

COPYRIGHT, PHOTOGRAPHY AND COMPUTER WORKS - THE FICTION OF AN ORIGINAL EXPRESSION

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I. INTRODUCTION

Copyright owes its heritage to the world of literature. Whilst its domain was expanded to accommodate other forms of cultural production and mass reproduction throughout the nineteenth century, in order to win protection these 'new works' had to be explained in terms of the literary model. The basic requirement was an original expression fixed in material form from which the reproductive right ensued. If the new work lacked this requirement, as in the case of photography where the material forms of the 'original', the negative and prints, only come into existence after processes separate to the taking of the shot, two separate problems arise. Firstly, there is the temporal issue: at what point does copyright arise? Is it at the taking of the shot, at the production of the negative, or at the making of the prints? With photography, the actual technology, chemical, and mechanical processes become as central to production as the photographer's effort. Secondly, there is a labour issue: who owns copyright when the process of generating an 'original work' involves numerous, differently skilled efforts? Is it jointly owned by all collaborators or does one party have a better claim? Where technology is integral to the production of a material work, can one effort be deemed as primarily creative and other contributions be rendered merely

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technical? If so, what is the 'creative' quality that copyright recognises and protects?

Photography could be seen as an early case where new technology challenged the traditional value judgments that underpinned the existing copyright regime. However, all the works that copyright protects involve reproductive technology of some sort. What is significant about photography and many other new technological forms is that the complexity of the technology becomes more integral to the creative process. This makes it harder to identify the creative moment and actor.

In order to award protection, copyright selects an actor and privileges his or her contribution to the creation of an original work above that of other actors. With photography, copyright pretends that the person who took the shot actually created a work in material form. With computer works, the problem is not so easily overcome.

The problem with protecting computer works stems from the inability to even fictionalise *an* expression. The first problem stems from our tactile experience of these kinds of works. It is the user who makes the works real, not the 'author' or the 'producer'. In a sense, there is no original 'out there', but rather we bring it to life on our machines as a reproduction. This means that something less than full protection of the work seems appropriate. But how much less? A second problem flows from this: by their efforts in interacting with the 'original reproduction', can users create further new, independent expressions? Or is the whole experience of computer works one that is not easily severable into individual efforts? Can copyright adequately accommodate the reality of a compilation of efforts that is more than an aggregate of smaller parts? A third problem flows from this: if copyright cannot accommodate collaborative work of this nature, should every part of the process and every person involved be able to independently claim a copyright? Should every activity be considered an expression? Alternatively, if individual contributions should not be counted in this way, does this mean that the *major* contributor owns the entire expression? The resolution of these questions has very real implications for the development of the computer trade.

This paper considers how the current law is addressing these questions and it looks at how industry is fashioning alternative solutions. It is argued that the future of copyright protection of computer works lies in a departure from a universal approach to defining what constitutes a copyrightable expression. It is argued that the way forward should be a 'balancing' of the need for protection of the innovator and the need for access by other industry players and consumers. However, more than an ad hoc approach is required. In each and every case of litigation, much more is involved than the interests of the two parties. Because of the degree of interaction between all players in this industry, the ramifications of individual decisions are far reaching and direct.

II. COPYRIGHT'S LITERARY HERITAGE - THE DISTINCTION BETWEEN AN ORIGINAL WORK AND COPIES

It is not true that before the printing press no distinction was made between the original and the copy. Scribal workshops in the monasteries and courts made comparisons of the original and the copy, notwithstanding that the 'original' itself may also have been an earlier copy, ultimately attributable to God, the original creator.¹ However, in judging the 'authenticity' of the copy, the focus was not so much an assessment of the copyist's accuracy in mechanically mastering a resemblance of the earlier work. Rather, it involved a more fundamental concern about a possible departure from the meaning represented by the formerly authoritative source.

The printing press forged an entirely different relationship between the original and the copy. In unleashing the power for multiple copies, each copy immediately resembling the other, concern shifted from a judgment about the 'authenticity' of this or that particular work to a question of managing the circulation and reproduction of all works, most importantly by distinguishing the authorised from the unauthorised 'copy'. 'Copy' was used to refer to either the work produced by the author or to the work reproduced by the press.² The copy was not an exclusive right of authorship; nor was there a general or universal right of printers to reproduce any work of their choosing.

The authorised and the unauthorised copy were distinguished with reference to whether or not the copy had issued from a licensed press. Through licensing of the presses, the Crown attempted to suppress politically sensitive material. The Crown also sponsored 'useful' works by the granting of exclusive printing patents in them. Patronage also assisted the latter project with patrons underwriting the printing of specific works that were considered authoritative for the virtues they represented, rather than because they issued from a particular 'original' author. In the Tudor period, an exclusive 'right to copy' works was awarded to members of the Stationers' Company in return for the stationers taking on responsibility for licensing and censoring literature.³ These printing monopolies were supported by powers of search and seizure, confiscation and burning of unauthorised works, and fines.

After the lapsing of the licensing laws, the first general English copyright law was passed, formally extending a limited monopoly to print works to all those who first registered them with the Stationers' Company.⁴ The statute continued the tradition of the 'right to copy' rather than awarding a general 'copyright' to authors. Cases where authors received the market value for their 'copy' by relying upon their rights as acknowledged in the *Statute of Anne* are rare, Alexander Pope

1 See E Eisenstein, *The Printing Revolution in Early Modern Europe*, Cambridge University Press (Canto Edition, 1993) pp 84-9.

2 See D Nichol, "On the Use of 'Copy' and 'Copyright': a Scriblerian Coinage?" (1990) 12 *The Library* 110.

3 See J Feather, "From Rights in Copies to Copyright: The Recognition of Authors' Rights in English Law and Practice in the Sixteenth and Seventeenth Centuries" (1992) 10 *Cardozo Arts and Entertainment Law Journal* 455.

4 It is known as the *Statute of Anne* 1709 (8 Anne, c 19).

being the most often cited 'exception'.⁵ Primarily the legal issue remained the distinction between the authorised and the unauthorised copy, essentially a contest between printers. The contest focused upon the 'authority' of registration and how this affected the status of the copyrights settled on members of the Stationers' Company before the *Statute of Anne*.

