



**A Case Study: Teaching on the WWW
Isaac Rosenberg's
'Break of Day in the Trenches'**

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Break of Day in the Trenches

The darkness crumbles away
It is the same old druid Time as ever,
Only a live thing leaps my hand,
A queer sardonic rat,
As I pull the parapet's poppy (5)
To stick behind my ear.
Droll rat, they would shoot you if they knew
Your cosmopolitan sympathies,
Now you have touched this English hand
You will do the same to a German (10)
Soon, no doubt, if it be your pleasure
To cross the sleeping green between.
It seems you inwardly grin as you pass
Strong eyes, fine limbs, haughty athletes,
Less chanced than you for life, (15)
Bonds to the whims of murder,
Sprawled in the bowels of the earth,
The torn fields of France.
What do you see in our eyes
At the shrieking iron and flame (20)
Hurled through still heavens?
What quaver - what heart aghast?
Poppies whose roots are in men's veins
Drop, and are ever dropping;
But mine in my ear is safe, (25)
Just a little white with the dust.

- Isaac Rosenberg

Explanatory Note

Born in 1890 of a poor Jewish family, Rosenberg grew up in the East End of London. He left school at 14 and became apprentice to a firm of engravers in Fleet Street. After a brief convalescence in Cape Town in 1914 he enlisted with the Suffolk Regiment in October 1915, later transferring to the King's Own Royal Lancaster Regiment. He served on the Western Front from 1916 onwards but never rose above the rank of Private. He died on 1 April, 1918, whilst on night patrol. During his life he became an accomplished poet and painter, experimenting also in drama.



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Introduction

This report covers the development of an on-line tutorial (mounted on the World-Wide Web) aimed at teaching First World War poetry, and in particular the British poet Isaac Rosenberg and his poem 'Break of Day in the Trenches'. The report covers the preliminary stages of the package as a series of HyperCard stacks; the migration to the World-Wide Web; design and copyright issues; and feedback on the tutorial.

I. Rosenberg: The HyperCard Stacks (1992-1994)

1. Author's Background

In January of 1991 I was appointed Research Officer for the CTI Centre for Textual Studies. The CTI (or Computers in Teaching Initiative) comprises 23 subject-based centres (twenty-one in 1991) working to encourage the use of learning technologies in UK higher education. CTI Textual Studies was originally established as the Centre for Literature and Linguistic studies and covered all aspects of computing in the teaching of these subjects in all languages. In September 1990 the Centre was reorganised and renamed to cover text-based subjects formerly the province of the Centre for the Humanities. In short this meant that as Research Officer for the Centre I was expected to be able to offer advice on the use of computers in the teaching (at higher education level) of literature (in all languages), linguistics, classics, theology, philosophy, and theatre arts and drama (media studies has been subsequently added).

The duties of a Research Officer in the CTI were quite widespread. One had to keep informed on the latest developments on the Internet (in 1991 this meant predominantly monitoring discussion lists and finding the easiest means to access on-line resources such as library catalogues and FTP sites); collecting together any computer-based learning packages; and disseminating this information through a newsletter (*Computers and Texts*) and an annual software listing called the *Resources Guide* (Lee et al, 1991-).

In 1991 most excitement centred around the development of multimedia packages. HyperCard was predominant in the Macintosh market, Office Workstation Ltd's GUIDE had been negotiated as a CHEST site license deal, and numerous other authoring packages were becoming available. Naturally, under the role of the CTI, any new multimedia packages which fell under the subject-categories covered by CTI Textual Studies had to be investigated.

Multimedia seemed to lend itself well to literary studies. Project Perseus (combining CD-ROM and Laserdisk technology) was in its final beta-test stages at Harvard University. Still the most extensive of all multimedia products for literary studies this product combined source texts, maps, archaeological site plans, and an extensive library of graphics to create a vast setting for the teaching of studies relating to Ancient Greece. There was the highly successful Intermedia project by George Landow at Brown University (started in 1984 as a descendant of the original FRES--File Retrieval and Editing System--but now running under Storyspace). In the United Kingdom work had been going for a couple of years at the University of Glasgow under the STELLA project (Software for Teaching English Language and Literature and its Assessment); and the University of Nottingham had begun to work with GUIDE to develop a tutorial to teach the Old English poem *Wulf and Eadwacer* for undergraduate courses (under the title 'Project WULF').

