal control was re-established by the passage of the *Licensing Act* of 1662. This Act distinguished quite clearly between:

“acts of parliament, proclamations, and such other books and papers . . . to be printed by virtue of any warrant under the King’s sign manual”,<sup>2</sup>

and

“all books concerning the common law of this realm [which] shall be printed by the special allowance of the lord chancellor, or lord keeper of the great seal of England for the time being, the lords chief justices, and the lord chief baron for the time being, or one or more of them, by their or one of their appointments”<sup>3</sup>

It is also interesting to note that the second of these provisions applies quite generally to law books of all sorts. In the immediate aftermath of this legis-

<sup>1</sup> See for example Daube “On the third Chapter of the *Lex Aquilia*” (1936) 52 L.Q.R. 253 at 268.

<sup>2</sup> S. III(2).

<sup>3</sup> S. III(4).

lation some warrants were issued, and in two rather obscure cases were upheld in relation to the publication of Roll's Abridgement<sup>4</sup> and Croke's Reports.<sup>5</sup>

Whatever the reason for these decisions it failed to consolidate the practice which ignored them completely, and as early as 1685 counsel was able to remark without any contradiction that:

"the sole printing of law books was granted to one Atkyns, yet the reports of Jones, Justice, and of my Lord Chief Justice Vaughan were printed without any direction of the patentees."<sup>6</sup>

No further attempt ever seems to have been made in England to assert any exclusive right in the Crown to publish or to control the publication of law books of any character. The *Licensing Acts*, under the authority of which the warrants granted in the 1660s, expired in the reign of William III in 1694, were never renewed, and were finally repealed by the *Statute Law Revision Act* 1863. In the pedantic and archaic fashion of the time law reporters continued to recite a non-existent licence to report for some years after they had stopped being granted, and this stung Burrows, one of the first really thoughtful reporters, to remark in 1765 in the preface to his reports that:

"Such licences (to allow and approve of the printing and publishing) took their rise from the necessity of a licence to print, as the law *formerly* stood: and have *continued* in the *same* form of words (without any meaning,) *since* the *reason* of them has *ceased*".<sup>7</sup>

It was clear by this time that the ordinary principles of copyright applied to law books as much as to any other sort of books. Thus in 1740 Lord Hardwicke granted an injunction to the publisher to restrain the publication of pirated versions of *Hale's Pleas of the Crown*,<sup>8</sup> and Burrows in his preface remarked in relation to law reports that:

"where they have been published surreptitiously without consent of the reporter, the printers have been proceeded against civilly upon the foundation of his property."

It was not until the end of the century that judges began to supply written copies of some of their judgments to chosen reporters. This seemed to make no difference however, and the publishers still succeeded in actions against pirates, even when only judgments, some of them presumably of this character, were sought to be re-packaged and published without the original

<sup>4</sup> *Stationers' Company v. Patentees about the printing of Roll's Abridgement* (1666) Carter 89 (this case is inconclusive since no reasons were given for the decision, the arguments of the patentee were clearly wrong, and the significance of an antecedent breach of obligation by the Stationers probably affected the outcome).

<sup>5</sup> *Roper v. Streater* (1672) Skinner 234 (although relied upon by some later authorities, there is no full account of this decision; the best is in VI Bacon's Abridgement 509 (7th ed.). It seems to have rested upon the appointment of the Judges by the Crown).

<sup>6</sup> *Earl of Yarmouth v. Darrel* (1685) 3 Mod. 75.

<sup>7</sup> Original emphasis. See also 1 Douglas's Reports ix (1813).

<sup>8</sup> *Gyles v. Wilcox* (1740) 2 Atk. 143.

publisher's agreement.<sup>9</sup> It is interesting to note that exactly the same history was interpreted even more strictly in the United States so as to inspire the Supreme Court to deny even ordinary civil copyright to the reporter himself in respect of verbatim judgments:

"the court are unanimously of opinion that no reporter has or can have any copyright in the written opinions delivered by this court; and that the judges thereof cannot confer on any reporter such rights."<sup>10</sup>

This general approach to copyright in law books and law reports was maintained in an unbroken chain of decisions in England throughout the nineteenth and twentieth centuries upholding copyright in private publishers.<sup>11</sup> The only case to seek to swim against the tide was *Attorney General for New South Wales v. Butterworth & Co. (Australia)*<sup>12</sup> where the defendant was successfully prevented from publishing a series of the statutes of New South Wales in competition with the government printer upon the basis of a supposed Crown prerogative. In England it is likely that such an argument would receive short shrift from a judiciary much less tender to prerogative claims. As Diplock L.J. so trenchantly remarked in *British Broadcasting Corporation v. Johns*:

"it is 350 years and a civil war too late for the Queen's Courts to broaden the prerogative. The limits within which the executive government may impose obligations or impose restraints upon citizens of the United Kingdom without any statutory authority are now well-settled and incapable of extension."<sup>13</sup>

and,

"the executive government has no constitutional right either itself to exercise through its agents or to confer upon other persons a monopoly of any form of activity."<sup>14</sup>

Even in the case of statutes, it is arguable that there is no prerogative claim to an exclusive right to publish legislative materials, given the reliance upon statutory authority after the restoration, which statutes have now expired and been repealed. Such a claim would however derive some support from the views expressed about the extent of the prerogative by classic institutional authorities like Blackstone<sup>15</sup> and Chitty<sup>16</sup>, and from the inclusion of reference

<sup>9</sup> *Butterworth v. Robinson* (1801) 5 Ves. Jr. 709.