By the late eighteenth and early nineteenth century there was a cultural and legal shift in attention to the issue of protecting 'original' works. Natural rights theorists, such as John Locke, suggested a universal right of labour that could be transposed from the case for real property to the author, and soon after, romantic theory celebrated the author's personal expression, giving an elevated status to the authentic, original work. This led to a new legal interest in determining the rights of the creator of an 'original' work. Although case law determined that the rights of authors were delineated and limited by statute rather than based upon natural rights of justice or common law,⁶ there was a general and widespread acceptance of the notion of authors as 'owners' of their works. The mark of an author was the production of an 'original' work.⁷

The courts could have protected select authors by demanding a certain standard of originality be achieved before protecting literary works; however in order to avoid the responsibility for making such overt aesthetic and political judgments the courts shifted the focus from the criteria of originality itself to the notion of protecting original 'expressions'. An *expression* was the work as it existed in 'material' form. In other words, copyright protected those ideas that had been represented in a form ready for mass reproduction. This meant that an 'original work' came to signify the source for mass reproduction, as distinguished from the 'copy', the reproductive right assigned for editions to the printer or stationer, or more commonly in the nineteenth century, purchased outright from the author.

This suggests a key distinction between the original and the copy. The power to copy almost appears as an incidental power arising from the original 'creative' act, rather than the point of protecting the original in the first place. However, the original and the copy work more in tandem than in the distinction of one from the other. Emphasis upon the right flowing from the 'original' act engenders a spirit of respect for private property relations, in terms of respect for the author's private autonomy and free will in choosing how to present the work to the public, and in terms of respect for the 'orderly' establishment of markets by guaranteeing a limited monopoly for those investing in mass reproduction of 'original' works. In this sense the 'original' and the 'copy' are united in opposition to the infringing copy, rather than fundamentally separated from each other.

The status of the infringing copy is of an entirely different order to that of the unlicensed work. The unlicensed work was dangerous because of its potential content. The infringing copy is dangerous because of its function - its circulation

5 See J Feather, *A History of British Publishing*, Croom Helm (1988) p 102; D Hunter, "Pope v Bickham: An Infringement of *An Essay on Man Alleged*" (1987) 9 *The Library* 269; and M Rose, "The Author in Court: *Pope v Curl* (1741)" (1992) 10 *Cardozo Arts and Entertainment Law Journal* 475.

6 See *Donaldson v Beckett* (1774) 4 Burr 2408, 1 ER 257.

7 See M Rose, "The Author as Proprietor: *Donaldson v Becket* and the Genealogy of Modern Authorship" (1988) 23 *Representations* 51 at 69.

destabilises the nexus between creator and industrialist, undermining the ongoing employment relationship between them and affecting the ready market for 'original' works already supplied. For this reason, the focus on protecting the private 'rights' flowing from the original work becomes the key issue in copyright. Questions about the need for access to works, outside of the relationships of access which the economics of mass circulation and consumption bring into play, fade into the background.

By the nineteenth century a judgment of the 'authenticity' of the work had been transformed from a questioning of the work's significance into a matter of proof of the conditions of the purchase of the copy. However, using this criteria of authenticity, it made no sense to privilege particular expressions with copyright protection and deny protection to others also in commodifiable form. Hence, copyright was progressively expanded throughout the nineteenth century to cover an ever increasing number of expressions - engravings, textile designs, carpets, artistic works, maps etc. There had to be an 'original' work in order to attract copyright - but all that this meant was that there needed to be an expression ready to be copied, copied by the one with the right to reproduce the work, and illegitimately copied by the one who takes 'short cuts' into that market and so brings the court's coercive powers into play.⁸

III. COPYRIGHT AND PHOTOGRAPHY

Copyright can be extended to new forms of works so long as their reproductive technique can be explained using a distinction between an 'original work' and 'copies' and so long as divisions of labour do not appear that undermine identification of the work's 'originator'. From this perspective, the extension of copyright to photographic works in the nineteenth century was an interesting development.⁹ The photograph is a product of both physical and chemical procedures. Except in the case of the polaroid, the negative must first be developed and then processed, before the 'expression' takes shape. Because of this, there is no 'original' moment expressed in material form, and it is impossible to distinguish an 'original' print from the other authorised copies. The creator of the authorised copies may not be the same person who 'took' the photograph. It is commonly a skilled technician. Because of this, it is worth considering why the specifics of photographic production do not prevent the protection of these works as copyright.

8 As Lord Langdale said, "Any man is entitled to write and publish a topographical dictionary, and to avail himself of the labours of all former writers whose works are not subject to copyright, and all public sources of information; but whilst all are entitled to resort to common sources of information, none are entitled *to save themselves trouble and expense* by availing themselves, for their own profit, of other men's works still subject to copyright and entitled to protection" in *Lewis v Fullarton* (1839) 48 ER 1080 at 1081 (my italics).

9 Photographs were protected under the *Fine Arts Copyright Act* 1862 (UK), s 1 (25 & 26 Vict c 68).

A. Photography and the Original Work

Initially, the courts had great difficulty in translating authorship to photography as provided under the *Fine Arts Copyright Act 1862* (UK) (hereinafter, the 1862 Act). As Brett MR said:

I confess I have the greatest difficulty in construing this Act of Parliament. Persons who draw Acts of Parliament will sometimes use phrases that nobody else uses. I am speaking for myself only, as to the strangeness of the phraseology. It says, - 'The author,' and so on - 'of every original painting'. Who ever, in ordinary life, talks of 'the *author*' of a painting? We talk of an artist or a painter. Who ever talks of him [sic] as in this Act of Parliament as the author of a painting? Then it says 'the author' of a drawing. Yet one can easily make out who is meant by the author of a painting or drawing. The author of a painting is the man [person] who paints it; and the author of a drawing is the man [sic] who draws it.¹⁰

He continued:

But now we have 'the author' of a photograph. I should like to know whether the person who drew this Act of Parliament was clear in his mind as to who can be the *author* of a photograph.

...It is difficult to say who is the author of the photograph. Neither of them make the picture because, after all, that is done by the sun.¹¹

Paintings, like drawings and literary works, are generally produced in a singular form. This allows us to identify the expression by reference to the individual author *before* the question of reproducing the work arises. The 'original work' comes to signify the source for mass reproduction. It can be distinguished from the 'copy', the reproductive right contractually assigned for editions to the printer or publisher. This temporal distinction between the original and the copy has been useful to copyright. It has allowed the court to define the 'copyright' by reference to the existence of a former singular work. However, as noted above, this is not so that a definitive expression can be given boundaries, but rather so that the ownership rights that have flowed from it can be identified. So far as the 'author's right' is concerned, the courts merely have to consider the authority of any assignment of the right that originated with the author.¹²

What can the courts do when the specifics of production and reproduction preclude such a serial approach to copyright, such as with photography? Photography frequently involves collaborative efforts, the camera operator interacting with others along the way, building upon their judgment, their skill, and their knowledge. Chance also always plays a significant part. Who is responsible for the photograph? Is it the person who came up with the general idea of the subject; the one who arranged the subject; the person who positioned the camera; the party responsible for the choice of lighting and lens; the person with control over the timing of the shot; the person who developed the negative; the one who chose which part of the negative from which to print and the photographic paper to use; or the party who developed the print?