Perhaps it is of interest to ask why multimedia proved so popular to literary studies. One of the main reasons is to do with the intertextuality of literature. A single text depends upon other texts, not just literary, for meaning, and to this can be added other data which might be of a different medium (such as pieces of music, filmed versions of plays, etc.). This is all highly beneficial if one wishes to remove some of the barriers that have developed in the traditional University system limiting interdisciplinary studies. For example, in her thesis on literature in the age of the computer, Kim Ball records the experiences of a history of science student at Brown University who used Landow's *Dickens Web* (part of the Intermedia project aimed at teaching the works of Charles Dickens). The student used the package to supplement an essay stating that it: 'had never occurred to me to do that kind of thing earlier and it didn't occur to anyone else I knew who was writing those kinds of papers. Science was science, history was history, history of science was both but just something else altogether' (Ball, 1993). Ball goes on to note that: 'A student working with Intermedia [or hypermedia] is exposed to a variety of material she might never see if forced to hunt all the information in a multitude of books and journals in the library. Hypertext does benefit the student in 'laying it all out' in one place and making it conveniently accessible.' (Ball, 1993).

Not only did multimedia offer literary scholars the chance to draw together material from different subject areas to present the end-user with a more complete picture, it also allowed the students to begin to govern their own learning process. As Landow stated in *Hypertext: the Convergence of Contemporary Critical Theory and Technology* the roles of the lecturer/student change because the teachers are 'transferring some of their power and authority to students' (Landow, 1992, p. 123).

2. Rosenberg 1.0 (1992)

2.1 The Beowulf Workstation

One of the most popular expressions of multimedia (or hypermedia) in literary studies was the advent of the hypermedia edition. Here the text to be studied was central, but at the same time being annotated with various other pieces of information. In 1991 an excellent example of this was *The Beowulf Workstation*. This was written in HyperCard (version 1.2) by Professor Patrick Conner of West Virginia University. It presented an edition of *Beowulf*, complete with glossary, list of paradigms, illustrations, essays, and facsimiles, all of which the student could browse through in their spare time to supplement their study of the poem (see Figures 1 and 2). Matthew Wolfe, a student of Professor Conner's exposed to the program noted that the student could 'organise the secondary criticism in his or her mind...[and] draw on all the basic tools required to translate, understand, and interpret the poem without leaving his or her desk.' He added: 'To the amazement of most observers, little classtime was spent discussing the program, so the poem was never made secondary to lectures on computer science' (Wolfe, 1990). In addition *The Beowulf Workstation* was an example of a shell or template, i.e. academics could automatically remove *Beowulf* and put in any poem, not necessarily Old English, to create new hypermedia teaching editions. This idea was also the driving force behind *The Poetry Shell*, developed as part of Oxford University's ITTI project. Written in Asymetrix's Multimedia ToolBook the Shell allows scholars with very little computing knowledge (basically all that is needed is a grasp of any standard word-processing package) to create their own hypermedia editions with relative ease. The example edition distributed by the ITTI which was created using The Poetry Shell is *The Dream of the Rood* which teaches the Old English poem of the same name (reviews of these two products can be found in the SIMA web site - <http://info.mcc.ac.uk/CGU/mmsup.html>).

