

# Driving UK Research. Is copyright a help or a hindrance?

A perspective from the research community

Collated by the British Library, this booklet brings together a range of views from leading researchers on how the framework for intellectual property needs reviewing for the digital age.

The submissions contained within this booklet do not reflect the viewpoint of the British Library. The collection of essays is intended to present the views of the research community in the digital age.

# Executive Summary

The following collection of essays, sourced from the education and research community, present varying views to the working and interpretations of the UK's intellectual property laws. They are not intended to reflect nor endorse one another, but instead together present the 'grassroots view' of the UK's copyright framework and ideas on how it could be updated to work in this new and changing environment. There is a consensus that the laws on copyright and their interpretation must be redefined in the context of a modernising world and developing research techniques.

Each of these authors and contributors to the knowledge economy, has encountered obstructions and barriers in their daily work when faced with understanding copyright regulations. They have made their own suggestions and proposals as to how the law can be modified in order to reflect the needs of today's researcher. The British Library's aim in compiling this collection is to contribute practical examples of how copyright affects the UK research community in the ongoing debate on our intellectual property framework.

The changes that contributors have proposed are their own and not the British Library's. They cover a range of areas and include a wealth of ideas:

- calls for an extension to fair dealing provisions under UK copyright law to bring them into line with fair use doctrine in the US. One author addresses the difficulties of applying fair dealing provisions in the study of music and sound recordings.
- allowing the use of 'orphan works'. One submission advocates that 'orphan works' be placed in the public domain.
- enforcing creators' moral rights in order to preserve future creativity, and the need for exceptions to copyright law not being overridden by contract or by technical protection measures.
- addressing the issue of text mining and data indexing in the context of the barriers posed by the existing copyright regime.

A key point that resonates throughout these essays is that the role of teachers, researchers and creative artists as well as rights holders must all be recognised within any new intellectual property framework.

# Golden Opportunity or Digital Black Hole?

Copyright is at the heart of our successful knowledge economy. In the 21st century, access to technology, information and knowledge are the key to economic success and are governed by our current copyright laws. Copyright has successfully maintained a balance in the public interest for creators and researchers for 300 years – yet copyright is under threat in the digital age.

There is a supreme irony that just as technology is allowing greater access to books and other creative works than ever before for education and research, new restrictions threaten to lock away digital content in a way we would never countenance for printed material.

Let's not wake up in five years' time and realise we have unwittingly lost a fundamental building block for innovation, education and research in the UK. Who is protecting the public interest in the digital world? We need to redefine copyright in the digital age and find a balance to benefit creators, educators, researchers, the creative industries – and the knowledge economy.

**Dame Lynne Brindley**  
CEO The British Library

**The submissions contained within this booklet do not reflect the viewpoint of the British Library. The collection of essays is intended to present the views of the research community in the digital age.**

## The Contributors



### 1. Professor Lionel Bently

Lionel Bently is the Herchel Smith Professor of Intellectual Property and Director of the Centre of Intellectual Property and Information Law at the University of Cambridge. He is a Professorial Fellow at Emmanuel College, Cambridge.



### 2. Professor Nick Cook

Nicholas Cook is 1684 Professor of Music at the University of Cambridge and the author of eight books on topics from Beethoven to multimedia. His *Music: A Very Short Introduction* has been translated into twelve different languages.



### 3. Dr Estelle Derclaye

Estelle Derclaye is Associate Professor and Reader in Intellectual Property Law at the University of Nottingham. Her main interests are in intellectual property law, in particular copyright and designs law. Her latest book *Copyright and Cultural Heritage: Preservation and Access to Works in a Digital World* is due to be published later this year.



### 4. Richard Donkin

Richard Donkin is a *Financial Times* columnist and the author of *Blood Sweat and Tears, The Evolution of Work*. He works as a commentator and writer on management and employment issues. He is an honorary visiting fellow in the faculty of management, Cass Business School, City University, London and is also a fellow of the Royal Society for the Arts in the UK.



### 5. Dr Gabriel Egan

Dr Egan is a reader in Shakespeare Studies at Loughborough University. He is the author of *Shakespeare and Marx, Green Shakespeare, and The Struggle for Shakespeare's Text*.



### 6. Professor Jeremy G Frey

Professor Frey is a Professor of Physical Chemistry and Head of the Structure & Materials Section at the University of Southampton.



### 7. Mike Holderness

Mike Holderness is a journalist specialising in science and technology, whose time is increasingly occupied by issues around creators' rights. He chairs the Creators' Rights Alliance.



### 8. Lucian J Hudson

Lucian J Hudson is Partner and Managing Director, Cornerstone Global Associates, a strategy and management consultancy that tackles the intractable. He is a former Director of Communication, Foreign and Commonwealth Office, and served as the UK Government's first Director of e-Communications.



### 9. Reem Kelani

Reem Kelani is a Palestinian musician. In addition to music performances, Reem conducts workshops on Arabic and Palestinian music in schools, colleges, and at festivals. She is also a regular broadcaster.



### 10. Naomi Korn

Naomi Korn is an experienced IP Consultant with a keen interest in digital licensing, rights management and rights exploitation. She is a partner in the Naomi Korn Copyright Consultancy which is a leading supplier of specialist copyright and rights management solutions and services to large and small cultural heritage organisations, educational establishments and small businesses.



### 11. Marshall Mateer

Marshall Mateer has worked as a teacher, lecturer in education, local authority adviser and broadband project manager and is currently a consultant for the National Education Network on content, digital resources and IPR. His media projects in progress include documentary film (*International Brigades*), photography and mixed-media.



### 12. Dr Cameron Neylon

Cameron Neylon is a biophysicist with an interest in how to make the internet more effective as a tool for science. He writes and speaks regularly on scholarly communication, the design of web based tools for research, and the need for policy and cultural change within and around the research community.



### 13. Dr Dave Roberts and Vince Smith

Dave Roberts is Head of the Division of Protista & Mathematics in the Natural History Museum, London and workpackage leader for 'Unifying Revisionary Taxonomy on the Web' within the EU project EDIT (European Distributed Institute of Taxonomy).



Vince Smith is a cybertaxonomist at the Natural History Museum, London. His research interests include virtual research environments to support the work of scientific communities.

## Professor Lionel Bently

Legal academic Professor Lionel Bently uses three examples from his own teaching experience to highlight the difficulties with the current copyright regime. He calls for an extension to fair dealing provisions under UK copyright law to bring them into line with the fair use doctrine in the US.