10 *Nottage v Jackson* (1883) 11 QB 627 at 630.

11 *Ibid* at 632.

12 See p 4f.

In *Nottage v Jackson*,¹³ the court found that “the author”¹⁴ of the photograph was the one who was the “effective cause of the picture”, meaning the person who “superintended the arrangement”.¹⁵ This meant that the author was the photographer who chose the arrangement for the snapshot, rather than the employers who came up with the idea of the subject (a photo of an Australian cricketer) and provided a photographer in their employ with appropriate equipment and materials and the suggested location in which to take the photograph. Because the registration of the employers as ‘authors’ was invalid, their action against an alleged pirate failed.

Nottage v Jackson was distinguished in a latter case, *Melville v Mirror of Life*.¹⁶ In this case, the ‘author’ that was protected had not operated the photographic equipment. Rather, his son operated the camera, arranged the subject, and framed the overall shot. However, the court suggested that because the party claiming authorship was on site and appeared to be in effective control of the shoot, this made the actual operator a mere ‘agent’, the ‘principal photographer’ being the party capable of assuming control of the process. Authorship was vested with reference to the intention of the parties, rather than through a strict interpretation of the significance of events.

These early cases failed to distinguish between the significance of taking the shot and developing a negative from which prints are taken. The 1862 Act had referred to the author of the “photograph or negative” without any explanation as to whether or not this should be read as meaning one and the same person. Nineteenth century cases such as *Melville v Mirror of Life* simply assumed that ownership of the negative followed from the decision about authorship of the photograph, unless there was a formal agreement otherwise. Whilst this position appeared easy enough to work from, it proved more difficult. A great deal of photographic work was done on some kind of commission basis, and most of the copyright disputes involving photography centred on the question who should own the copyright in the absence of any formal agreement. It appears that often the industry practice was to seriously consider copyright only once the negative had been developed and when it was decided that the reproductive right might be worth something.¹⁷

When drafting the Australian copyright laws in 1905, the Commonwealth Parliament debated who should own what when a photograph was taken. The majority argued in line with the *Melville* case that, in the first instance, the

13 Note 10 *supra*.

14 *Ibid* at 631.

15 *Ibid* at 632.

16 [1895] 2 Ch 531.

17 The first Kodak camera, factory loaded with a roll of film for 100 shots, was sold for \$25 in the United States in 1888. The whole apparatus had to be returned to the factory to be re-loaded. It was superseded in 1900 by the first Brownie camera, which sold for only \$1 using film that cost 15c. By 1905, there were an estimated 10 000 000 amateur photographers in the USA and about 4 000 000 in the UK. However even with the enormous growth in amateur photography brought about by the Brownie camera, it was still common to commission a portrait from a professional photographer throughout the first half of the twentieth century: see G King, “You Press the Button...A short history of the snapshot” in G King, *Say ‘Cheese!’ Looking at Snapshots in a New Way*, Dodd, Mead & Co (1984) pp 1-15.

photographer should own the negative, the copyright, and the prints unless the operator is an employee in which case they belong to the principal (cl 39). However when the photograph was commissioned, for example where “a beauty orders her photograph and pays for it”, it was decided that the prints and the copyright should belong to the customer. Accordingly, the photographer could be prevented from multiplying copies or even from exposing them to public view in the shop. It was determined that, in the absence of an alternate agreement, the tangible property in the negative (the glass the negative was created on) still belonged to the photographer.¹⁸ In later debates, some members objected to this. Photography, it was argued, should not have a copyright at all:

The difficulty is that so much of the work of producing a photograph is truly mechanical. For instance, the use of a fine lens will assist a photographer in a way that nothing else will.¹⁹

This objection was met by the claim that:

[S]uccess in photography can be obtained only through the application of brain power. There is as much intelligence required in taking a photograph as there is in any other avocation.²⁰

Whilst this reference was meant in the spirit of ‘art’, so far as the *Copyright Act* 1905 (Cth) accommodated the ‘rights’ of employers, ‘intelligence’ and ‘brain power’ also involved the business sense in choosing a valuable photographic subject and the suitable employees and equipment to be engaged in taking the shot and developing the copies.

The wording with regard to the owner of photographic copyright was changed as copyright law was reformed throughout the twentieth century. For example, the *Imperial Copyright Act* 1911 (UK), which allowed for reciprocal protection as independent legislation by a Dominion, adopted in Australia in 1912 out of respect for international copyright harmonisation,²¹ provided for a copyright for “fifty years from the making of the original negative from which the photograph was directly or indirectly derived”.²² In case law, confusion tended to arise from this definition. When a commissioning party intends to purchase a specified number of prints, a negative must be made. Must the customer pay for the material from which the negative is made? If they do so, do they automatically get the copyright along with it? Or does the photographer simply provide the negative as part of the service of reproducing a print? Does the customer or the photographer hold the copyright in the prints?

MacKinnon J claimed in *Sasha Limited v Stonesco*:²³

18 Australia, Senate 1905, Debates, vol HR26, pp 2999-3000.

19 Australia, House of Representatives 1905, Debates, vol HR30, p 7248 (Mr Conroy).

20 *Ibid* (Mr Fisher).

21 See Australia, Senate 1912, Debates, vol HR64, pp 1333-9; Australia, Senate 1912, Debates, vol HR67, pp 4509-19.

22 *Copyright Act* 1911 (UK), s 21. One of the virtues of this provision was that it clarified the term of copyright for photographs “owned” by a corporation, silencing an objection raised in *Nottage v Jackson* (note 10 *supra*) that employers could not own copyright, as they have no natural life against which the term for copyright could be measured.

23 *Sasha Ltd v Stonesco* (1929) 45 TLR 350 (KB).