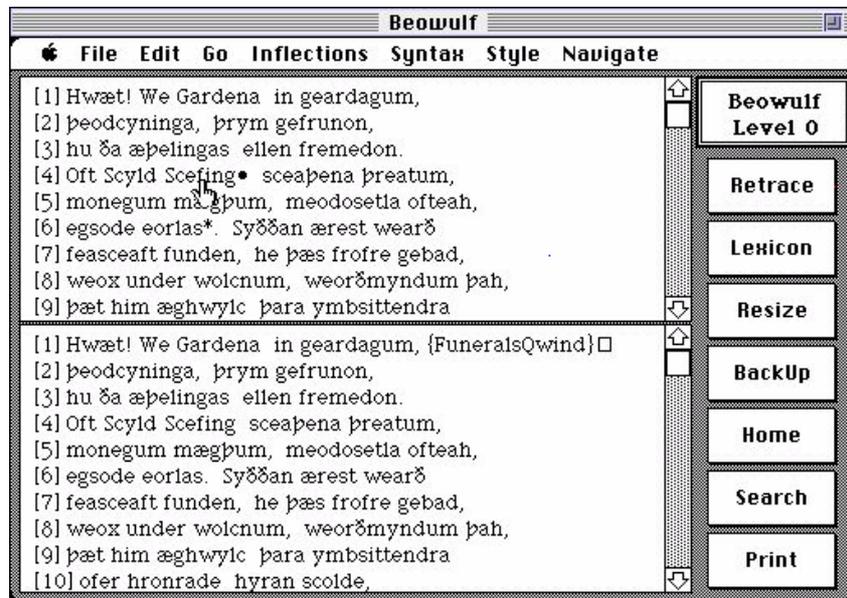


Figure 1 Text Screen from *The Beowulf Workstation*

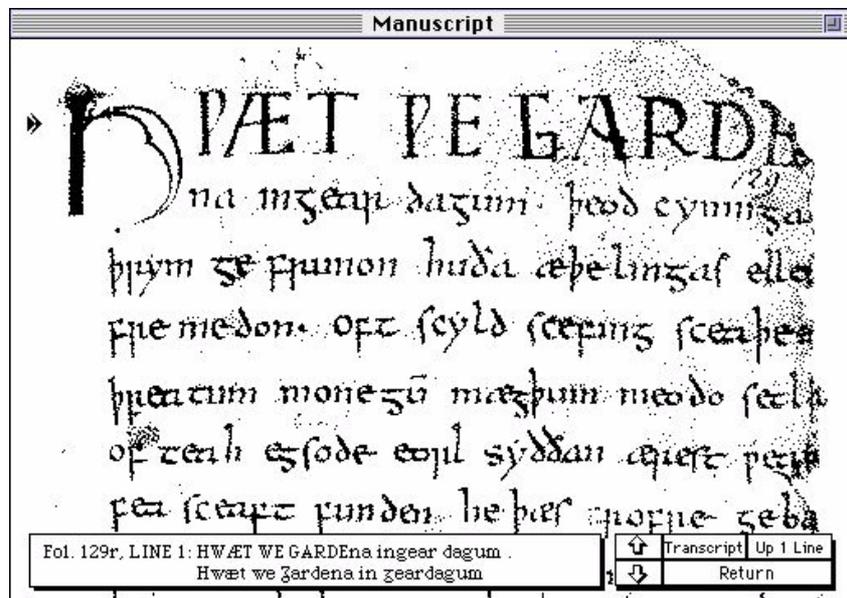


Figure 2: Facsimile of the manuscript available in *The Beowulf Workstation*

2.2 Creating Rosenberg 1.0

Using The Beowulf Workstation model, work began on the first of the series of Rosenberg stacks in the first quarter of 1992 (hereafter known as Rosenberg 1.0). The initial idea (and guidance) for concentrating on Rosenberg came from Professor Kathryn Sutherland (then of the English Department, University of Manchester, now at the University of Nottingham). The hypermedia edition structure of *The Beowulf Workstation* implied the need for a central text and the poem 'Break of Day in the Trenches' was chosen.

The reasons for starting the project stemmed mainly from a wish to see for myself the effectiveness of hypermedia as a teaching tool, but also the problems involved in the design, creation, and evaluation of such material. The success of such projects as Perseus, WULF, and The Beowulf Workstation, owed much to the fact that they were based in historically rich (yet unfamiliar) periods which could be supplemented with art, archaeology, and palaeography. With a wish to design a package based more in the modern age, but not forgetting the successful way hypermedia had allowed literature to be established within its social and historical context, the

period of the First World War was chosen because of the ample material that could be attached to the poetry. Furthermore, the subject itself is a very popular one taught widely in literature courses in schools and colleges thus providing a large audience for evaluation and distribution.