<sup>10</sup> *Wheaton v. Peters* (1834) 33 U.S. 591. This result is even more remarkable in view of the appointment in the United States by this time of an official reporter of decisions of the Supreme Court.

<sup>11</sup> *Saunders v. Smith* (1838) 3 My. + Cr. 711; *Sweet v. Shaw* (1839) 8 LJ Ch 216; *Sweet v. Maugham* (1840) 11 Sim 51; *Hodges v. Smith + Welsh* (1840) 2 Ir. Eq. 266; *Sweet v. Benning* (1855) 16 C.B. 459; *Incorporated Council for Law Reporting for England and Wales v. Green* (1912) 4 McG CC 54.

<sup>12</sup> (1938) 38 S.R. (N.S.W.) 195.

<sup>13</sup> [1965] 1 Ch. 32, at 79.

<sup>14</sup> *Ibid.*

<sup>15</sup> *Commentaries* ch. 27.

<sup>16</sup> *Prerogatives of the Crown* p. 239 (1820).

to such materials in the *Treasury Minute* of 31 August 1887 listing those in respect of which a claim might be made. However no reference at all is made in any of these sources to so much as the possibility of a claim in respect of any other legal materials.

If, as argued above, the Crown has no prerogative claim in respect of judgments, it remains to be discovered whether the ordinary law of copyright can support any claim in any person in respect of them.

It was seen that in England, at least, the Courts have consistently upheld copyright in the publisher. In the most recent of those cases the semi-official publisher of the Law Reports was able to restrain a rival publication which proposed to excise all headnotes, statements of facts, and arguments of counsel, and to print only the text of the judgments together with an indication of the original pagination.<sup>17</sup> It seems likely that this publication would have consisted of an amalgam of cases where the judgment had been delivered orally, recorded by a shorthand-writer, and submitted to the judge for correction, and others where the judge supplied a copy of his written reasons to the publisher. Nothing seems to have turned on this difference in that case, but it is certainly arguable that it might have some significance in view of the decision in *Walter v. Lane*.<sup>18</sup> In that case the editor of the *Times* newspaper was held to be entitled to protection for a verbatim report of a speech delivered by Lord Rosebery, taken down in short-hand and published in the newspaper. This might appear to suggest that in the case of judgments copyright inheres in the reporter. A number of caveats must be entered however. In the first place the case was decided entirely upon the interpretation of the *Copyright Act* 1842 which omitted any explicit requirement of originality, a point stressed in a number of the judgments.<sup>19</sup>

This requirement was inserted in the *Copyright Act* 1911, has been retained in the 1956 Act, and has given rise to the judicial view that *Walter v. Lane* in consequence no longer represents the law.<sup>20</sup> A second consideration is that no question arose in *Walter v. Lane* of a speech reduced to writing, and then read out, as is commonly the case with the judgments. If, in the latter case there is no reason to confer copyright upon the reporter, and he then has no claim, however tenuous, to originality, it would create an unfortunate anomaly to treat oral judgments in a quite different fashion, simply because the reporter has supplied the necessary punctuation. A third, though less compelling point, is that *Walter v. Lane* was in no way concerned with a dispute between the speaker and the reporter, but only with one between the reporter and a third-party pirate. It is thus suggested that while the reporter may have a copyright claim in respect of a headnote or statement of facts, or any other editorial matter which he adds to the report, and the publisher in the compilation and

<sup>17</sup> *Incorporated Council for Law Reporting for England and Wales v. Green* (1912) 4 McG CC 54. [1900] A.C. 539.

<sup>18</sup> See Lord Halsbury L.C. at pp. 546, 548.

<sup>20</sup> *Robertson v. Lewis* [1976] R.P.C. 169, per Cross J.



anything he adds, tables and indices for example, neither has copyright in the judgment itself.

The most obvious candidate for rights under the law of the copyright in the judgment itself is the judge who prepares and delivers the judgment. It can hardly be denied by even the most convinced supporter of the declaratory theory of the common law that judgments possess sufficient originality for copyright purposes.

Although in some early cases it seems to have been argued that because the salaries of the judges are paid by the state any copyright in their judgments is vested in the state, the argument is most unconvincing. Under the *Copyright Act* 1956 section 39(1) copyright in literary works made by or under the direction or control of the Crown vests in the state. It seems likely that this provision was inserted in order to prevent any problem in the case of the position so far as the contracts of employment of ordinary civil servants were concerned. Judges however have never been regarded as civil servants,<sup>21</sup> and have traditionally occupied a position characterised not by the direction or control of the state, but by its absence.<sup>22</sup> Judicial freedom from such control is regarded as one of the most signal hallmarks of the rule of law.

If this is the case it would appear to follow that copyright subsists in the judges themselves. There are some early indications that the judges exercised some rights associated with such a position, such as restraining publication of their decisions.<sup>23</sup> This question is now however governed by well-established rules which severely limit the types of proceeding which may be heard in camera, and the sorts of detail which may be suppressed.<sup>24</sup> It is also, to some extent, affected by particular statutes such as the *Contempt of Court Act* 1981 section 4(2), though even there the power is limited to being one merely to postpone publication.

One of the normal incidents of copyright is the right not to publish, or to permit publication only upon specified terms. Yet as the Chief Justice of Canada once remarked to "forbid the reporting of decided cases or certain classes of them is unimaginable".<sup>25</sup> Thus the Whitford Committee on Copyright and Designs Law was unaware of any judge ever having made such a claim.<sup>26</sup> The reason for this is quite clear. It is first of all regarded as a fun-

<sup>21</sup> Thus in *Terrell v. Secretary of State for the Colonies* [1953] 2 Q.B. 482, Q.B.D. Lord Goddard C.J. remarked at 499 that "a Judge holds office by Royal appointment and not by contract."