As a legal academic, I am a 'beneficiary' of copyright protection. The articles I produce, the books I write, the reading lists I compile, the course materials I develop, even the examinations I set, are all protected by copyright and, since 1989, by 'moral' rights of attribution and integrity. My university – Cambridge – allows me to retain copyright in much of this material (though other academics are not so fortunate), only claiming ownership of the material I create in my administrative roles.

While I am able to benefit from the copyright system, and indeed do so financially, I mostly experience copyright as a burden both to my teaching and my writing. I have picked out three examples.

While teaching a Master's level course entitled *Legal regulation of the Music Industry*, we wanted to examine cases on claims of copyright infringing and co-authorship in detail by giving students access to the relevant parts of the musical sound recordings themselves. Columbia University in New York has a wonderful website giving public access to the parts of recordings alleged, or found, to be infringement in cases that went to court. No permissions were required to create this database, Columbia relying on the 'fair use' defence. The creation of a similar site would simply not be possible under British copyright law: the 'fair dealing' defences in UK law would not cover these sorts of educational uses – indeed the "fair dealing for research" defence is not even available for sound recordings. But, as if to highlight the absurdity, while I could play the recorded songs to the students under s.34<sup>1</sup> of the CDPA, I would have to carry with me a bag containing each of the CDs because I could not legally copy for teaching purposes the recordings in order to create a compilation CD of 'copyright authorship cases' or 'copyright infringement cases'.

The second example of a situation where copyright law unduly restricts teaching activities concerns the use of 'presentation software' such as PowerPoint. The copying of an image to make a presentation is an infringement, as there is no statutory exemption. In fact the presentation, as a public display of an infringing copy, if done knowingly and 'in the course of business'<sup>2</sup> is a criminal act.

I also write a textbook on intellectual property law which is illustrated with images of trade marks, designs and artistic works. Although it is certainly plausible to claim that many of these items are covered by a 'fair dealing' exception, the publisher insists that I and my co-author have the consent of the copyright owner. But identifying and locating the copyright owner is not at all straightforward. Sometimes the photographs have been taken by lawyers involved in the litigation, sometimes by an employee of the company that claims design rights or trade mark rights in the subject matter represented. Because the effort and skill involved is minimal, many will not even appreciate that the photographs are legally protected. Few of the copyright holders, if any, will have established mechanisms to grant licences. In other countries, such as the United States, such uses would be allowed, freeing the academics to write even longer law review articles. But in Britain, obtaining such permissions is just one more burden.

As both a beneficiary of copyright, and someone who wishes to use copyright protected material, one might legitimately ask whether I would be prepared to sacrifice the 'benefits' if I could be relieved of the burdens. While my answer would be a resounding 'yes', the truth is that with some relatively limited reforms of copyright, the system could continue to provide the benefits (and incentives) without imposing the burdens on education, free expression, and intellectual progress.

<sup>1</sup> Section 34, CPDA: Performing, playing or showing work in course of activities of educational establishment:

- (1) The performance of a literary, dramatic or musical work before an audience consisting of teachers and pupils at an educational establishment and other persons directly connected with the activities of the establishment –
  - (a) by a teacher or pupil in the course of the activities of the establishment, or
  - (b) at the establishment by any person for the purposes of instruction, is not a public performance for the purposes of infringement of copyright.
- (2) The playing or showing of a sound recording, film, broadcast or cable programme before such an audience at an educational establishment for the purposes of instruction is not a playing or showing of the work in public for the purposes of infringement of copyright.
- (3) A person is not for this purpose directly connected with the activities of the educational establishment simply because he is the parent of a pupil at the establishment.

<sup>2</sup> CDPA, s.107(1)(d). "Business" includes "a trade or profession": s. 178.

## 2

### Professor Nick Cook

Musicologist Professor Nick Cook focuses on the difficulties of applying fair dealing provisions in the study of music and sound recordings. He has suggested changes to the management of copyright works which would open up collections of great cultural value to scholars and researchers, whilst protecting rightsholders' interests.

As a musicologist who works on sound recordings, my main concern has been with fair dealing, which scholars rely on when quoting and critiquing other people's work.

What emerged through my involvement with the British Academy's review *Copyright and research in the humanities and social sciences* (2006)<sup>3</sup>, was that the fair dealing provisions in UK law are largely fit for purpose but there are some specific problems. One is the fact that they do not fully cover sound recording and film, which the Gowers Review identified as clearly anomalous, and UK Intellectual Property Office is currently consulting on modifications to the fair dealing provisions that will rectify this. A second is the criterion of substantiality: fair dealing allows you to reproduce a small proportion of a copyright work, but there is no clear definition of 'small'. This introduces a major element of uncertainty, and can be unworkable in such cases as paintings (art historians normally wish to discuss the Mona Lisa, not just her nose) or analysis of recorded music (scholars increasingly use data mining approaches which have to be applied to complete movements).

But perhaps the greatest problem the review group found is ignorance of the law on the part of researchers (who frequently ask for permissions they don't need), publishers (whose copyright guidelines are often needlessly restrictive), and rights holders (a number of music publishers, for example, claim that fair dealing does not cover printed music – a claim for which there is no legal foundation). It is for this reason that one of the main outcomes of the British Academy review was an online document of guidance for both researchers and rights holders.

The other major issue with which I have been involved is the European Commission proposals to extend the current 50 year copyright term on sound recordings to 95 years, or possibly some other figure. The case for this is being argued by the music industry on the grounds of parity with the US, where – as Tim Brooks explained at a recent conference at the University of Salford - virtually no recordings (even those made in the 1890s) are in the public domain. The effect is that the vast majority of the musical heritage has been locked up in order that record companies can continue to make profits from a tiny proportion of still valuable releases, representing investment made more than half a century ago. It's true that scholars should be able to invoke fair dealing provisions to get round this, but that is no help to the general public who have become increasingly interested in historic recordings – as demonstrated by the plethora of small-scale reissue labels whose futures would be jeopardised by term extension. There is a fundamental contradiction between copyright law and public access to the cultural heritage, and this has been lost sight of amidst discussions of revenue. After all, recordings that people cannot access create no revenue for anyone.