The resulting package, as already mentioned, was centred around one of the most accomplished poets of the period, Isaac Rosenberg, who fought in the British Army on the Western Front until his death in April, 1918. Not only was Rosenberg one of the great poets of the period (his reputation, however, was established after his death when his poetry was reassessed), he was also a talented artist, an extensive writer of letters, and a part-time dramatist. All of these allowed the package to expand into other areas beyond that of poetry.

The shell of Professor Patrick Conner's *The Beowulf Workstation* was used as a starting point thus dictating the use of HyperCard on a Macintosh platform. *Beowulf* was automatically removed from the shell and replaced with 'Break of Day in the Trenches'. However, it was clear that the study aids provided for the student of Old English were redundant when teaching more modern literature (i.e. there was no need to provide a Glossary for 1916 English). Many of these features were subsequently removed freeing up extra screen space.

The design of the package was as follows. After the opening title screen the first card the user was presented with was the text of the poem complete with buttons to show the history of the amendments made to the text by Rosenberg throughout 1916 (see Figure 3). From here the students could go directly to information concerning Rosenberg (i.e. his life, attitudes, and other works); to a section entitled Analogues (namely the work of contemporary poets both male and female, plus some of the less well-known poetry that survives only in such things as the trench newspaper *The Wipers Times*); and to a larger area on the First World War itself. To aid navigation there was a background map facility modelled on the one used in Professor Mike Best's *Shakespeare's Life & Times* (see Figure 4). Finally, although the student was free to browse around the various cards of information using the map facility or the built in hypertext links, they could not exit from the program (unless they forced a quit from HyperCard) without returning to the initial card with the poem 'Break of Day in the Trenches'. This was a deliberate design policy (which has been kept in for the WWI version) so that hopefully on re-reading the poem their perception of the work may have changed.