<sup>22</sup> This accounts for S.3 of the *Act of Settlement* 1700, and for payment from the Consolidated Fund. A British ministry has fallen because of a suggestion of interference with the Attorney-General's determination whether or not to launch a prosecution; it can hardly be supposed that an attempt to control or direct the judges would be more favourably regarded.

<sup>23</sup> *Manby v. Owen* (1755) cited 4 Burrows 2329; *Bathurst v. Kearsley* (1776) unreported; *Gurney v. Longman* (1807) 13 Ves. Jr. 493.

<sup>24</sup> *Scott v. Scott* [1913] A.C. 417.

<sup>25</sup> Laskin "The Institutional Character of the Judge" (1972) 7 *Israel L.R.* 329 at 348. Though it seems that one New Zealand judge did withhold his judgments until he received payment from the reporter, see Taggart "Copyright in Judgments" (1984) 10 *Sydney L.R.* 319 at 327 note 66.

<sup>26</sup> *Cmnd* 6732 para 588.

damental principle that justice should be administered openly, and be seen to have been so administered. This cannot occur if decisions, and the reasons for such decisions, are not made available. Thus in *Scott v. Scott* when a perpetual injunction against the publication of details of a nullity suit was sought Lord Loreburn was driven to remark:

“to say that all subsequent publication can be forbidden and everyone can be ordered to keep perpetual silence as to what passed at the trial is far in excess of the jurisdiction and is indeed an unwarrantable interference with the rights of the subject. It is not that a court ought to refrain from exercising its power in such a way. It is that the Court does not possess such a power.”<sup>27</sup>

Perhaps even more important, it is fundamental to the rule of law that citizens should have the opportunity of knowing what the law is, and in the common law system, decisions of courts of record constitute the law. This consideration was recently re-affirmed by Lord Donaldson M.R.:

“The efficiency and maintenance of the rule of law, which is the foundation of any parliamentary democracy, has at least two pre-requisites. First [citizens should live their lives in accordance with all of the rules.] Second they must know what the rules are. Both are equally important . . .”<sup>28</sup>

It may be noted that these reasons transcend any suggestion that copyright in judgments subsists in the judges. They go further and suggest that just as in the United States, judgments are in the Commonwealth also in the public domain.<sup>29</sup> Thus in *Scott v. Scott* the House of Lords was particularly critical of the notion that either Crown or judge could withhold publication:

“What has happened is a usurpation — a usurpation which could not have been allowed even as a prerogative of the Crown, and cannot certainly be demised to the Judges of the land. To remit the maintenance of constitutional right to the region of judicial discretion is to shift the foundations of freedom from the rock to the sand.”<sup>30</sup>

There is also a strong parallel between the thoughts of Lord Donaldson quoted above, and the reasons advanced in an American decision denying the validity of allowing an exclusive licence to publish judicial decisions:

“Every citizen is presumed to know the law when delivered, and it needs no argument to show that justice requires that all should have free access to the opinions, and that it is against sound public policy to prevent this, or to suppress and keep from the earliest knowledge of the public the statutes or the decisions and opinions of the justices.”<sup>31</sup>

So strongly is this view held in the United States that the Supreme Court has held a statute purporting to grant such a power unconstitutional.<sup>32</sup>

<sup>27</sup>[1913] A.C. 417 at 448.

<sup>28</sup>*Merkur Island Shipping v. Laughton* [1983] 1 All E.R. 334 at 351.

<sup>29</sup>Subject to explicit, and valid, statutory provision to the contrary.

<sup>30</sup>At 477 per Lord Shaw.

<sup>31</sup>*Nash v. Lathrop* 6 N.E. 559 at 560 (S.C. Mass., 1886).

Since the reasons of public policy for adopting such an attitude seem so compelling it is worth seeing whether it can be maintained in Commonwealth jurisdictions. It seems immaterial whether it is based upon general considerations of public policy against any fetter on the dissemination of judicial opinions, or upon a doctrine of initial copyright in the judge, with any such claim abandoned by the delivery of the judgment. There certainly is authority for the proposition that in principle what passes in court does thereby become *publici juris*. Thus in *Lambert v. Horne*, where the issue related to publication of evidence which had been given in a County Court, Cozens Hardy M.R. opined:

“Now the proceedings in the County Court were public. Any one present could listen and take a note of what the witness said . . . There is no original composition in the document. It is a mere transcript of what was *publici juris*.”<sup>33</sup>

The same sentiment was expressed more recently by the House of Lords in *Home Office v. Harman* where Lord Diplock said:

“justice is to be administered in open court where anyone present may listen to and report what was said.”<sup>34</sup>

It would be extremely odd if the evidence and arguments could be reported, but not the judgment. Such an argument is assisted by section 6(4) of the *Copyright Act 1956* which provides that genuine law reporting does not infringe previously existing copyright. Again it would be odd if unarguably copyright material could be reproduced in a law report without the infringement of that copyright, but that surrounding parts of the judgment, as to which there is at the very least some argument as to prior copyright, should amount to an infringement. That provision must surely presuppose that law reports do not generally infringe copyright. If these arguments are accepted the situation in relation to judgments will approximate in the Commonwealth to that achieved in the United States, to that recommended by the Whitford Committee, and to that expressed by Lord Roskill:

“the public interest in ensuring that litigation is in general conducted in public and freely reported . . . admits of no doubt.”<sup>35</sup>

### 3. COPYRIGHT IN COMPUTER PROGRAMS

While law is essentially a parochial discipline, its subject matter is not. Every area of law has its international perspective. In some it is more important than others. There can be little doubt that the topic of intellectual

<sup>32</sup> *Banks v. Manchester* 128 U.S. 244 (1888).