Technology could in principle provide a solution to the problem of access to recordings. If the copyright term is extended, the additional term could be conditional upon a registration process involving the deposit of a digital copy with the British Library, to be made available to bona fide researchers (or preferably the general public) on payment of a statutory charge; the same could apply to newly issued recordings. (This would help overcome the major problem that there is in the UK no legal deposit for recordings.) But the problems over copyright in the digital age are much broader than that. The fundamental problem is that copyright law is built on an inadequate concept of intellectual and artistic creation. Virtually all scholarship and a great deal of artistic practice involve the creative re-working of existing materials. It follows that the core purpose of copyright law should not be to restrict the uses made of copyright materials, but rather to ensure that rights holders do not suffer financial disadvantage through such uses. At least in the scholarly domain, the overwhelming majority of use of copyright materials has no such financial implications.

<sup>3</sup> [www.britac.ac.uk/policy/copyright-research.cfm](http://www.britac.ac.uk/policy/copyright-research.cfm)

# 3

## Dr Estelle Derclaye

**Dr Estelle Derclaye, Associate Professor and Reader in Intellectual Property Law, describes the complexity of existing exceptions for educators and researchers. These include the difficulties in defining the 'non-commercial' nature of private study and the mismatch between the law and the use of digital tools and resources.**

The UK copyright act allows fair dealing with a copyright work for the purposes of research and private study. Broadly speaking the exception works well. However, it also poses three significant problems. First, the research needs to be for non-commercial purposes. This can pose an almost daily dilemma to some researchers. If I copy parts of a work for non-commercial purposes and then using these same parts go on to publish extracts in a scientific journal and I do not get remunerated, I fall squarely within the exception. But if I want to quote the same extracts in a book, for which I will get a lump sum or royalties, it seems that the exception does not apply. Do I have to ask permission to make another, now 'commercial', copy of the material? Presumably I cannot use the first copy I made for private or research purposes which, at the time, were non-commercial. Then, if the rightsholder refuses to give permission or asks a very high licence fee for me to quote his or her work, I will not be able to include it or extracts of it, and this to the detriment of research. This happened when I edited a book in which one of the contributors wanted to publish a photograph of a copyright work which had been held in some countries to be copyright-protected but not in others. The rightsholder refused. I often receive emails from members of the public or students who are exactly in the same situation. One may think that another fair dealing exception, that for criticism or review, could apply but it is not always the case as it is not often possible to comply with the conditions of the exception, especially in the situation described above.

The problem of the 'non-commercial condition' creeps back when a teacher wants to use material to illustrate his or her class. The problem arises with institutions which are funded partly with public and partly with private funds, such as universities. Is a university professor teaching for commercial purposes? The law does not give a clear answer to this question.

Second, the exception for research and private study discriminates between different types of researchers. It only applies to literary, dramatic, musical or artistic works. Therefore, researchers who need to use a film or sound recording in the course of their private study or research are not able to benefit from the exception at all. This is a complete oddity. Other countries' copyright laws do not make distinctions between the types of work used.

In addition, one might think that it is easy for a teacher who wishes to make and show a PowerPoint presentation for their pupils or students using a variety of works (entire or extracts of musical works, sound recordings, films, paintings, etc) to comply with copyright law. But because of the complexity of the exception for private study and research and the other educational exceptions, teachers need to be super-experts in copyright law in order to comply with them.

Problems do not stop there. Most researchers nowadays depend on electronic databases for their research. But do they know what they can and cannot do with the copyright material they download from these databases? One would think intuitively: I can do whatever the law tells me I can do. But this forgets that educational institutions subscribe to such databases and thus generally have a contract with the copyright holder. UK law does not prevent contracts from overriding the exceptions described above. The terms of use are not always displayed when the user accesses the database. And even if they were, they might not be the terms to which the institution in question is bound by and may not simply mimic the copyright act provisions on research and educational uses.

Thus the picture current UK copyright law paints for teachers and researchers is in some ways inadequate and in many ways very complicated. But there is hope that the law will be modified soon.

# 4

## Richard Donkin

**Author and journalist Richard Donkin reflects on the purpose of copyright in stimulating creativity and protecting creators' interests. He suggests some changes to the law which would allow creators to draw more easily on the works of others.**

There is a growing tension between laws designed to protect the intellectual property of writers and performers and their desire to capitalise on their own copyrighted material.

Policing copyright was difficult enough in a world of broadcasting and printed media. But the immediacy, ubiquity and trans-global nature of internet communications today has extended exponentially the ability of people to copy and publish copyrighted works.

What seems, on the face of it, a retrograde step for the originator of intellectual property, however, has proved to be a substantial revenue-earning opportunity, as original work reaches new and hitherto untapped audiences.

Decisions to make copyrighted material available online through portals such as 'You Tube' are being made in consultation between marketing departments and the originators of the intellectual property. Ironically one of the biggest obstacles standing in the way of these new approaches is the law and those who enforce it. Lawyers are hired to interpret and enforce the law, not to make business decisions.

In these cases, a waving of copyright between consenting parties is perfectly acceptable. However, this cannot apply when the originator of a body of work has died and the copyright has passed on to his or her estate.

The deceased could not have envisaged the marketing potential in sales derived from a more relaxed interpretation of copyright laws. One deceased poet, who a writer or broadcaster may wish to quote, must first obtain permission from his publisher.

His publisher demands 8–10 weeks notice, £75 plus VAT for ten lines of poetry as well as a host of other details for a piece of verse that can be read freely on hundreds of web sites across the worldwide web.

I ask myself: as a writer, would I seek to restrict the quoting of small sections of my work to this degree? Would this poet?

I have been approached on a few occasions for permissions to reproduce quotations from my work. On every occasion I have agreed but sometimes an emailed "Yes, that's fine" is not enough. I am told I must use a certain form of words. I have neither the time nor the inclination to be browbeaten by legal convention on the form of words I use to grant permissions over my intellectual property.

No creator of original material wants to see their work plagiarised and I would agree that copyright law is needed to prevent passing off. But to have one's work quoted by a fellow writer is helping to disseminate ideas, enhancing marketability and fee-earning potential. All this is lost in a draconian interpretation of copyright law.

Little wonder, then, that the choice of many writers and publishers is to take a risk with some quotations of copyrighted work in the hope that no-one will mind. Widespread disregard is often a prelude to legal reform.

Copyright protection needs to be shortened to a period more like 20 years after publication rather than the 70 years beyond the death of the originator that is typical today. At the same time copyright should be imposed by the originator, as used to happen, with a presumption that it has been waived otherwise. Original works should be registered with contact details of originators so that copyright requests can be made directly to the source. Failure to maintain these details should lead to the lapse of copyright.