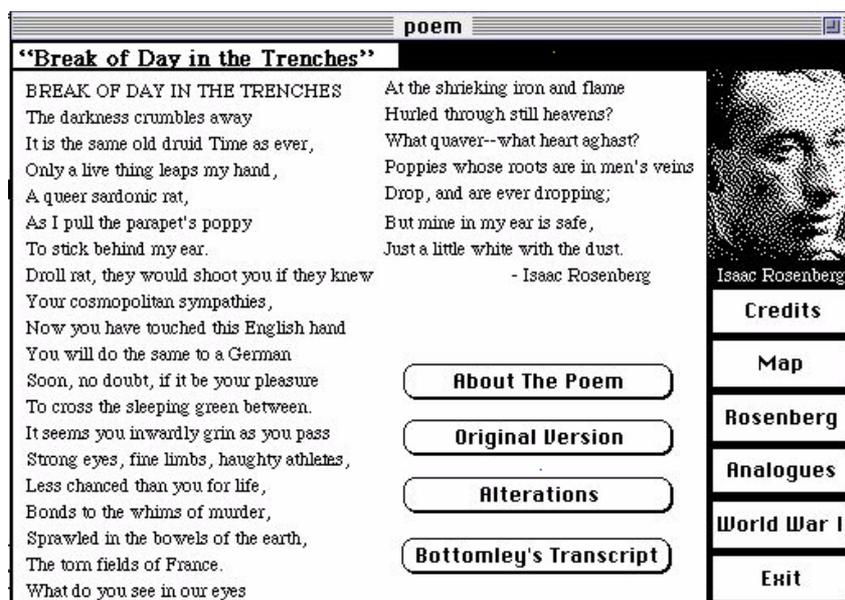


Figure 3: Opening Screen to *Rosenberg 1.0*

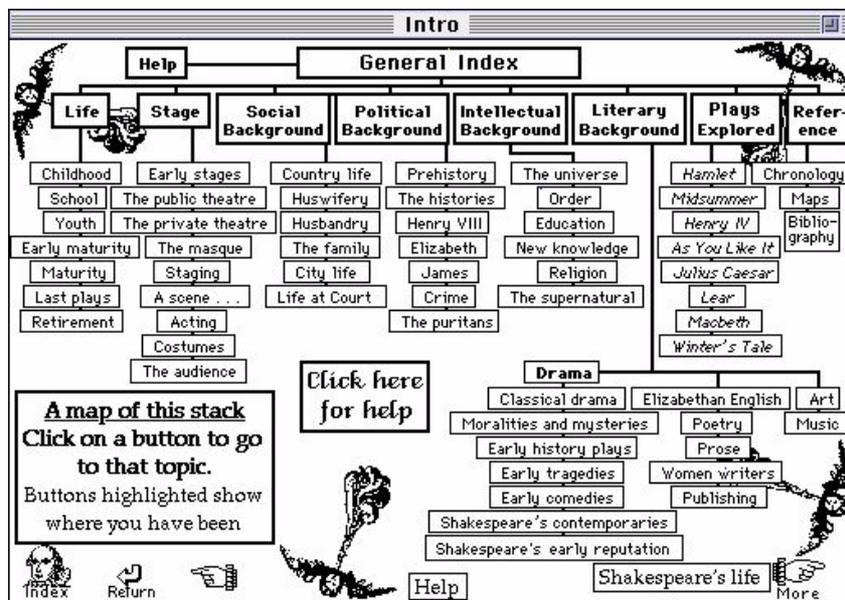


Figure 4: Map Screen to Mike Best's *Shakespeare's Life and Times 1.0*

As this was a package aimed at literature students the historical details on the First World War were kept to a minimum, but poems from the period were inserted appropriately in an attempt to initiate discussion. Music and images supplemented the textual material. Sound was sampled from three songs from the period ('Your King and Country', 'It's a Long Way to Tipperary', and 'Pack up Your Troubles') using SoundEdit and HyperSound (two packages to allow the easy digitisation and post-editing of sound files--HyperSound allowed sound resources to be placed into a stack's resource fork very quickly). Development was done on a Macintosh SE/30, and a Macintosh IIsi. On a basis of a 9.00am-5.00pm working day the product (including the time taken to learn HyperCard and the digitisation procedures) took sixty working days to complete. The package was small enough (even with the sound files) to be distributed on three High Density 3.5" floppy disks. The only charge made was for the cost of the disks plus postage and package.

2.3 Copyright Issues with Rosenberg 1.0

Copyright had to be cleared on all the text, images, and sound used in the package before it could be distributed. Many of the poets who died during the Great War were subsequently out of copyright (under the 75-year rule) but even so a substantial amount of time was involved in writing to various publishers to discover this. The process proved to be a tiresome litany of unanswered letters, ignorance on the part of publishers as to what storing material in electronic form actually implied (i.e. it took some explaining that limiting the distribution of the package to within the UK was almost impossible with the ease of sending software across the Internet), and bargaining to keep any payments down to a minimum.

As a result of this it was clear (at least in 1992) that one could offer two pieces of advice. First, if possible, use national archives such as libraries and museums (the Imperial War Museum's Educational Department allowed the use all the images required as long as the product was for non-commercial purposes). Second, the need to stress to publishers that the product was for the educational market, and (if true) that it was a non-profit making venture.

2.4 Evaluating Rosenberg 1.0

The package was taken to two institutions, a sixth form class (16-17 years old) who were studying English, and a class at the University of North London. In the school the set-up was of two machines with the pupils clustering around in groups of eight and going through it at their own speed. In the University the package was loaded on several machines and users could interact with it on a one-to-one basis. Observation was of particular use to see bad design faults (buttons, problems of navigation, etc.) and how users interacted with it (it was interesting to see how well the sixth-formers used the product as a basis for discussion).

The second form of evaluation was by questionnaires. All the students in the two scenarios above filled one in and the package was subsequently presented to trainee teachers and MA Education students at Sheffield Hallam University. In total over fifty forms were returned and everytime the product was sent out it was done so with the request that anybody using it should return any comments to help in the evaluation process.

The overall reception was very favourable, with comments such as 'interesting', 'enjoyable', and 'useful' being common. Most students found it attractive because it introduced them to areas that they were not familiar with (or indeed had not even considered as being helpful to the study of War poetry), and the teachers felt that lesson plans could be constructed around the package. A fuller discussion of this evaluation is available in Lee (1992).