<sup>33</sup> [1914] 3 K.B. 86 at 90, 91, and see *Buckley L.J.* at 92.

<sup>34</sup> [1983] 1 A.C. 280 at 303.

<sup>35</sup> In *Harman v. Home Office* at 326.

property in computer technology requires some consideration of this perspective. Computer technology is used in many different jurisdictions, and international trade in its products is common-place. Many of the largest traders have subsidiary companies in a number of jurisdictions, almost all have some export business. It is not uncommon for work on a single product to be conducted simultaneously in a number of different jurisdictions. Modern communications allow almost instant transmission of the most valuable and vital products of such work. Given that the focus here is on the intangible, it is a matter of great concern to the computer industry to appreciate and to respond to the different approaches manifested around the world to intellectual property in computer programs. Unless some such property is recognised in a given jurisdiction an international vendor will be severely hampered in his trading operations. It is perhaps true that he could still make contracts with individual purchasers of his wares, but if no property were to be recognised, and thus no third party proceedings, his trade would be at considerable risk. It is indeed just such an appreciation in the world of conventional publishing which has given rise to the concept of copyright, and to its widespread protection by way of international conventions, subscribed to by many countries with sometimes quite differently organised legal systems.

It must not be overlooked however that the interests of all such parties are not identical. A jurisdiction which produces programs which are in great demand in other jurisdictions may have very different interests from those of a jurisdiction which has no such indigenous producers, but wishes to use the product. Similarly those jurisdictions with low reproduction costs, but a less originally creative labour force, may take a very different view of the ideal attitude for copyright law to adopt. Even in a given jurisdiction it is not uncommon to see some difference of view between the hardware producers, anxious to secure the greatest sales of their machines, and generally concerned only with maximising the availability of programs to run on them, and the exclusively software and system producers whose revenue is derived entirely from sales of their programs. It would be naive to suppose the policies underlying the development of the law in this area to be totally uninfluenced by such consideration.

The topic of intellectual property in the products of the computer industry considered on a world-wide basis is far too broad for even the most superficial consideration here. It must be reduced to a much smaller compass. In this lecture, notwithstanding the dangers of compartmentalisation of approach, only the law of copyright will be examined. It will not be possible to eliminate all reference to the law of contract, trade secrets, trade marks, unfair trade practices, tort, crime and perhaps least of all patent, but the central focus will be upon the law of copyright. The world will be reduced to a comparison of the law in three jurisdictions selected because of their essential similarity in being within the same general legal tradition, but nevertheless demonstrating an interesting difference of approach. These three are the United States, the United

Kingdom and Australia. All are within the common law tradition, although in each the law of copyright has a statutory basis. Nevertheless that statutory basis has in all been influenced by the English *Copyright Act 1707*, and by the reactions of English judges to it in the eighteenth century. The comparison is heightened by recent proposals and attempts to change the general statutory regime as it applies to computer programs in all three jurisdictions. Often the same issues come before the courts of those three jurisdictions, sometimes even involving the same parties.<sup>36</sup> It must also be noted that this article will deal with the application of the law of copyright only to computer programs. It will not deal with its application to the more straightforward case of copyright in manuals, nor with that of copyright in inscriptions upon hardware, key labels for example.<sup>37</sup> Nor will it be possible to discuss in any detail the fascinating and important complexities of the application of the law of copyright to computer-readable data.

Even within the more limited area which remains a high degree of selectivity and generality will have to be achieved to compress the subject-matter into a suitably short article. To this end the different approaches of the various jurisdictions will be examined in turn to see how they approach the fundamental question of how they categorise computer programs for the purpose of providing copyright protection, and how those categories apply to programs as object codes, and as embodied upon chips in read only memories. These questions were central to the decisions in the litigation involving the Apple Company in the United States and in Australia, so some analysis of those decisions will be required. In the case of Australia it should be noted that the litigation has not yet run its course, since the High Court of Australia has given leave to appeal from the decision of the Full Federal Court in *Apple Computer v. Computer Edge*.<sup>38</sup> In broad outline the situation is that in the United States the law is reasonably well-settled, and protection afforded to computer programs by the recently amended statutory provisions of the *Copyright Act*, and by the decision of the third Circuit Court of Appeals in *Apple Computer Inc. v. Franklin Computer Corp.*<sup>39</sup> In Australia both the Full Federal Court, the *Apple* case, and the legislature in the *Copyright Amendment Act 1984* reacting to the first instance decision in *Apple*<sup>40</sup> denying copyright protection, have both attempted to protect computer programs but there are serious questions as to how far these have succeeded. In the United Kingdom academic,<sup>41</sup> investig-

<sup>36</sup> Thus the leading cases in both the United States and Australia have involved the Apple Computer Company.

<sup>37</sup> See *Synercom Technology Inc. v. University Computer Co.* 462 F. Supp. 1003 (ND Tex, 1978) where these matters were ventilated.

<sup>38</sup> (1984) 53 A.L.R. 225, Full F.C.

<sup>39</sup> 714 F 2d 1240 (CA3, 1983). Fortified in some respects by the new and more specialised legislation protecting chip masks.

<sup>40</sup> (1983) 10 F.S.R. 246, Fed Ct.