It was the sort of region in which though the words of the Act were quite plain it was extremely difficult to ascertain the application of the law to the facts. The case was an illustration of the fact that the terms of the simplest contracts which everyone entered into every day were the most difficult to ascertain, because they were made with the minimum of expression and the maximum of implication.²⁴

In this case, the courts distinguished two kinds of situations which led to the production of a negative. The first one was where:

There might still be some persons so undistinguished that they resorted to a photographer without being invited. The contract in that almost hypothetical case was a request by the customer to do work by making a negative.²⁵

The intention would be that the customer must pay for the negative even if they decided not to have any prints made. The judge concluded that because of this, the customer would also be entitled to the copyright, although it was clear that His Honour thought that the copyright in such photographs would be of little value. In the second situation where the photographer invited a party to sit and pose, it was felt that although he or she might provide some 'publicity' copies to the photographic subject, there was no way that the subject could be forced to pay for the negatives to be made. The photographer, thus, would retain both the negatives and the copyright.

In both situations, the courts treated owning the tangible property in the negatives as necessarily leading to owning the copyright as well. This approach collapsed the distinction between owning the ordinary, tangible property in the negative and owning the intangible property of copyright. It appeared that copyright was almost decided by default, its significance camouflaged by discussion about the intent behind ill-defined labour and service contracts. Further, it was not contemplated what would happen if a party other than the photographer developed the negatives or the prints.

This situation was re-addressed when the Australian copyright laws were revised in 1968. For works prior to 1968 the emphasis on the significance of 'making the negative' was altered to emphasise owning the material on which the photograph was made.²⁶ This clarified the language of the statute in line with its reading in decided case law. However, for works after 1968 the author of a photograph was defined as the person who "took" the photograph.²⁷

This suggests a reversion to the position under the 1862 Act, with copyright again arising from the 'original' moment of pushing the button, despite there being no expression in a form capable of being reproduced existing at that time. However, the position is only superficially similar; there had been significant changes in our understanding of the technology that had developed in the intervening century.

At first, the photographer was seen as a technician, a scribe rather than a poet.²⁸ This view was reflected in legal discussion that suggested that the picture was really made by the sun rather than the 'author', and the suggestion that

24 *Ibid* at 352.

25 *Ibid*.

26 *Copyright Act 1968* (Cth), s 208.

27 *Ibid*, s 10(1).

28 S Sontag, *On Photography*, Penguin Books (1977, reprinted 1984) p 88.

photography was so mechanical that copyright should not apply at all. However, once the experience of photography had become commonplace it was understood that making the picture was not so mechanical:

[A]s people quickly discovered that nobody takes the same picture of the same thing, the supposition that cameras furnish an impersonal, objective image yielded to the fact that photographs are not only of what's there but of what an individual sees, not just a record but an evaluation of the world.²⁹

It was also understood that this evaluation involved both "superintending the arrangement"³⁰ and manipulating the device in order to give rise to the photographer's unique view. This understanding was reinforced by the advertising of the technology:

**It's hard to tell where you leave off
and the camera begins**

Minolta 35mm SLR makes it almost effortless to capture the world around you. Or express the world within you. It feels comfortable in your hands. Your fingers fall into place naturally. Everything works so smoothly that the camera becomes a part of you. You never have to take your eye from the viewfinder to make adjustments. So you can concentrate on creating the picture... And you're free to probe the limits of your imagination with a Minolta. More than 40 lenses in the superbly crafted Rokkor-X and Minolta/Celtic systems let you bridge the distances or capture a spectacular "fisheye" panorama...

MINOLTA

When you are the camera and the camera is you.

-advertisement (1976)³¹

To award copyright to the 'taker' of the photograph was to recognise that the skill involves both an aesthetic and a mechanical understanding and that it makes no sense to judge one as more important than the other.

The legislature's departure from consideration of the production of the negative does, however, create another problem. It treats the production of the negative and the printing of the photograph as less significant creative processes than the framing of the shot. It may make sense to overlook the production of the negative and the prints in the case of the amateur photographer who gets their photographs 'mass' processed. However such works are not really the stuff of infringement actions. When it comes to professional photography:

The vintage print is specified as one made 'close to the aesthetic moment' - and thus an object made not only by the photographer himself, but produced, as well, contemporaneously with the taking of the image. This is of course a mechanical view of authorship - one that does not acknowledge that some photographers are less good printers than the printers they hire; or that years after the fact photographers re-edit and recrop older images, sometimes vastly improving them; or that it is possible to re-create old papers and old chemical compounds and thus to resurrect the look of the

²⁹ *Ibid.*

³⁰ Note 10 *supra* at 632.

³¹ Note 28 *supra*, p 186.

nineteenth century vintage print so that authenticity need not be a function of the history of technology.³²

Why does copyright overlook this reality? Why return to the emphasis on the 'taking' of the shot? Beyond a failure to consider the differences that might arise between the case of the professional and the novice photographer, the appeal of the emphasis on the 'taker' appears to lay within copyright's desire to translate the work into a discourse that separates the 'original' and the 'copy'.

Whilst the negative, as a singular and unique object capable of being reproduced can play the role of 'the original expression', its place as an interim process frustrates such an association. Where did the image on the negative come from? That it comes from somewhere else detracts from its identification as 'original'. This leads one back to the 'taker' of the image. But the taker of the image has not produced an expression that is in reproducible form. How can copyright overlook this reality?

Copyright can overlook the question of what it is that the photographer actually produces because it is understood that, unlike with painting or drawing, the taker of a photograph is more a mediator of an experience that happened 'out there' than the 'original' source of an expression. The original already exists in the real world as a presence or as an event, the photographer 'captures' it:

A specific photograph, in effect, is never distinguished from its referent (from what it represents)... By nature, the Photograph...has something tautological about it: a pipe, here, is always and intractably a pipe. It is as if the Photograph always carries its referent with itself...

Whatever it grants to vision and whatever its manner, a photograph is always invisible: it is not it that we see.³³

Whether the photograph serves an informative function or conjures affective relations, the assumption is that some central essence has been captured by the image and so recorded in time. This displaces the reality that at the time of taking, the image is yet to come into being. It also ignores that to make sense of the image one needs to draw upon a matrix of culturally specific suppositions:

...if we accept the fundamental premise that information is the outcome of a culturally determined relationship, then we can no longer ascribe an intrinsic or universal meaning to the photographic image. But this particularly obstinate piece of bourgeois folklore - the claim for the intrinsic significance of the photograph - lies at the center of the established myth of photographic truth...³⁴

Whilst no one subject really authors the 'original', the photographer is constructed as the author of a universal expression, as the observer closest to the moment captured for all time.