One point of worry, however, was the perceived power of the product. This was particularly noticeable in several comments made by the A-Level students who implied that their textbooks had now become redundant because the package contained everything they needed to know. This worrying readiness to accept the idea that a) the computer contains all the facts; and b) it contains all the correct facts--is even now of great importance to multimedia developers. Unless one applies the same academic standards to software products that one does to publications, the area will become marginalized and viewed as non-scholarly. In many ways this is perhaps an even greater challenge than our seemingly constant quest to get the machines to do things bigger, quicker, and all at the same time.

3. Rosenberg 1.1 (1993)

3.1 The Advent of Quicktime

With the appearance of Quicktime in 1992-1993 on a widespread basis there was suddenly a quick and easy software solution to creating and running small excerpts of video on a reasonably low-level Macintosh computer. This, in conjunction with the appearance of HyperCard 2.0, meant that at the end of 1992/early 1993 work began on a second version of the Rosenberg stacks (hereafter Rosenberg 1.1) this time including QuickTime movies. Once again the resources of the Imperial War Museum were used (and copyright cleared) and film samples were taken from the Museum's videos War Women of Britain and The Battle of the Somme. All of these were monochrome and silent. Digitisation was done on a Macintosh Quadra 700 using a VideoSpigot board, ScreenPlay software, and Adobe Premier. Film samples were digitised, edited, and compressed (which meant that a 15-20 second film was about 1MB in size).

Film footage was used in three ways: first, to illustrate some event or detail which was difficult to explain (e.g. the setting up of a machine-gun post, or the actual desolation of no-man's land); second, as an example of film shown to the public at the time (e.g. The Battle of the Somme was publicly released in the latter part of 1916); and finally, it was felt that it would be useful to

‘Break of Day in the Trenches’ Questionnaire

1) Have you studied World War I poetry before?

2) Have you studied Isaac Rosenberg before?

3) Have you used a computer before?

If YES, what type?

4) Do you think the program would have been of interest to you if it had been available in your course?

If YES, why?

5) Did you enjoy using the program?

If YES, why?

6) What did you think of:

a) Finding your way around the program EASY MODERATE DIFFICULT

b) The content of the material GOOD ADEQUATE NOT ENOUGH

c) The complexity of the material TOO SIMPLE JUST RIGHT TOO DIFFICULT

7) Did you find material in the program which you would not normally think of looking at when studying World War I poetry?

If YES, what areas?

8) Finally, do you think that your enjoyment of the poem was effected by using this program?

If YES, in what way?

Figure 5: Questionnaire Used for Evaluation of *Rosenberg 1.0*

attach moving images to the poems already stored in the programme. The objective here was to supplement the poem with contextual visual imagery, but, at all times, keeping the literature as the focal point. In order to avoid the probable scenario of the user simply looking at the film without actually reading the piece it was meant to symbolise, it was decided that the movie would appear as an option only after the poem had been called-up. An example from Rosenberg 1.1 relates to the card on Field Marshall Haig. Initially the user is presented with a short biographical description of the British Commander-in-Chief, but they have the further option of viewing the poem 'The General' by Siegfried Sassoon. Once they have done this a second button appears which, when activated, shows a short film compilation of a General inspecting some troops, a file of soldiers marching towards the front-line, and a final image of a corpse sprawled against a trench-wall (see Figures 5 and 6).

There was no formal evaluation of Rosenberg 1.1 although anyone using it was asked to complete the questionnaire distributed with Rosenberg 1.0. The inclusion of film footage, however, meant that the size of the package had increased dramatically to around 19MB. This meant that to distribute it on 3.5" floppy disks would have meant a considerable amount of time spent on disk copying (although Oxford University Computing Services now has a CD-ROM writing facility, it did not have one in 1993). Therefore, anyone who wished to use Rosenberg 1.1 or get their own version had to come to Oxford and make a copy for themselves.



Left: Figure 6: 'The General' Card from Rosenberg 1.1

Below: Figure 7: Stills from the QuickTime movie associated with Siegfried Sassoon's 'The General' in Rosenberg 1.1



4. Rosenberg 2.0 (1994)

4.1 HyperCard 2.2

Work on the project was relatively quiet over the coming year. About twenty copies of the HyperCard stacks for Rosenberg 1.1 were collected from the machine at Oxford and the product was demonstrated on a number of visits by the CTI Centre around the country. The reception to the design was always favourable although it was generally recognised that the content was somewhat limited.