<sup>41</sup> See e.g. Niblett *Legal Protection of Computer Programs* (1980), Tapper *Computer Law* (3rd ed. 1983).

ative,<sup>42</sup> and governmental<sup>43</sup> opinion is unanimously of the view that programs are protected, but there have as yet been only a series of inconclusive decisions by the courts,<sup>44</sup> and no clearly applicable amendment to the *Copyright Act* 1956, which itself makes no explicit reference to computer programs. These different situations will now be addressed in turn in a little more detail.

#### A. United States

Although a number of commentators<sup>45</sup> took the view that computer programs were capable of being protected by copyright even before the new *Copyright Act* of 1976, there were undoubtedly some obstacles to that view. One was derived from the decision of the Supreme Court in *Baker v. Selden*<sup>46</sup> that copyright could not be used so as to confer a monopoly in the use of a particular art since that was the function of patent, not of copyright. Another was the view that computer programs were not writings, and more particularly that copies in a magnetic medium could not infringe programs which were written down.<sup>47</sup> The latter of these was completely stilled by the terminology of the 1976 *Copyright Act* which provided in section 101 that:

“Copyright protection subsists . . . in original works of authorship 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”

and that:

“A [work] is ‘fixed’ in a tangible means of expression when its embodiment in a copy . . . is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration.”

It was perhaps less clear how far the Act affected the argument derived from *Baker v. Selden* since the Act also provided in section 102(b) 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.”

Such argument may have received some support from the original section 117 of the *Copyright Act* which postponed the application of the new concepts to computer programs pending the report of the President's Commission which was then sitting to consider *New Technological Uses of Copyright Works*

<sup>42</sup> Report of Whitford Committee on Copyright and Design Law ch.9 (Cmnd 6732, 1977).

<sup>43</sup> Governmental Green Paper in Response to Whitford Committee “Reform of the Law Relating to Copyright” ch.8 (Cmnd 8302, 1981).

<sup>44</sup> Such as *Sega Enterprises Ltd. v. Richards* (1983) 9 F.S.R. 73, Ch.

<sup>45</sup> Including this lecturer, see Tapper *Computer Law* (1st ed., 1978) pp. 14-18.

<sup>46</sup> 101 U.S. 99 (1879).

<sup>47</sup> Adopting the analogy of the holding in *White-Smith Music Publishing Co. v. Apollo Co.* 209 U.S. 1 (1908) that piano rolls did not infringe copyright in sheet music.

(generally known as CONTU). It was however hard to maintain this view after *CONTU* reported in 1979, and had its recommendations enacted in the *Copyright Revision Act* of 1980. Perhaps the most significant feature of this saga was that the view that computer programs, at least in the form of object code,<sup>48</sup> should be protected had attracted a powerful dissent from some members of the Committee. It was thus particularly clear that in enacting the view of the majority Congress intended to provide for programs in object code to be susceptible of protection.<sup>49</sup> Perhaps in reliance upon this clarification a number of proprietors of computer programs subsequently took action to enjoin infringement of their programs. Apple Computer Inc, which had been particularly plagued by imitators, instituted suits in a number of jurisdictions both in the United States, and overseas. One of its aims in these suits was to prevent its operating systems from being copied. These systems which govern the internal operations of the computer are an essential link in the process of causing the application programs, which lay users are most interested in running, to function on a given computer. Since Apple has been particularly successful in marketing its machines,<sup>50</sup> a very large number of programs have been written so as to run on it by enmeshing with the Apple's operating software. It would obviously enhance the attraction of any competing machine if it could also run those programs without any necessity for their adaptation. The most simple, and cheapest, strategy for the manufacturer of a competing machine to adopt to achieve this aim was to copy the programs written by Apple which could be found either installed upon chips in an Apple computer, or written on disks capable of being read by that machine. It is a simple matter to copy such programs, and to make minor cosmetic alterations.<sup>51</sup> In *Apple Computer Inc. v. Franklin Computer Corp.* the Court of Appeals for the Third Circuit succinctly and helpfully summarised the copyright points before it as follows:

- “(1) whether copyright can exist in a computer program expressed in object code;
- (2) whether copyright can exist in a computer program embedded on a ROM;
- (3) whether copyright can exist in an operating system program.”<sup>52</sup>

The judge at first instance had felt strong doubts about the possibility of protecting programs satisfying all of the above criteria. The Court of Appeals was clear that such programs were protected. So far as any purported differ-

<sup>48</sup> This is the final form of the program which actually drives the computer, and is the least comprehensible to human beings consisting of strings of binary digits.

<sup>49</sup> See 1980 *US Code and Administrative News* 6460.

<sup>50</sup> It had by 1983 sold 400,000 machines, see 714 F 2d 1240 at 1242 (CA3, 1983).

<sup>51</sup> Usually little more than removing Apple's encoded copyright notice, and changing relevant names. The vestigial extent of this enterprise is indicated by the common failure to notice, or to remove, the names of the original Apple programmers encoded into the programs copied and installed in the rival machines.