The only conclusion I can draw from these deliberations is that copyright law, and the way it continues to be applied, is no longer serving the commercial interests of those it aims to protect. Reform is overdue.

## Dr Gabriel Egan

Dr Gabriel Egan discusses the widening gap between the attitudes of commercial rightsholders and consumers of creative content. He argues that a solution needs to be found to legitimise the re-use of copyright material by creative artists.

One does not have to be a Marxist to recognize that, as part of our intellectual superstructure, laws arise from the practical realities of how things get made. When the only way to copy texts and pictures was by hand, there were no Intellectual Property (IP) laws. Printing presses made copying cheap and fast, and IP laws emerged to regulate them. Digital copying is faster still and perfect, and existing laws are no longer able to protect the intellectual labour of creators while facilitating the studying of their works and their re-use in fresh artistic creation. A generation is growing up disdainful of copyright law because of its irrelevance to modern needs.

Trailers in cinemas warning that copying a film is theft, akin to purse-snatching, strike most spectators as manifestly untrue. Stealing deprives someone of the use of their property, while copying something only adds to the number of copies in existence. The supposed loss to a rights holder is notional and dependent upon the untestable hypothesis that a consumer prevented from copying something will buy it instead.

Two responses to the inadequacy of current laws are evident: i) holders overstate their rights, ignoring valid exemptions, and seek to enforce them by technical means, digital locks, and ii) users ignore creators' rights and bypass the digital locks. This divergence makes it impossible to strike a balance between the interests of producers and those consumers of writing, sound recordings, stills and motion pictures. However, to think simply in terms of producers versus consumers is to mistake the nature of cultural production. Modern IP laws would have stifled at birth almost all of Shakespeare's works because they 'stole' from Raphael Holinshed's and Edward Hall's prose histories of England, Thomas North's translation of Plutarch, Arthur Brooke's poem *Romeus and Juliet*, and many others.

Today's creators sample and mash-up disparate sound and video streams to form new works distributed over the Internet directly from producer to consumer. The criminalisation of these creative acts prevents debate about what is at stake when one artist draws upon another's work. The widening gap between the official position on copyright and the general indifference to it shown by students, researchers, and creative artists leaves these groups dangerously exposed with nothing but intuition to guide them. Disconnecting from the Internet those who violate copyright laws would only further marginalise the most creatively productive groups in society, those upon whom cultural development depends.

Speaking personally about the formal study of creative works, I find current laws of copyright positively disabling. I am one of the co-editors of the journal *Theatre Notebook*, which has a 60-year back-file of published research on the practice of British theatre. There are no technical barriers to re-publishing this material online for the benefit of students of theatre at all levels across the world, but because many of the articles contain pictures whose rights holders cannot be discovered, our lawyers advise that we distribute back-issues only in paper form. This leaves the material undiscoverable and unavailable to the majority of readers who would benefit from it. Similar restrictions inhibit the teaching of theatre history. Materials have to be chosen not for their intrinsic pedagogical value, but for the ease with which one may secure the right to put digital copies of them on the university's Virtual Learning Environment (VLE).

My best students routinely submit digital assignments that cannot be shown to other students as models of excellence because they contain pictures for which the reproduction rights have not been secured. Attempts to secure the rights necessary for the limited reproduction of images within academic communities are almost always fruitless. We need legally-codified exceptions to copyright restrictions for the purposes of research and pedagogy, and carefully-constructed and realistic boundaries on the re-use of restricted material by creative artists.

# 6

## Professor Jeremy G Frey

Professor Jeremy G Frey discusses the use of graphs, figures and access to underlying data in scientific publications within the context of today's digital world. He argues that new rules and methods are needed to ensure scientific research is furthered and researchers are appropriately credited.

I will focus my discussion around graphs and figures in scientific publications to exemplify how the confusion on what copyright actually restricts, in traditional paper publications and all the more so with electronic and web based material, pervades the research community. The differing strands and interpretations of copyright, intellectual property, and the overall moral responsibility to give credit to other researchers further compound the confusion. My concern in working with new modalities for dissemination of scientific research is to promote the ability and responsibility of researchers to the dissemination of their research in a manner that allows the data and ideas to be re-used for research and teaching, an attitude we refer to as 'Publication @ Source'.

The traditional view of a scientific publication is a document proposing, elaborating or containing a theory, which is confirmed by experimental observations – which comes first the hypothesis or the data from which a principle is extracted, depends on the discipline and attitude of the researchers. The re-use of the idea, principle, or theory, without infringing copyright presents few problems. A detailed discussion of the paper is more difficult especially when it comes to the re-use of diagrams. It is usually possible though tedious to obtain permission to reproduce the diagram, when what is really important in most cases is to acknowledge carefully and correctly the source of the original. It is understandable that an author may be concerned if a carefully worked diagram is adapted in a way that might distort the argument and that this new figure is subsequently used in a way that confuses the attribution. The issue is not that the diagram has been changed, but the provenance trail is unclear as the figure moves forward. The journal's main concern is the citation, though the knowledge that a journal produces attractive figures might be a competitive advantage.

The issue of reproducing a graph becomes more interesting when the raw data underlying the graph is made available. In the past, one might be confronted with an elegantly drawn and annotated spectrum, obtained in an analogue manner. To re-analyse or simply to extract different numbers, then you took a copy, enlarging it and re-measuring the spectrum. Assuming the linearity of all the reproduction processes, one had a similar spectrum to that obtained originally. Now that data is most often obtained, even initially, in a digital form, this 'copy and measure' approach is a second best; what a user needs is a copy of the original data file.

The artwork and the choice of presentation technique that is present in the figure (which itself is probably also a digital object generated by using a graphics application) does importantly represent intellectual input into how best to illustrate the concepts. For re-use, the underlying data is more important. The provision of the data file along side the publication is a major addition to the effectiveness of the publication for both research and teaching. It also makes it much easier to re-draw the graph; but is this allowed by copyright? We now have several related items to consider in regard of copyright and IP. The graph on paper, as pdf, as web image, the digital file that creates the graph, the underlying data file & metadata and the raw data.

It can be said that under English law "*no one can own information*" \*\*. Is that the same as, *no one can own data*? Databases can however be owned, which further confuses the rights to find and use information and data. If the information/data is attached to a publication, the publishers can and often do restrict access. To ensure that the academic community continues to innovate, ideas must flow, to be checked and developed. The researchers' careers depend on due citation and credit being given and this is what copyright used to promote. New ways to propagate material with the appropriate mechanisms to support credit are needed.