At the end of 1993/early 1994 Oxford University Computing Services purchased a copy of the new version of HyperCard, namely 2.2. This promised, amongst its many other features, to allow the easy introduction of colour, a singular failing in previous versions of the software. Up until then colour was only available via the display in external windows of PICT files, or by using the add-on 'ColorizeIt' available on most FTP sites.

In the light of this advance in the authoring software work began on a new version of Rosenberg (hereafter Rosenberg 2.0). It was felt that the main strength of the previous versions had been the design of the stacks whereby the user was introduced to the poem, then its historical context, and finally back to the poem again to see if the additional information had in any way altered their perceptions of 'Break of Day in the Trenches'. It was decided that Rosenberg 2.0 should be expanded in two ways:

1. To try to allow readers to automatically store their comments resulting from their first reading of the poem, and then to archive their final impressions once they had been exposed to the ancillary information.
2. To have different starting points other than 'Break of Day in the Trenches', i.e. poems by other writers.

Sample screens from Rosenberg 2.0 appear in Figures 7 to 9. The first (Figure 7) shows the new opening screen whereby users could choose from a selection of poems and poets (Isaac Rosenberg's 'Break of Day in the Trenches', Edward Thomas's 'As the Team's Head Brass', Siegfried Sassoon's 'The General' and 'Blighters', Rupert Brooke's 'The Soldier', and Wilfred Owen's 'Futility'). Once a user selected a poem they were then taken to a rather plain screen that presented purely the text of the poem. Figure 8 illustrates how 'Break of Day in the Trenches' appeared in Rosenberg 2.0. The lack of any historical information meant that the user provided comments (in the appropriate box) as a result of an uninfluenced reading of the text. Once they had done this they could then move on to the multimedia version of the poem (Figure 9) complete with links to background information, film footage, etc. Although it is not illustrated opposite, on exiting the package the user was taken to a screen similar to that in Figure 8 and asked to record their comments on the poem after having discovered its historical and social context. They could also look at their initial comments and those of others (all archived as plain text files and automatically loaded into a HyperCard).

However, in many ways, these few screen-shots represent most of the work on Rosenberg 2.0. Extra screens were designed surrounding the topic of the War itself but these were never completed. The stumbling block in the development of the package was HyperCard's very limited ability to handle colour to any decent level. Problems which were continually encountered included the speed of loading in a colour file; failure to clear a screen so that when the user moved to another card the image of the previous card still remained causing an overlap of pictures (this could only be fixed by using the 'Redraw Screen' menu option); or, even worse, images simply failing to load leaving large white gaps on the screen. Numerous messages on the HyperCard discussion list (HYPERCRD-L) indicated that many other people were encountering these problems.