By identifying the 'taker' of the photograph as the owner of the copyright we allow for the orderly reproduction of that print. Whilst not the source of the original, the taker originates the reproductive process. He or she can 'authorise' the reproduction of the 'moment', perhaps subject to a service agreement with the

32 R Krauss, *The Originality of the Avant Garde and Other Modernist Myths*, MIT Press (1986) p 156.

33 R Barthes, *Camera Lucida: Reflections on Photography* (translated R Howard), Jonathon Cape (1st American ed, 1982) pp 5-6.

34 A Sekula, "On the Invention of Photographic Meaning" in A Sekula, *Photography Against the Grain: Essays and Photo Works*, Press of the Nova Scotia College of Art and Design (1984) p 5.

producer of the negative or prints. Through this process photography is accommodated within the usual copyright dynamics - respect for the solitary 'creator' and respect for the right to mass reproduce that work, subject to a licence from the 'creator'.

It is worth noting here that photography quickly developed a 'natural' association with book publishing:

For many decades the book has been the most influential way of arranging (and usually miniaturising) photographs, thereby guaranteeing their longevity, if not mortality - photographs are fragile objects, easily torn or mislaid - and a wider public. The photograph in a book is, obviously, the image of an image, but since it is, to begin with, a printed, smooth object, a photograph loses much less of its essential quality when reproduced in a book than a painting does.³⁵

This association reinforced the importance of the licence to reproduce works, the authorised copy differentiated from the unauthorised one by reference to contractual relations. Authenticity of a work can still be determined with reference to private property relations. It does not require a judgment of the nature of the work itself.

What we can conclude from this is that copyright deals with other kinds of works by translating their production techniques into the terms of the literary model. Rather than reappraising the utility of concepts such as the original author and the fixed expression, the courts and the legislature stretch the meaning of these concepts to new situations and production techniques. In this sense, copyright does not try to discriminate amongst works, but rather strives to accommodate them, in copyright's own terms.³⁶

IV. THE ORIGINAL WORK AND DIGITAL MEDIA

Computer works are expressed in a digital format but only accessed by the public through interaction with an interpretative device. The problem this creates for copyright is that the expression - the information stored as source and object code³⁷ - is unintelligible until it is processed through another apparatus. With computer works, we cannot but acknowledge that the medium is the message. We only experience the media in a virtual landscape, that landscape being activated by the 'reader'. The arrangement of this 'landscape' is affected by individual configurations of hardware, by the other software accessed by that machine, and

35 Note 28 *supra*, p 4.

36 There are of course a few special provisions specific to artistic works. For example, when a portrait is commissioned, s 35(5) gives a kind of moral right to the taker of the photograph, or maker of the painting, drawing or engraving. This prevents the commissioner from holding copyright for other than the purpose made known at the time of the making of the contract. see S Ricketson, *Intellectual Property: Cases and Materials*, Butterworths (1994) at [7.1.5]-[7.1.6]. There are also provisions relating to the "incidental use" of artistic works under ss 65-67, see S Ricketson (above) at Figure 6.1, p 302.

37 "A source code is a computer program written in any of several programming languages employed by computer programmers. An object code is the version of a program in which the source code language is converted or translated into the machine language of the computer with which it is to be used.": *Computer Edge Pty Ltd v Apple Computer Inc* (1986) 161 CLR 171 at 194, per Mason and Wilson JJ.

by further individual decisions made on the spot by the user. A large part of an expression in a computer work involves a close connection with the way it is duplicated, replicated, and interfaced with. The user's reproduction of the program may involve the creation of a new expression, other than that provided by the program developer.

Because reader interaction on a number of levels is required to make any computer work accessible, individual experiences of it are inevitably different. Further, beyond different individual experiences, the material form of a work accessed by any one individual is fleeting. The experience of the work will probably differ each time it is accessed. This means that even on an individual level, the work is experienced as endless, multiple variations rather than as a fixed, enduring form.

This does not make the experience of computer works inherently different to that of other media. It is a fiction that other literary and artistic works exist in a fixed form, fully inscribed with meanings formulated by a solitary creator.³⁸ However, with computer works it is impossible to even fictionalise a moment at which the work appears complete. It waits to be acted upon by the 'user' and because the computer work cannot be experienced without also experiencing the technology, we have no temporal reference point that allows us to consider this work as currently 'owned' or 'occupied', prior to other interactions with it. If a pristine expression cannot be identified outside of the relations of mass circulation how can we define what is to be protected once copies of the work are in circulation? There is no fixed form against which other alleged infringing works can be measured. At the same time, the computer work can be interpreted as individual works already protected in copyright, as works entailing other media, eg the text is a literary work, the sound is a sound recording, the graphics or photographs are artistic works etc.

This means that when there is an alleged copyright infringement of a computer work, the author's claim to own the *entire* work cannot be taken for granted, notwithstanding the acceptance that a tremendous amount of skill and judgment has gone into the making of the product. Whereas in other copyright cases, a degree of skill and judgment leads to an assumption that the author owns the entire expression, in computer works it only leads to a questioning of the quality of his or her contribution in order to refer to the boundaries to which he or she may have a claim. It cannot be assumed that the author's expression equates to the work as experienced on the machine. The author always owns *something less* than that.

38 See JP Barlow, "The Economy of Ideas: A Framework for Rethinking Patents and Copyright in the Digital Age (everything you know about Intellectual Property Law is wrong)" *Wired*, March 1994, p 85.

A. The Legal Protection of Computer Works

When dealing with the copyright protection of computer works in the *Apple* case,³⁹ the High Court dealt with this conceptual problem by splitting the computer work into two component parts - the source code and the object code. This was an anomalous way of dealing with this kind of work - the two 'codes' are mutually designed. It makes about as much sense to sever these as it does to sever the taking of the photograph from the processing of the negative and the prints.⁴⁰ The work does not exist until both 'components' are executed. Nevertheless, the High Court did so in order to try to accommodate copyright's need for a tangible expression based upon the literary model. The 'source code' most obviously fitted this requirement as Mason and Wilson JJ explained:

We have no hesitation in coming to the conclusion that each of the source programs was an original literary work...

Although the substance of the program in each case was expressed in 6502 Assembly Code, this is a language which was readily intelligible to anyone versed in computer science... *In the form in which it was created and before it was transformed into another medium*, each source program had an existence which was entirely independent of the machine. It was capable of conveying meaning as to the arrangement and ordering of instructions for the storage and reproduction of knowledge. In that form it was entitled to copyright protection.⁴¹

Copyright could protect the source code because it existed in a tangible form before input into the machine. That the only point of using such a code is so that it can be read by the machine was not considered by the court to be any obstacle to copyright protection. The court protects the expression without needing to judge the work itself.