\*\* This statement as explained by colleagues in the Southampton law department relates to the fact that intellectual property rights relate to the encapsulation information, but do not exist within the underlying information itself. Whilst this may seem a semantic and legal technicality, it has implications for academics who, at a fundamental level, should be acting as custodians and curators, rather than the owners of information.

## Mike Holderness

Journalist Mike Holderness explores the shifting balance between creators, intermediaries and users in the 21st century. He stresses the importance of enforcing creators' moral rights in order to preserve future creativity.

Journalists cause much of the misunderstanding that plagues debate over creators' rights. Journalists love to write stories with simple, cowboy-movie plot lines with two protagonists.

A tale of grasping copyright owners locking information away from the people and out of their libraries practically writes itself. So does a press release bemoaning 'pirates' destroying the 'digital economy' by downloading films in the safety of their bedrooms. The story of creators, their rights and exceptions to them in reality has three sides.

There are the creators: individual authors and performers whose works make up our heritage of recorded culture – and that are the actual traded goods without which there is no 'digital economy'. There are the exploiters – the intermediaries such as publishers and broadcasters – who package, brand and deliver those works. And there are the users, whether cinema-goers or scholars.

The 'piracy' that most concerns creators is not that of the teenage file-sharer but that of the exploiters. A creator who has been pressured to 'assign' rights to an exploiter cannot license use of their own work. This is likely the largest cause of works being inaccessible.

Creators are users, too. Musicians listen to more music than most. Journalists are – or should be – the most avid readers of all. All quote. Creators therefore have a strong interest in exceptions to copyright, especially for private study, for review and criticism and for reporting news. Creators have an interest in those exceptions not being overridden by contract or by technical protection measures. Creators need archives and libraries and secure preservation of their own works and others'. These should be comprehensive: it is as important to archive audiovisual works as books. But digital technology changes everything. In many interesting ways it throws into question the definitions of 'library', 'school' and 'university'.

Libraries and universities must, we are instructed, launch into the brave new digital world. Their holdings must be accessible online, instantly, everywhere. The direct loss of income to both creators and exploiters could be compensated, as the UK already compensates for lost sales and royalties due to educational photocopying and library lending of physical books. But the impact of digital distribution is far greater, because of the trivial ease of making further perfect copies: setting this compensation fairly will pose a political problem.

The direct effect is probably not the largest. Making all works available online in contexts that 'look free' to the uninformed user or the unscrupulous exploiter is an invitation to secondary abuse. Since UK law is deficient in protecting credits on works it is very difficult for creators to locate, let alone to take action against, such abuse.

Digital technology changes everything in another way: we are hurtling toward a world in which practically every user is not just a creator but a published or broadcast creator. Many of these published works are passing thoughts on Facebook; some are of high quality. It is not just self-interest that makes me argue that it must be possible to make a living as a creator. Ensuring a continuing supply of culture to preserve and to teach requires a mix of amateurs, salaried scholars and dedicated, professional independents.

Of course most citizen-creators give no thought to gaining income from their work – until someone thieves it and makes a profit from it. When their work appears in a context, or in a mutilated form – in the words of the international law on creators' rights, 'prejudicial to their honour or reputation' – they mind, very deeply, or at least those who call me do.

The essential measure to facilitate online libraries and distance learning, then, is that every creator must be able to enforce the so-called 'moral rights' to be identified, to stay identified and to defend the integrity of their work. This is essential to creators; it is rapidly becoming important to every citizen; and it is of course fundamental to librarianship and to scholarship that the identification and authenticity of every work be guaranteed.

## Lucian J Hudson

Consultant Lucian J Hudson argues for a common sense approach to collaboration in the digital age. This will allow authors to receive recognition for their contributions, but not prevent further developments of ideas through restrictive rules on quotation.

Even if most of us are not experts on intellectual property rights, published authors need to become quickly aware, if not proficient, in understanding how the rules governing intellectual property work, their scope and limits.

Just as there is no such thing as a free lunch, there is no such thing as a free idea. An author needs to understand that ideas are currency; they have a value and operate in context.

As a visiting researcher at the British Library, I had access to a vast range of management and business studies information. But it was writing a 282 page report for publication that made me very conscious that IP rights are both a barrier and lever to collaboration. Publishers were pretty good to work with, but I thought that my overall experience of the process to clear material was that there is a risk that the checks needed to meet copyright requirements might actually put authors off quoting other people's work.

If one is working to tight deadlines, one becomes more ruthless in using precious time, and information is either available to use or quickly gets discounted because it is too difficult to make use of. Since most authors thrive on the oxygen of recognition, it seems counter-productive to let processes, however technically sound, ultimately determine the nature of reading and learning.

We need a system that makes, above all, common sense. If one quotes a person's work, provides the reference and gives credit, an author is protected. Because the twin requirements to protect authorship and to provide access to published work is a matter of judgement, I would prefer that codes of practice evolved to suit the times, rather than have in place IP rights that made research cumbersome. So yes to rules, but let us keep them under review.

The direction of travel is greater collaboration, acknowledging an individual's interest and that individual's part in developing an insight or an argument. So accurate and visible recognition provides the reader with enough information to understand the provenance and follow it up, and ensures that an author's contribution continues to have relevance and benefit. Treat other authors how you would yourself like to be treated should be the governing principle. Everything flows from this.

In a collaborative environment, the approach shifts from a need to protect to a need to share. The three key questions to ask are: what use is being made of somebody else's work, to what end, and what is reasonable recognition?

Intellectual property rights are like any other rights. They exist to protect against or redress imbalance and inequality, and have a historical origin. The last fifteen years has seen an evolution in how creative material is produced and consumed. IP rights have to evolve with the times. The author's voice needs to be heard and recognised, and more voices need to be encouraged. We want a mix of collaboration and competition in ideas, with enough appreciation given to the context in which ideas have developed. This is not possible without openness and specificity, and authors should see their endeavours not as singular triumphs, but as a reflection of different strands that are interwoven and make sense only in context. To this end, we want it to be as easy as possible to quote and draw on one another's work.