<sup>52</sup> 714 F 2d 1240 at 1246 (CA3, 1983). An ROM (Read Only Memory) is a type of chip plugged into a board inside the computer. It is easily removable and replaceable. Some types of ROM can be programmed (PROMS), or erased and re-programmed (EPROMS).

ence between object and source code was concerned the Court drew attention to the new definition of a computer program in section 101 as a "set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." It pointed out that only programs in object code can operate *directly* in a computer so as to bring about a result. It further rejected the suggestion of any diminution in protection because the program was encoded onto a chip, citing the provisions of the Act quoted above relating to "fixing", and its own earlier decision in *Williams Electronics Inc. v. Artic International Inc.*<sup>53</sup> involving a game-playing computer. It was, perhaps, a little less convincing, though no less forthright, in its reasoning on the third issue, which it took to raise the point mentioned above based upon *Baker v. Selden*. It felt that the trial judge had failed to appreciate that Apple was not seeking to monopolise a particular method of operating its computer, but was merely trying to protect one form of instructing it to perform such operations. It reinforced this view by remarking that the medium was not the message. It is however hard to accept this view. On the contrary it seems that Apple's whole object was to monopolise its own operating system in the sense of using a given set of instructions to generate the linking in of application programs in a unique, and presumably optimised, way. That was accomplished by the activation of the electronic pathways encoded on the Apple chip or disc. In such a case it does indeed seem apt to say that the medium is the message. On the other hand it is by no means clear that in so doing Apple was seeking to monopolise the use of an "art". It all depends upon how narrow an "art" may be. Exactly the same point had been raised by another of Apple's opponents in *Apple Computer Inc. v. Formula International Inc.*<sup>54</sup> yet again one arising out of similar facts, indeed the five programs alleged to have been infringed here were all among the fourteen alleged to have been infringed in the *Franklin* case. In that case the defence adopted the rather jejune tactics of searching the Apple depositions for uses of the words of *Baker v. Selden* or section 102(b), such as process or method, apparently with a view to showing that the programs in question could thus be condemned out of the mouths of their own proprietors. The Court was rightly unmoved by this exercise, and pointed out that the terms of section 102(b) if so construed applied equally to application programs, which the defendants had conceded to be capable of protection:

"Either all computer programs so embodied are within the terms 'idea, procedure, system, method of operation' and are excluded, or all of them are outside those terms and thus protectable."<sup>55</sup>

As nothing could be clearer than that some programs were intended to be protected, the consequence had to be that a different construction had to be placed upon section 102(b) and *Baker v. Selden*. The relevant House Committee report had, in fact, stated that:

<sup>53</sup> 685 F2d 870 (CA3, 1982).

<sup>54</sup> 562 F. Supp. 775 (C.D. Cal., 1983).

<sup>55</sup> At 780.



“Section 102(b) is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law.”<sup>56</sup>

This seems best interpreted to mean that if a broad and general function could be performed in only one way, a highly unlikely eventuality it must be conceded, then copyright protection which effectively prevented anyone else from performing that function would not be granted. The Court expressed a similar view in saying that:

“If there were only one or two ways to write a program for a particular function, then extending copyright protection to the program might in effect give its author a patent on the idea itself.”<sup>57</sup>

Although this seems to leave a certain amount of room for manoeuvre and interpretation, the prevailing view in the United States now accepts copyright protection for operating systems,<sup>58</sup> written in object code and embodied in a ROM as clearly within the protection of copyright, and this being the extreme case, all other forms of program must *a fortiori* be capable of protection by similar means. It will have been noticed however that some, at least, of the authorities relate this result to the passage of the 1976 Act together with the 1980 amendment. It remains to be seen how far the same result may be achieved in other jurisdictions with different statutory regimes.

## B. Australia

In Australia Beaumont J. in giving judgment at first instance in *Apple Computer Inc. v. Computer Edge Pty. Ltd. and Suss*<sup>59</sup> certainly expressed the view that because of the new statutory provisions in the United States decisions arrived at under them were irrelevant to the position in Australia. This case followed the familiar lines of those involving Apple in the United States, and claims were made for infringement of copyright in source and object code versions of two operating programs. The claims were phrased both in respect of the programs as original literary works, and as adaptations. At first instance the claim was rejected by Beaumont J. on the basis that to qualify for protection as a literary work a program must be intended to afford either information, instruction or pleasure. A subsidiary reason, reminiscent of the

<sup>56</sup> At 95.

<sup>57</sup> At 782.

<sup>58</sup> See *S. & H. Computer Systems v. SAS Institute Inc.* 568 F. Supp. 416 at 422 (MD Tenn., 1983) (“There can no longer exist any doubt that computer programs are copyrightable”); *Midway v. Strophon* 564 F. Supp. 741 at 750 (ND Ill., 1983) (“Whatever its merit as an original matter, the 1976 Copyright Revision Act has foreclosed the argument that object code — meant to be read by machines rather than humans and incomprehensible to any but highly-trained computer specialists — is not a proper subject for copyright protection”) and *Videotronics v. Bend Electronics* 564 F. Supp. 1471 at 1477 (D. Nev., 1983) (“the great weight of authority indicates that the essence of the intellectual property the plaintiff seeks protection for [a computer program] is entitled to protection under copyright law”).

<sup>59</sup> (1984) 10 F.S.R. 246, Fed. Ct.

American Apple cases, was that copyright protection could not be afforded to something operating to control a machine. This decision caused something of an outcry in Australia, a special conference was called in Canberra, and even before the result of the appeal was known legislation intended to "protect computer software as a literary work" and "to clarify the nature and scope of that protection" was presented to parliament. It is somewhat hard to understand exactly why so frenetic a reaction was induced. It was not as if Beaumont J. had over-turned a particularly well-established body of law, indeed many would have regarded his decision as doing no more than confirming the traditional view. The result of the appeal, and its interaction with the new legislation has now created a complicated situation, which will, no doubt, be clarified by the High Court, which has recently granted leave to appeal against the decision of the Full Federal Court. It is probably best to examine the appellate judgment first,<sup>60</sup> and then to go on to consider the impact of the new legislation.