However by determining this issue in this manner, it then became inevitable that it would be difficult to protect the object code - an expression in the form of electrical impulses. As Gibbs CJ held:

They were not visible or otherwise perceptible, and they were not, and were not intended to be, capable by themselves of conveying a meaning which could be understood by human beings.⁴²

He held that a literary work must be expressed in print - the obvious tangible form for this kind of work. The majority agreed that because the object code had no tangible existence outside of the machine it was incapable of protection.

Although Mason and Wilson JJ dissented on this point their explanation is also telling:

It is not correct to describe an object program as *merely* a sequence of electrical impulses within the computer. Electrical impulses there are, but those impulses serve to identify a set of instructions in machine readable language designed to guide the machine in its basic operations. They do not form part of the computer itself,

39 *Computer Edge Pty Ltd v Apple Computer Inc*, note 37 *supra*.

40 Whilst with photography, copyright treats the latter as a subsidiary effort, it is not ever really acknowledged as a distinct, independent process.

41 *Computer Edge Pty Ltd v Apple Computer Inc*, note 37 *supra* at 193 (my italics).

42 *Ibid* at 183.

notwithstanding that they may be embodied in a ROM or ROMs located permanently in silicon chips in a machine.⁴³

The attempt was to find an independent existence for the object code itself, as if it had a life exterior to the machine.

It may be thought that the 1984 amendments to the *Copyright Act* removed the need for such an artificial approach to computer works. For example, "literary work" was defined to specifically include computer programs (source *and* object code), and "material form" now included any form of storage, whether visible or not.⁴⁴ However, in case law the problem simply re-emerges further down the line. This can be seen from the *Autodesk* cases.⁴⁵

Autodesk had tried to enforce their strict software licence of one copy of the program per machine by encoding the AutoCAD program with instructions that were periodically sent to challenge the 'dongle', a security device that could be attached to the serial port leading from the keyboard. This AutoCAD lock was programmed to respond to the challenges. The AutoCAD program Widget C interpreted these responses by comparing them to a 'look-up-table' stored in its memory. If the dongle's response was not found in the look-up-table the program would cease to function. Dyason created their own version of the security device which could be connected in place of the AutoCAD lock, making unauthorised copies of the AutoCAD program viable. Thus a \$500 device was offered in competition with the \$5 200 package. In the first instance before the Federal Court, Northrop J determined that the dongle was itself a computer program:

It is fair to say that the amendments of the *Copyright Act* made in 1984 were designed to ensure that computer programs, even when constituted by electrical impulses which could not be perceived by the senses and were not intended to convey any message to any human being, could constitute copyright under the *Copyright Act*.⁴⁶

However the problem was that the hardware within the AutoCAD lock was of a different form to the Dyason device. Northrop J overlooked this difference in form:

Each performs the same function. It is this function which is the essential aspect of each lock. Function has a particular importance in the definition of a computer program and regard must be given to this concept of function in considering the question of whether there is a 'sufficient degree of objective similarity' between the two locks.⁴⁷

...Physical appearance is immaterial. The hardware or physical equipment within which the expressions of the sets of instructions are contained is immaterial.⁴⁸

On appeal, the Full Federal Court and the High Court returned to more traditional copyright concerns. For example the judgment of Lockhart J began:

43 *Ibid* at 194.

44 *Copyright Amendment Act* 1984 (Cth), s 10(1).

45 *Autodesk Inc and Anor v Dyason and Ors* (1989) 15 IPR 1; *Dyason and Ors v Autodesk Inc and Anor* (1990) 18 IPR 109; *Autodesk Inc and Anor v Dyason and Ors* (1992) AIPC 38,190 [90-855]; *Autodesk Inc and Anor v Dyason and Ors (No 2)* (1993) 25 IPR 33.

46 *Autodesk Inc and Anor v Dyason and Ors* (1989) 15 IPR 1 at 10.

47 *Ibid* at 27.

48 *Ibid* at 28.

The protection of the form of expression, not the ideas embodied in it, is fundamental to the law of copyright...

So it is with function which is not itself protected by copyright, and it is this concept of function that this case is all about.⁴⁹

In the High Court, Dawson J also noted:

...the significance placed by Northrop J upon the function of the two locks would appear to be in disregard of the traditional dichotomy in the law of copyright between an idea and the expression of an idea.⁵⁰

Analysis shifted from a consideration of the hardware as independent computer works to a comparison between the AutoCAD program, Widget C, and Dyason's anti-lock device. The attempt was to focus on the way the latter operated to see if, in carrying out its functional role, it copied a substantial part of the AutoCAD program. The Full Court found that despite the functional similarities the operational differences were too significant to find the expression had been substantially copied. However, the High Court determined that despite these differences, Dyason's anti-lock device copied the look-up-table, and this was sufficient to constitute an infringement. Whilst the look-up-table was not considered substantial enough in itself to constitute a computer work, it was considered to be a substantial enough part of Widget C that to copy it constituted a reproduction of that program in material form. Thus the High Court considered the look-up-table to be an indivisible part of the AutoCAD program, Widget C, notwithstanding that on its own it was comprised of no more than an arbitrary sequence of numbers.

The controversy surrounding this decision flows from this.⁵¹ In this case, the copyrightable expression was considered to be the entire AutoCAD program, including its look-up-tables. Autodesk were deemed to 'own' the experience of the program operating on the machine. But it is the users who are required to activate the 'expression'. To extend copyright so completely belittles the user's contribution. It confronts a common sense understanding of computer works as something less than full, complete and indivisible works.

It is unlikely that the *Autodesk* decision will herald a new approach to copyright in computer works at large. In general, the protection the approach offers is too expansive. It is out of step with copyright's desired goal in this area which is not the full protection of computer works per se, but "the balancing of rights, allowing scope for innovation, while providing security against unfair competition".⁵² It is not only that because we experience computer works differently to other works that something less than full protection is 'obvious'. The commodification of computer works operates differently to that of other works within the established copyright regime. *Something less than full protection might actually be required* to ensure the viability of these markets or products or serve the interest of consumers.

49 *Dyason and Ors v Autodesk Inc and Anor* (1990) 18 IPR 109 at 111.

50 *Autodesk Inc and Anor v Dyason and Ors* (1992) AIPC 38,190, [90-855] at 38,190.

51 See G Evans, "The Role of the Court in Limiting the Scope of Program Copyright" (1994) 5 *Australian Intellectual Property Journal* 56 at 60-2.