*Lucian J Hudson's report for the Foreign and Commonwealth Office, 'The Enabling State: Collaborating for Success' can be viewed here ([www.fco.gov.uk/en/about-us/publications-and-documents/publications1/enabling-state](http://www.fco.gov.uk/en/about-us/publications-and-documents/publications1/enabling-state)). The report investigates what makes for effective collaboration and partnership between and within organisations.*

## Reem Kelani

**Singer, musician, broadcaster and educator Reem Kelani writes about her experiences with researching Arabic music and bringing it to a wider audience. She describes the difficulties copyright law creates in accessing sound and video recordings for researchers, particularly those not permanently attached to educational establishments.**

Prior to the completion of my first major project four years ago, I spent some 20 years researching Palestinian songs through interviews with older women in refugee camps, in the Galilee and in the Diaspora.

Along the way, I gave workshops in schools and for community choirs in the UK and internationally. My work overseas included working with elementary school children in Greece, conducting workshops for Syrian children at Solḥī al-Wādī Institute in Damascus and singing to children in Seattle. The key components of my workshops are to teach the basics of Arabic music and to introduce audiences to Palestinian culture.

Over the past year, the Rare Books & Music Reading Room at the British Library has become my second home. When I originally embarked in 2003 on my current project researching the music and life of Egyptian composer Sayyid Darwīsh (1892–1923), I didn't think for a moment that I would be still working on it almost seven years on.

Darwish lived at a pivotal time in Egypt: at the end of Ottoman rule, during British colonial rule and at the birth of Egyptian nationalism, events that would change the course of Arabic music forever. Hence, and in my quest to understand more fully Darwish's musical and cultural genius, I find myself asking the staff at the British Library Sound Archive Listening Service for recordings ranging from early twentieth century Egyptian music, classical Turkish music, sacred Muslim and Eastern Christian chant, Italian opera, WW1 songs and even Jazz from that period.

But that's where the good news ends. When I was in Istanbul recently, I was trying to find a specific rare recording to play to Mehmet Güntekin, Director of Classical Turkish Music for Istanbul 2010. YouTube is banned in Turkey, as I learned to my surprise, and thus I found myself unable to play the recording from the web. I was mortified at this lost opportunity to share and discuss this piece with an expert on a trip on which I had embarked at my own expense and for my own research.

It is an anomaly that whilst I can make photocopies of excerpts from the many books about Sayyid Darwish at the British Library, copyright law doesn't allow me to borrow copy or 'rip' any audio or audiovisual recordings. And I am certainly in no position to become a collector of rare recordings, even if they were available for sale. I have neither the money nor the space for that.

I am able to find so many interesting recordings online, but for an independent freelance researcher with no affiliation to an academic or cultural body, this is neither a permanent nor a reliable source. Moreover, few of the recordings online have any accompanying notes, and even if they do, their accuracy is an open question.

I would like to see an extension of the principle of 'fair dealing' to sound recordings and film, knowing full well that this would apply both ways, and that if an independent researcher wished to access my published recordings in this way, I neither would nor could have any objections.

On the contrary, honest and open exchange between researchers is not only desirable but essential for the very success of all our endeavours.

## Naomi Korn

**Academic Intellectual Property Consultant Naomi Korn looks at the problems copyright law causes for public sector investment in ICT in support of education, learning and research. These include the difficulty of clearing rights and the risk surrounding the use of 'orphan works'.**

In the UK, the realisation of the full benefits arising from substantial public sector investment in ICT to support teaching, learning, research and administration, is currently being severely hindered by an archaic, complex and out-of-step copyright system. By failing to address significant changes in ICT over the last twenty-five years, the current copyright framework exposes the UK's higher and further education and research bodies and their funding bodies to risk and legal uncertainty. It also often presents them with expensive and administratively burdensome rights clearance research and contract negotiations.

The copyright exceptions reflect the balance in copyright between rights holders' interests and those of the user. Their intention is to create in-built safeguards to protect public interest activities, such as those taking place across universities, colleges and schools. However, the current exceptions do not reflect the reality of education's important engagement with digital media and new technologies – the creation, copying, transformation and dissemination of mixed and often merged digital media across multiple global platforms to networked learners based on and off campus (such as those working from home and on placements).

Notable examples of this include the need to seek permission for use of content on Virtual Learning Environments and the potential infringements arising from format shifting and copying. For example, to play a video as part of a PowerPoint teaching presentation, the video often needs to be copied to digital format first before it can be embedded in the presentation. This additional copying step would be tantamount to an infringement. Similarly, EthosNet<sup>4</sup>, which is a JISC funded service, facilitates access to online theses for use by third parties anywhere in the world. It makes an important contribution towards the dissemination of the results of publicly funded research and increases the institution's and the nation's research profile. However, whilst the reproduction of third party materials, such as long quotations, reproduction of figures, photographs and maps etc, in the original thesis are permitted under the examination-related copyright exceptions of the Copyright, Designs and Patents Act 1988 (as amended), digitisation and communication to the public of any third party works within the thesis is not permitted. In these cases, the institution will need to make the choice of either taking the risk and including these works; removing them or seeking permission from rights holders. None of these routes is entirely satisfactory.

The significant numbers of works for which the rights holders cannot be traced or are unknown (orphan works) and the lack of suitable exceptions for the use of these works also pose significant problems for educational institutions and other public sector bodies. Orphan works, currently estimated to be in excess of 50 million works across the public sector in a recent study<sup>5</sup>, are likely to include a large body of works, such as documentary photographs, sound recording and unpublished text based works, which were created without any commercial intent. Although these works are immensely valuable in terms of their cultural and academic contribution, their commercial value is likely to be very low if not negligible. Important projects such as the Digitisation of Medical Journals<sup>6</sup> and the British Library Archival Sound<sup>7</sup> Recordings Project are continually struggling to balance free and open access, with the costs of due diligence efforts to trace rights holders, and the potential resulting risks if they decide to publish.

Such massive discrepancies between the law and current practice require fundamental changes: the need for a fair copyright system that reflects the interchangeable relationship between rights users and rights holders. In a fast paced global digital age, the copyright exceptions need to be unhindered by media, location, contract, mode of communication or machine or human interaction. They need to provide the framework for UK academic and research institutions to optimise their national contributions and lead the way internationally.