Fox J. was especially concerned to emphasise that nothing turned on the distinction between operating and application programs, and this fitted in well with his view that copyright is concerned only with form and not with function. He pointed out that even on the basis of the definition proposed by Beaumont J. the programs before him would qualify, since they were certainly capable of affording information and instruction. He also regarded the omission of any explicit reference to computers in the 1968 legislation as explicable on the basis that its gestation period had been measured in years rather than months, and during much of that time computers had not been in such common use. In his view the object code versions were adaptations of the source code versions. The precise infringement consisted in copying those adaptations, and it was immaterial that the tangible form into which they were copied differed from that from which they were copied.<sup>61</sup> This seems correct. It really can't make any difference that say a copyright document in typescript is copied in long-hand. The fact remained that the ROMs were directly copied, and that when required to print out the encoded program in assembler,<sup>62</sup> the particular source code in question here, they generated an identical print-out.

Lockhart J. also held that the source code versions of the programs were original literary works. His reasoning differed from that of Fox J. only to the extent of his preferring to argue that the conditions of affording information, instruction and pleasure, culled from the authorities by Beaumont J., never purported to be exhaustive, rather than that the programs here fell within the definition.<sup>63</sup> He went on to find that the object code versions were adaptations

<sup>60</sup> (1984) 53 A.L.R. 225, Full F.C.

<sup>61</sup> The Apple Programs were contained in 6 ROM chips and their Wombat equivalents in 2 ROMs and 1 EPROM, no doubt reflecting the advance of technology, and it seemed likely that the actual physical pattern of charges and gateways would be different.

<sup>62</sup> This is a form of source code intermediate between a high level language like BASIC or FORTRAN and object code. On the Apple it consisted largely of instructions in the form of three letter groups.

<sup>63</sup> Sheppard J.'s reasoning is similar to that of Lockhart J. on this point.

of the source code versions within the meaning of section 10(c) of the *Copyright Act 1968*, since they were equivalent to translations. He regarded it as irrelevant that the translation was performed quite mechanically by a machine. Again this seems correct. If the human language version of a copyright manual is fed through an optical character reader into a computer programmed to translate into another human language, and a translation in that version is printed out, there seems no reason to suppose that such translation would not in appropriate circumstances amount to an infringing copy. He also regarded it as immaterial that the form into which the source code was copied was itself incapable of being seen except through an electron microscope.<sup>64</sup> Lockhart J. found it unnecessary to decide whether the object code form of the programs was a reproduction in material form of the source code, or whether the programs in that form were original literary works, though he professed some doubt as to the latter. Nor did he find it necessary to decide whether the Wombat<sup>65</sup> chips infringed by reproducing Apple source code, since he found infringement by reproducing an adaptation of that source code. Shephard J. dissented on the basis that the object code, being as such unable to be seen, could not amount to an original literary work, and in his view could not be regarded as an adaptation of the source code, which he conceded to be such an original literary work, because the context of section 10 indicated that translation also required the production of something that was capable of being seen by a human being. In these conclusions he placed some reliance upon the old music cases.<sup>66</sup>

Given the dissenting judgment, and given Lockhart J.'s doubts about some key issues it was perhaps as well that the government had prepared legislation. It has in fact now been enacted, and came into force on the date of enactment, thus ante-dating the hearing of any further appeal in the *Apple* case. The High Court has now given leave to appeal, and it remains to be seen whether it will prove to have been wise for the government to have gone ahead with the legislation pending that hearing.

The principal amendments are designed to deal with doubts which were raised in the *Apple* case. To that end a new clause defining a computer program has been inserted into section 10:

“ ‘computer program’ means an expression, in any language, code or notation, of a set of instructions (whether with or without related information) intended, either directly or after either or both of the following:  
(a) conversion to another, language, code or notation;  
(b) reproduction in a different material form, to cause a device having digital information processing capabilities to perform a particular function.”

<sup>64</sup> It could also generate a readable print-out, of course.

<sup>65</sup> The name given to the respondents' machine.

<sup>66</sup> *White Smith Music Publishing Co v. Apollo Co* (1908) 209 U.S. 1.

This is much more complicated than the American definition<sup>67</sup> and it is not clear that it is an improvement. For example it omits any reference to statements, and may thus not apply to data specifications in programs. It is also limited to digital devices, and hence would not apply to programs for analog computers. Nor is it clear that it will be capable of applying to programming for the coming generation of optically based machines. It is also possible to argue that the words "language, code or notation" are not sufficiently general to encompass patterns of electrical impulses, and would thus exclude object code from being in itself a computer program. This is odd since another of the new definitions, that of "material form" is made to include "any form (whether visible or not) of storage from which the work or adaptation, or a substantial part of the work or adaptation, can be reproduced". It seems clear that that definition does extend to ROM storage. It appears to follow that the ROM cannot contain a program, but it may, because of the new definition of an adaptation in section 10(ba) as:

"in relation to a literary work being a computer program — a version of the work (whether or not in the language, code or notation in which the work was originally expressed) not being a reproduction of the work:"

contain a "version" of it in a material form, though even that seems uncertain on account of the use here also of reference to "language, code or notation" which might be construed so as to exclude patterns of electrical charge. Of course, if notation is given a wide meaning such difficulty will be avoided, but it would have been more helpful if legislation designed to clarify the position had been a little more explicit.

Among other amendments the Act also incorporates a new provision, section 43A, corresponding to the new American section 117 in permitting the making of "back-up" copies of a copyright program without infringement.