52 Copyright Law Review Committee, *Issues Paper: Computer Software Protection*, 1990 at 4.

This is not a new idea. For example, in 1984 the Victorian QC, Dr John Emmerson, cautioned against amending the *Copyright Act* to include computer software, arguing that a more detailed inquiry into the industry was needed first. He suggested that an inquiry consider the following points:

- (a) protection should not be such that it hinders development within the industry or forces up prices unduly;
- (b) the protection should be for a limited term and at the end of the term competitors should be free to use the innovation. In the public interest the term should end while the innovation is still of commercial use;
- (c) manufacturers should be told how to work the innovation so that they can make use of the freedom to work it at the end of the term; and
- (d) protection should not be given to merely routine developments within industry.⁵³

Recent American decisions have articulated this idea quite clearly. For example, in *Sega Enterprise Ltd v Accolade Inc*⁵⁴ the US Court of Appeal expressed sympathy with Sega's attempts to protect itself against piracy but:

...recognised that, given the hybrid nature of computer programs, facilitating public access to ideas requires flexibility in the level of copyright protection given, so that the more functional the work the less eligible it is likely to be for full copyright protection. Consequently, in characterising the Sega key as 'functional', their video games were accorded a lower degree of protection than more traditional literary works.⁵⁵

American cases can draw upon the US Constitution in support of their balancing of rights of protection and access, that balance enshrined in their fair use provisions. No comparative provisions apply in Australia.⁵⁶ However, it should not be assumed that because of this no such 'balancing' of interests takes place in the Australian context. In the courts, the 'balancing' continues under the rubric of the idea/expression dichotomy and the general ambivalence about the 'expression' involved in computer works.

B. Is the 'Balancing' of Rights of Access with Rights of Restriction the Answer?

The answer here is both yes and no. There is already everyday 'balancing' occurring in industry. It can be found in industry attitudes to piracy, where a certain level is tolerated as a sensible business practice:

With physical goods, there is a direct correlation between scarcity and value. Gold is more valuable than wheat, even though you can't eat it. While this is not always the case, the situation with information is often precisely the reverse. Most soft goods increase in value as they become more common. Familiarity is an important asset in the world of information. It may often be true that the best way to raise demand for your product is to give it away.

While this has not always worked with shareware, it could be argued that there is a connection between the extent to which commercial software is pirated and the amount which gets sold. Broadly pirated software, such as Lotus 1-2-3 or

53 J Emmerson, as cited in S Ricketson, note 36 *supra*, p 19.

54 977 F.2d 1510 (9th Cir. 1992).

55 Note 51 *supra* at 67.

56 *Ibid* at 75-6.

WordPerfect, becomes a standard and benefits from the Law of Increasing Returns based on familiarity.⁵⁷

Because of the interaction which computer works require in order to make them function, you can not easily sell the packages to people who do not understand what role they have to play to make the program work. Computer works are more demanding of the consumer than are other types of copyrighted works. For the same reason, once the user is hooked up to a particular package they usually want to stay with it, maintain their skill level by reading the manuals, acquire the upgrades etc. Thus, whilst an enormous amount of software is pirated, once tried and tested much of it is also purchased.⁵⁸

'Balancing' is involved in the decision whether or not to encrypt a program. Encryption can take much more sophisticated forms than that used by Autodesk:

For example, (a program) might contain a code that could detect the process of duplication and cause it to self destruct.

Other methods might give the file the ability to 'phone home' through the Net to its original owner. The continued integrity of some files might require periodic 'feeding' with digital cash from their host, which they would then relay back to their authors.⁵⁹

To a degree, such programming obviates the need for copyright litigation. However, it has not been all that strenuously pursued because it creates impediments to access. For this reason it is much more likely to be used in small, specialist applications than in everyday ones. However, even in these markets "people are not going to tolerate much that makes computers harder to use than they already are without any benefit to the user".⁶⁰ If there is a less complicated alternative package to the encrypted one, sales will suffer.

In the multimedia industry, an interesting 'balance' is emerging in the form of intellectual property infringement insurance, an "Errors and Omissions Policy".⁶¹ Clearing copyright is one of the most fraught, time consuming and expensive parts of this kind of production. The need for protection is balanced against the need for quicker and cheaper consumer access. Insurance helps to reconstruct that 'balance'.

'Balancing' of interests can also be seen in the much mooted idea of "share-right" media, where the maker allows their material to be reproduced free of charge, if the recipients of their work may do the same.⁶² This development reflects the understanding of those working in software development of the collaborative nature of their work - and hence the inappropriateness of any one party to restrict access to the entire work.

57 Note 38 *supra*, p 126.

58 This argument is perhaps less persuasive where the computer software involves a specialist application designed for a small, niche market.

59 Note 38 *supra*, p 129.

60 *Ibid.*

61 See M Scott, J Talbot, "Interactive Multimedia: What is it, Why is it Important and What Does One Need to Know About It?" [1993] 8 *European Intellectual Property Review* 284 at 288.

62 See B Cotton, R Oliver, *Understanding Hypermedia: From Multimedia to Virtual Reality*, Phaidon Press (1993) p 38; and A Matuck, "Information and Intellectual Property, Including a Proposition for an International Symbol for Released Information: SEMION" (1993) 26(5) *Leonardo* at 405.

A similar sentiment can be drawn from some industry responses to attempts to enforce intellectual property rights. For example, Compton's New Media claims to own a patent in the basic technology that makes it possible to search and retrieve information from a database containing text, graphics, audio, video, and animation. This development was reported in the computer press as follows:

COMPTON'S NEW MEDIA STUNNED the fledgling multimedia industry last fall when it announced that it had been granted a patent that could apply to most interactive multimedia presentations being created for Macs and PCs.

...If the patent is everything Compton's says it is, the company, a division of the media giant Tribune, will have a stranglehold on the burgeoning interactive market.

...Compton's has asked developers to join up or pay up. They can either participate in co-development and distribution deals or pay a minimum 1 per cent royalty on products that use interactive technology.⁶³

Industry response was to organise opposition across the USA with the Multimedia Developers Group, the Interactive Multimedia Association, and the International Interactive Communications Society working together to challenge the patent on the grounds that the technology has been an accepted part of the public domain for years. In response to this opposition, the Patents Office agreed to review the patent. They have since accepted that the technology was "obvious in view of the prior art", and hence unsuitable subject matter for a patent. However Compton's may appeal this decision.⁶⁴ Even if the patent were to be eventually upheld because of industry opposition to the idea, Compton's will have a lengthy and costly process picking appropriate targets and courts in order to enforce its right.