<sup>4</sup> [www.ethos.ac.uk/001\\_ETHOSnet\\_Home.html](http://www.ethos.ac.uk/001_ETHOSnet_Home.html)

<sup>5</sup> [www.jisc.ac.uk/publications/documents/infromthecold.aspx](http://www.jisc.ac.uk/publications/documents/infromthecold.aspx)

<sup>6</sup> [www.jisc.ac.uk/whatwedo/programmes/digitisation/medicaljournals.aspx](http://www.jisc.ac.uk/whatwedo/programmes/digitisation/medicaljournals.aspx)

<sup>7</sup> [www.jisc.ac.uk/whatwedo/programmes/digitisation/blsoundarchive.aspx](http://www.jisc.ac.uk/whatwedo/programmes/digitisation/blsoundarchive.aspx)

## Marshall Mateer

Education Consultant for the National Education Network<sup>8</sup>, Marshall Mateer discusses how digital technology has changed the ways in which school children and teachers interact with copyright. He shows that the existing copyright framework does not provide the appropriate basis for learning and promotion of an innovative economy for the 21st century.

Digital technologies have had a profound impact on learning and teaching in schools and today pupils and teachers are not only users or 'consumers' of copyright materials but also re-users, creators and publishers of them.

The children are working on a project. They visit a site of scientific interest and record data on their 'PDAs' which they compare with national data back in school. At the site they interview the wardens on video. For homework they gather information and materials from websites the teacher suggested and from lots of other sources they find for themselves. They present their work in 'PowerPoints' and place it in their e-portfolio as an assessment record. They put the 'PowerPoints' in the school VLE (virtual learning environment) so their parents and their buddy school in USA can see what they've been doing. They will acknowledge their sources and put their name to their pieces of work as it is their expression – and their copyright – and they should feel proud of their work.

During the course of the learning activity they will cross over the multiple boundaries and traverse the vagaries of copyright and licensing. They will trip over 'orphan works', bump into third party rights, be turned away by pay-for services, use licensed materials and make their own – often without knowing that there is a copyright dimension to what they are doing, because who can know all about copyright? In teacher workshops the 'copyright regime explained' seems to inform and discourage in equal measure. The principles of social benefit through balance between creators, the public and the knowledge pool – the very principles that should support citizenship and respect for others – are lost in the impenetrable thickets of the copyright undergrowth. However, schools do not want a world without rules, but rather a rule that works in the real (digitally mediated) world. Here are four key areas that need change:

In schools children work in groups – paired learning, classes and virtual peer groups. For children 'private study' in terms of self-managed learning is something to be learned. 'Fair dealing' with its lock-down on the individual is unfair in the classroom – it must allow sharing.

'Images' – the lost souls of copyright 'exceptions' – must be given a status which permits use of lower resolution assets for learning, openly, without fear of infringement but with a potential gain for the copyright owner through re-use value.

Pupils of all ages work, play and socialise in a world of multimedia and move through the experience of audio, moving images, text and data without seeing the bolted-on, new-media categorisations of the CDPA. Technology is increasingly 'synchronous' and to be fit-for-purpose copyright must be medium 'neutral'.

Pupils and teachers store, distribute, share and publish materials through an ever-expanding array of digital devices and platforms in long-term projects and 'on-the-fly'. This could be the next big problem or it could be the real opportunity to discover new ways of collaborating, achieving sustainable models and profiting together, rather than being seen as a market to be mined for short-term gain. Copyright must be platform 'neutral'.

Today copyright often becomes a barrier standing in the way of what it should be enabling. Schools, with their classes of thirty, need the flexibility of use to seize the 'learning moment'. Given that 'trust' and encouragement, they can successfully promote the values of copyright for public benefit and the economy through the shared knowledge on which our 21st century existence depends. Given that 'trust' it will be the young people who will create a copyright framework fit for a new era – it is our role to provide them with the opportunity to do so.

<sup>8</sup> The National Education Network online guide, 'Copy Rights and Wrongs', will publish in Autumn 2010. [www.nen.gov.uk](http://www.nen.gov.uk)

## Dr Cameron Neylon

**Dr Cameron Neylon describes the digital research methods of text mining and data indexing and gives an insight into the barriers posed by the existing copyright regime. He argues that fair dealing exceptions should be extended to this kind of research for the benefit of scientific and academic progress.**

If I want to be confident that this text will be used to its full extent, I am going to have to republish it separately to this collection. Not because the collection uses restrictive rights management or licences, it actually uses a relatively liberal copyright licence. No, the problem is copyright itself and the way it interacts with how we create knowledge in the 21st century.

Until recently we would use texts or data by reading, taking notes, making photocopies, and then writing down new insights. We would refer to the originals by citing them. A person making limited photocopies or taking notes (perhaps quoting the text) does not breach copyright because of the notion of 'fair dealing'. Making copies of reasonable portions of a work is explicitly not a violation of copyright. If it were, we wouldn't be able to do any useful work at all.

Today, scholarship and research cannot effectively proceed via manual human processes. There is simply too much data for us to handle<sup>9</sup>. On the other hand we have excellent computer systems that can, to some extent at least, take these notes for us. Automated assistants that can read the text for us, that can do text mining, data aggregation and indexing allowing us to cope with the volume of information. As these tools improve we have an opportunity to radically increase the speed of the innovation cycle, using the human brain for what it is best at: insight and creative thinking; and using machines for what they are best at: indexing, checking, collecting.

The problem, is that to do this, those machines need to take a copy of the whole of the text and in doing so, they trigger copyright. Even though the collection you are reading is released under a Creative Commons licence that allows non-commercial use, no-one can take a copy, find an interesting sentence, and then index it if they are going to make money. Google are not allowed to check what is here and index it for us.

Or perhaps they are. Perhaps this does come under 'fair use' in the US. Or maybe it does in the US, but not in the UK. What about Australia? Or Brazil? All with slightly different copyright law and a slightly different relationship between copyright and contract law. Even if current legal opinion says it is allowed, a future court case could change that. The only way I can be sure that my text is available into the future is to give up the copyright altogether.

To build effectively on the scientific and cultural data being generated today, we need computers. If a human were doing the job it would clearly be covered by fair dealing. What we need is a clear and explicit statement that machine-based analysis for the purpose of indexing, mining, or collecting references is a fair dealing exception, even where a full copy is taken. There clearly need to be boundaries. The entire work should not be kept or distributed. As with existing fair dealing, we could have guidelines on amounts kept or quoted: perhaps no more than 5% of a work. These could easily be developed and be compatible with existing fair dealing guidance.