The transitional provisions are of special interest in view of the interaction with the Apple litigation. The general scheme is that if copyright subsists only because of the effect of the amendments then nothing done before the Act will be regarded as an infringement. So, it is quite possible that if the High Court takes a view similar to that of Lockhart J. it may have to hold that those of Computer Edge's acts which infringed the adaptation of the source code will amount to an infringement because they were covered before the Act, whereas those framed in terms of infringement of the object codes will not, because only the amendments may have brought them within the Act, depending upon how it is construed. However any further copying of such code will henceforth amount to infringement. To the extent that the Act reduces copyright protection for programs, say by excluding those designed to run on analog machines, it seems that the Act has retrospective effect.

### C. United Kingdom

The United Kingdom is doubly unique in not having recent explicit

<sup>67</sup> See above.

legislation on the topic, and in not, so far, having a reported<sup>68</sup> case in which Apple Computer are the plaintiffs. The governing statute is still the substantially unamended *Copyright Act 1956*.<sup>69</sup> This means that in order to qualify for protection the program must be regarded as an original literary work. It will be open to a defendant to argue in England upon the basis of exactly the same cases<sup>70</sup> as those relied upon in Apple in Australia that the work must have been intended to afford information, instruction or pleasure. The facts of those cases were however very different, there was no indication that the judges intended the phrase to be definitive, and even if they did it is by no means clear that computer programs would have been excluded.<sup>71</sup> In South Africa where the relevant provisions are similar to those in England computer programs have been held to be susceptible of protection by copyright law.<sup>72</sup> This view is maintained by a number of commentators, was adopted by the Whitford Committee, and has been accepted by the government. The view has also been adopted on a provisional basis in a number of recent cases, usually as the foundation for granting an injunction pending trial of the action.<sup>73</sup> It cannot be pretended that it is completely free from doubt however, which is why the Whitford Committee recommended clarifying legislation. It is interesting that Whitford J., when the point came before him in his judicial capacity, professed himself uncertain as to the current status of the law.<sup>74</sup>

#### 4. CONCLUSIONS

A number of lessons can be derived from these two studies. They show, first of all, the impetus to legal change provided by technology, new in its day. Thus the introduction of the printing press caused just as many legal convulsions as the later development of the computer is continuing to cause. The initial reaction in each case was also the same, to use an existing legal device in pursuit of the values and goals of those holding the power to achieve them. Thus the royal prerogative and a system of licensing were used to establish and maintain as long as possible royal control over the publication of primary legal materials. Later on, commercial advantage dictated the employment of copyright in relation to computer programs. In both cases the existing tools required legislative sharpening, being a little too blunt for their task. In the

<sup>68</sup> There is however an unreported case, *Apple Computer Inc. v. Sirtel (UK) Ltd*, Chancery Division 27 July 1983, available on LEXIS.

<sup>69</sup> Unless computer programs can be regarded as sound recordings, which is not quite so far-fetched as might be supposed in view of the increasingly widespread transmission of computer programs on radio channels.

<sup>70</sup> Principally *Hollinrake v. Truswell* [1894] 3 Ch. 420 (not a cut-out with writing on it to assist in making a sleeve), and *Exxon Corporation v. Exxon Insurance Consultants International Ltd.* [1982] Ch. 119 (not a single artificially constructed word).

<sup>71</sup> In the *Exxon* case Oliver L.J. made a point of saying that a compilation of code words would be included.

<sup>72</sup> *Northern Office Microsystems Ltd. v. Rosenstein* 1981 (4) S.A. 123 at 130.

<sup>73</sup> See above.

<sup>74</sup> *Wilkins v. Prime* (29 April 1981, unreported, but available on LEXIS).

case of the printing press it was necessary to create the new notion of copyright, and to express it in an act of parliament. In the latter case it is still not yet clear whether the desperate honing of definitions will prove sufficient to stave off the creation of some wholly new piece of legal weaponry.

The technologies of printing and of computing have had a profound, and generally beneficial, effect upon the quality of human life, and for similar reasons. Both have opened a new dimension for the operation of the human brain. Powers of communication and calculation have been advanced quite dramatically in each case. It is the task of the law to smooth away any encumbrance upon the opportunity to exploit such advances. If this is to be realised it is important to remember the essential instrumentality of the law. It is there to provide the best solutions to the problems posed by new technology, of whatever vintage. It must not be constrained. It must be free from any sense of external constraint. It should neither regard itself as forced to innovate just because it is faced by new problems, nor inhibited from doing so because of the rigidity of its concepts. Sometimes the best response to a new technology is to employ the common law's established techniques of adoption and adaptation of existing rules. But where the old concepts are unable to cope new ones must be created. Copyright is an excellent example of just such a reaction.

In the area of computer programs technology and law have interacted relatively simply in a relation of cause and effect. In the area of copyright the union has been more intimate, and more fruitful. The new technology of printing not only stimulated the development of a new legal concept, but had a direct effect upon the working of the legal system by providing a better and cheaper method for disseminating legal knowledge. The computer has provided the means for advancing that endeavour still further, but its more substantial achievements lie further ahead. So far it has provided a new order of magnitude in the retrieval of legal information through such services as LEXIS and CLIRS. In the future it may be possible to employ the machine to help perform the more creative and vital roles which are currently the exclusive province of human beings.<sup>75</sup> When, and if, that time comes, Janus and genius will not be opposed but united. But that is another story, and for another lecture. Wittgenstein's last sentence in the *Logico-Tractatus* is as striking as his first, "Whereof one cannot speak, thereof one must be silent."

<sup>75</sup> Among the more valuable of the early contributions to this burgeoning field see especially Buchanan and Headrick "Some Speculations about Artificial Intelligence and Legal Reasoning" (1970) 23 *Stanford Law Review* 40, and McCarty "Reflections on TAXMAN: an experiment in artificial intelligence and legal reasoning" (1977) 90 *Harvard Law Review* 837.