What seems to have emerged over the past two years is an articulate, loosely organised, 'anti-intellectual property' position. Writers are voicing alarm at the social, economic, and political consequences of an information superhighway policed in the interests of a small number of transnational empires. The copyright regime is coming under fire because it is seen to be the chief weaponry in a global, corporate invasion. These views are put most forcefully in industry/cyber-culture magazines such as *Wired* and *Mondo 2000*.⁶⁵

Analysis frequently goes beyond an ideological discussion of copyright and its effect on post-industrial civil societies. Barlow, for example, explores traditional views about what information is, how it is generated, conveyed and made valuable, highlighting why these views are inappropriate for digital media. It is argued that a healthy, competitive computer industry does not require extensive intellectual property protection. He proceeds to suggest that:

Intellectual property law cannot be patched, retrofitted, or expanded to contain digitized expression any more than real estate law might be revised to cover the

63 C Guglielo, "Patents Challenge Multimedia Development" *MacUser*, March 1994, p 42.

64 K Kleiner, "Stop. Software Speed Trap Ahead" *New Scientist*, 23 April 1994, pp 14-15.

65 See for example, A Hutkrans, "U2 Can Sue a Sample Simon, Negativland Talks with U2's The Edge" *Mondo 2000*, Issue 8 1992, p 54; S Levy "Cryo Rebels" *Wired*, May/June 1993, p 54; note 38 *supra*; SL Garfinkel, "Patently Absurd" *Wired*, July 1994, p 105; C Berry, "The Letter U and the Numeral 2" *Wired*, January 1995, p 58.

allocation of broadcasting spectrum... Digital technology is detaching information from the physical plane, where property law of all sorts has always found definition.⁶⁶

Whilst technoculture writers like to present themselves as a sub-culture (ie outside of the mainstream) it is interesting to note that even conventional copyright lawyers concede many of the same points about the limitations of copyright in this field. As one lawyer told designers and producers at a recent conference, 'multimedia' is not an interest copyright even recognises - it only protects the component parts. But is a multimedia program comprising a cartoon animation a "computer work", an "artistic work", or a "cinematographic film", or could it be all of these?⁶⁷ The consensus appeared to be that whichever way one tries to characterise it, the result is unsatisfactory. From a legal point of view, it is unsatisfactory because of the absence of any clear precedent; from an 'industry' point of view it is unsatisfactory because the designers and producers are required to slot themselves into boxes made for differently shaped objects.

V. CONCLUSION

There is a great deal of balancing of rights of access and rights of restriction going on at the level of industry practice. The problem is, however, that whilst these numerous, diverse decisions reflect practical approaches to copyright, they are relatively invisible to the domain of copyright law and policy making. Courts, copyright bureaucracies, and law reform agencies continue to pursue a universal, all-purpose definition of computer works. These bodies are yet to appreciate the significance of computer works comprising many types of forms and functions - from lock and key security devices, to games, to everyday domestic and business software, to sophisticated specialist applications, to authoring packages to make other computer works, to visual and aural explorative works, to machine interfaces etc. Computer works are generally multi-media experiences - to look for 'the' expression as if it exists in the one medium (reduced to an aggregate of 'source' and 'object' code) completely mischaracterises the experience. Further, whilst all computer works are interactive, they encompass many kinds and levels of human interactions - in short, the way they function is not fixed but is fluid.

This brings us back to the beginning. Copyright is very good at fictionalising a tangible, real expression from which a right to reproduce can be determined. However, computer works do not fit comfortably within this framework. Whilst individual cases have proceeded by establishing what the expression is in that instance, they are incapable of establishing any useful, universal approach. Further, to the extent that any one case purports to establish a universal approach, this possibility is met with alarm because of its potential affect on other producers of computer works.

66 Note 38 *supra*.

67 N Dilanchian, "Interactive Multimedia: A Design Case Study" in *Proceedings of the Multimedia and Design Conference*, University of Sydney, 26-28 September 1994 at 74. Similar points were made by another paper, PG Leonard, "Beyond the Future: Multimedia and the Law" in *Proceedings of the Multimedia and Design Conference*, University of Sydney, 26-28 September 1994 at 51.

It is a fiction that literary, artistic and other works house the 'expression' of a solitary creative individual or an entrepreneur. However, it is a fiction that has worked well for these industries. It guaranteed the protection of 'original works' after a minimal standard of originality had been met. This facilitated the mass reproduction of these products and created public access to them, access constructed in terms of the ability to purchase copies of the works.

Computer works are produced and circulate differently to any work we have dealt with before. They involve a different nexus between author, producer, and consumer. The flow is not in a unilinear direction - from birth to reproduction to consumption. Thus, it is difficult to determine when and where the computer work is born.

In a sense the expression is stillborn without the continuing collaboration of authors, producers, and consumers. To the extent that the work must conform to conventional standards so it will run on consumer's machines, authors and producers have to work together across the industry. Every work has to be continually updated to accommodate new developments in hardware and software, or it will cease to run on contemporary machines. Consumer feedback, particularly about ease of access, is crucial to the success of the work. Decisions consumers make about their machinery and other programs also have to be taken into account. The issue of a particular work's protection has to be considered in this overall context.

Copyright has no established means for considering this level and type of interaction with works. Further, the diversity of practices and their fluidity cannot easily be accommodated by any universal, general rule or principle. Because of this, the court will be unable to hide behind the notion of a pre-existing, fully fledged expression when determining whether or not there has been a copyright infringement. They will have to engage in an explicit project of policy creation in order to construct the expression that *should be* protected.

In fashioning copyright protection for various sorts of computer works, what will be required is an unprecedented judicial understanding of the nature of the industry and the diversity of practices and interests involved in it. The judiciary will have to depart from their reliance on conventional computer experts which to date has led to the overstating of the contribution of the 'programmer' and the understating of the input provided by other numerous, variously skilled collaborators, including the consumer. In any one case, the affect of awarding protection on other players will need to be considered, including players not necessarily represented in a dispute between the litigants.

The emerging industry practice of 'balancing' rights of access with rights of restriction is in sympathy with the idea behind copyright "that people who create should receive adequate compensation for what they've done, not every possible compensation".⁶⁸ Formal legislative support of this principle might offer a way out of the current copyright malaise.

The alternative path is to keep following the dead weight of copyright's history. However, if we were to choose that path we would do well to remember the

68 C Berry, note 65 *supra*, p 62.

experience of copyright's dealings with photography. It took one hundred years to come up with unambiguous provisions for photographic works using established copyright principles. The computer industry cannot wait so long.