We risk stifling the development of new tools, both commercial and academic, and new knowledge under the weight of a legal regime that was designed to cope with the printing press. At the same time a simple statement that this kind of analysis is fair dealing will provide certainty, without damaging the interests of copyright holders or complicating copyright law. These new uses will ultimately bring more traffic, and perhaps more customers, to the primary documents. By taking the simple and easy step of making automated analysis an allowable fair dealing exception everyone wins.

<sup>9</sup> For example, CERN's large hadron collider produces 15 million gigabytes of data a year – the equivalent of 2.4 million single layered DVDs.

## Dr Dave Roberts and Vince Smith

Dave Roberts and Vince Smith of the Natural History Museum examine the copyright system and its impact on the field of science, technology and medicine. They argue that reducing restrictions to access and embracing new licensing models is essential to support scientific progress.

For working scientists copyright is at best an irritation and at worst an obstruction. The process of science requires the sharing of results so that both the individual researcher and their institution build reputation and the esteem of their peers through recognition of the quality of their work. Traditionally this has been done by publication on paper and has been characterised as a workflow where scientists, the majority of whom these days are publicly funded, create manuscripts that they submit to publishers, who get other scientists to evaluate and comment on the work (peer review). The publisher sells the result back to the scientists. In the classic model, used to defend copyright, the money made by publishers is apportioned between the creator (author) and the publisher. In science, not only does the author not see any money from their work, but the publisher demands an exclusive right to that income in perpetuity.

From an historical perspective it is easy to see the contribution made by the publisher. Author's copy was often hand-written or, at best, typed, so the publisher was responsible for copy editing, layout and typesetting. Distribution was fairly specialised with many publishers selling to many libraries, giving both sides a challenge. The arrival of computers and the internet has radically changed this workflow. Some publishers still undertake some light copy editing, but their primary contribution is distribution and, increasingly, as maintainers of archives as more of their publications move to an electronic format. In today's more competitive market, publishers are also spending more on promotion of their titles.

Many publishers in the STM (science, technology and medicine) sector have made extremely healthy profits from the general expansion of science: the number of pages published annually has risen exponentially. The driver for much of this expansion has been the development of bibliometrics that managers use as a method of assessing scientific performance, so scientists strive to produce ever more papers as their engine of career development. In science, as many other fields, we progress by standing on the shoulders of giants: in other words building, on the base of published knowledge. This is where copyright creates obstacles. Publishers recover their costs and make their profits from sales of their books and journals over a comparatively short time-frame, with most publications having short sales windows.

The internet has fundamentally changed this situation. Scientists who previously have gone to a library now use the internet, so publishers have a new revenue stream by selling the same material long after their business model recovered their original profit margin.

The internet also enables anyone to disseminate scholarly work through tools and services that are increasingly being developed outside the traditional publishing sector. In this environment copyright is often ignored because it is too complicated, or used as an excuse for inaction by research organisations who are often terrified by the risk of litigation. Realistically, there is little money at stake for the rights owners of this scholarly intellectual property beyond its initial publication. Re-purposing previously published material is how science progresses. The convention and only expectation is that such extracts will be properly credited. There is also a very real argument that factual content in the scientific literature cannot be subject to copyright. The typography is copyright, but is that any excuse to say that someone should not copy and extract an element from a previous publication?

The open science, or open research, movement advocates unrestricted access to scientific materials, both raw data and observations on those data. It most often uses a licensing system such as Creative Commons (<http://creativecommons.org>), a framework that puts the author in charge of defining how works can be utilised.

For scientific publishing:

- We urgently need to separate cases where there is substantial loss of income to a content creator though content dissemination (e.g. a professional musician) from those that make no income from dissemination and rely on this as part of their scholarly activities (e.g. a professional scientist). A positive start could be made by removing copyright restrictions on material older than, say, two years from its original publication date.
- Orphan works should be placed in the public domain.
- Making copies for strictly archival purposes should not be subject to copyright control. Libraries in particular should be able to preserve digital copies in perpetuity, which technologically means regularly making copies.

# Glossary

**Analogue** is hard copy material such as books, journals, records and manuscripts.

**Born Digital** material was created originally in a digital format – e.g. a website.

**Collective licensing** is the licensing from collecting societies who represent on behalf of individual rightsholders certain limited rights – such as the right to make multiple copies of the same article.

**Copyright** is a set of exclusive rights granted to the author or creator of an original work, including the right to copy, distribute and adapt the work.

**CPDA** Copyright, Designs and Patents Act 1988

**Data Mining / Text Mining** **Data mining, or text mining** is the searching for and extracting of 'chunks' of data or text using computer programmes to discover hidden facts or patterns and subtle relationships in data. A key element is the linking together of the extracted information to form new facts or new hypotheses to be explored further. With the amount of data doubling every three years this is becoming an increasingly important scientific research tool.

**DRMs / TPMs** (Digital Rights Management) and TPMs (Technical Protection Measures). These are technological tools used to regulate access to and usage of digital data.

**Exceptions** These refer to the exceptions to the monopoly right of copyright. These include exceptions to facilitate education such as Fair Dealing and the Library Privileges. They also include criticism, news reporting, access by the visually impaired, the creation of temporary copies to allow for computer technology / the internet etc.

**Fair dealing** is the "right" to make a copy from an in-copyright work without permission from the rights-holder for non-commercial research and private study purposes. For example copying by students at a university is often done under the fair dealing provision in UK law.

**Fair Use** is a US legal term determined by a test, allowing one to determine whether the making of a copy, without the permission of the rightsholder, is deemed to be fair or not. Examples include criticism, comment, news reporting, teaching, scholarship, and research.

**ICT** Information Communications Technology

**Intellectual Property (IP)** is a term referring to a number of distinct types of creations of the mind for which exclusive legal rights are granted. E.g. copyright, trade marks, patents, database rights etc.

**Library Privilege** are library activities that are permitted under copyright law e.g. facilitating fair dealing copies and archiving.

**Limitations and Exceptions** refer to the exceptions to the monopoly right of copyright. These include many exceptions internationally including facilitating education, archiving, fair dealing, fair use as well as access to the visually impaired etc

**Orphan Works** are copyright works for which it is not possible to track down the rights holder because they are not known or cannot be traced.

**VLE** (virtual learning environment) is a system designed to support teaching and learning in an educational setting. A VLE will normally work over the Internet and provide a collection of tools such as those for assessment



The copyright of each submission is retained by the author. The authors have kindly agreed to issue their essays for this booklet under the following Creative Commons licence.  
<http://creativecommons.org/licenses/by-nc-sa/2.0/uk>