Figure 8 Opening Screen to *Rosenberg 2.0*

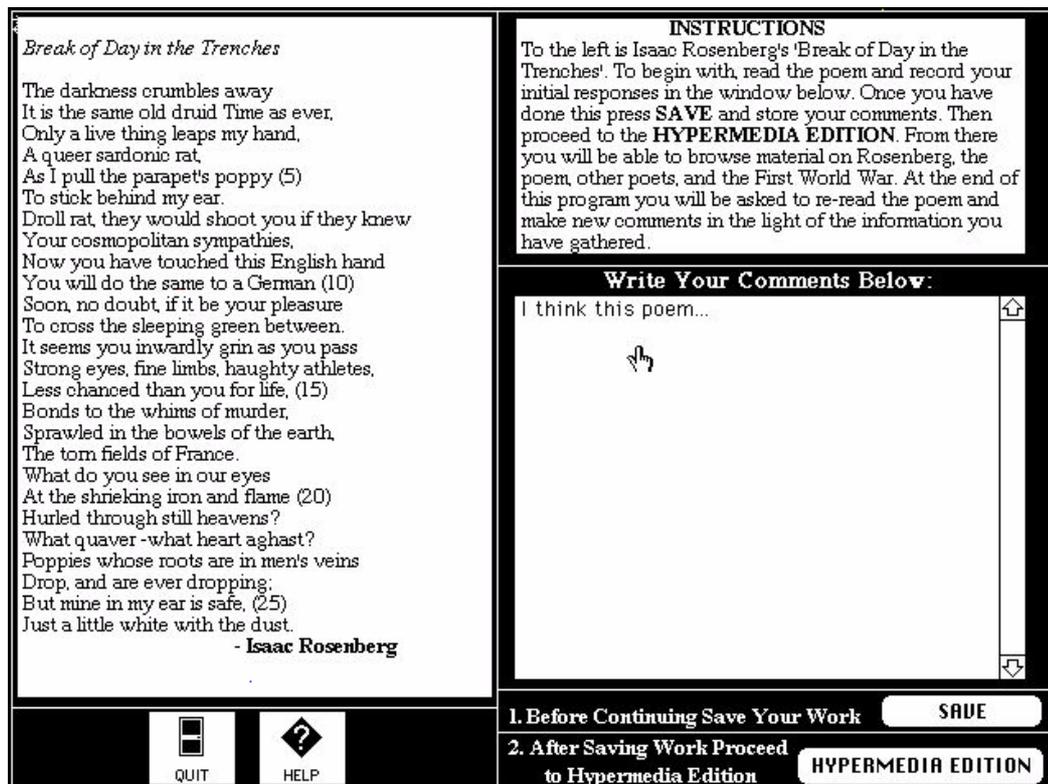


Figure 9: Comment Screen for *Rosenberg 2.0*

Two options were thus available. First, to look around for another authoring tool that could be used to replace HyperCard. It was widely recognised that ToolBook was outpacing HyperCard and was thus worth considering. However, the problem with ToolBook was that it could only deliver material for a PC. Macromedia Director, though strong on animation, was very weak in its hypertext linking facilities. Authorware was too expensive, and Guide was receiving very little support (at the time SuperCard was not considered but this perhaps is now the best authoring package for the Macintosh).

The second option was to move away from the concept of using a commercial authoring package and to begin to develop a way of making the material available across the Internet. Recent experiences of converting the CTI Centre for Textual Studies' Resources Guide to HTML (and thus delivering it on the World-Wide Web) had yielded highly favourable results.

The screenshot shows a multimedia interface for the poem 'Break of Day in the Trenches' by Isaac Rosenberg. The main window is titled 'Isaac Rosenberg' and 'Break of Day in the Trenches'. It contains the full text of the poem, a central video player showing a trench scene, a portrait of Isaac Rosenberg, and a section titled 'Rosenberg's Life' with a sub-section 'About the Film'. Below the poem, there are buttons for 'Brief Analysis', 'Pre June/1916', and 'Bottomley Variant'. At the bottom, there is a 'MAIN TOOLS' bar with buttons for EXIT, FIND, HELP, and NOTES, and a 'BRITONS' section with buttons for 'Map', 'The War', and 'Analogues'. On the right side of the bottom bar, there are dropdown menus for 'Other Poets: Rupert Brooke' and 'Other Poems: In the Trenches'.

Figure 10: Multimedia Edition of the Poem in Rosenberg 2.0

II. From HyperCard to the World-Wide Web (1994)

1. The Coming of the Web

Undoubtedly, the single-most important event in terms of the Internet during the 1990s was the development and impact of the World-Wide Web. With the widespread distribution of NCSA's graphical browser Mosaic, followed up by the even more popular Netscape, the use of the WWW has grown dramatically (some estimates claim that traffic on the WWW increased by c.1,000% in 1993 and c.400,000% in 1994). Coupled with this, the background mark-up language HTML (Hypertext Mark-up Language) is so relatively easy to use that this has enabled many people (with limited programming knowledge) to easily mount publications on the Internet. Although recent SIMA reports have provided excellent introductory material on the WWW (see Kelly, 1995) the following may act as a general guide to the Web.

1.1 How the World-Wide Web Works

The World-Wide Web is a system whereby machines around the world store their documents in a standard form. These documents consist of text but can be linked to graphics, sound files, movies, and to other documents simulating a hypertext environment. The revolutionary attribute of the World-Wide Web is that the linking of these documents can be international as long as the address of the document to be linked to is known. In addition, the WWW can interface with other accessing systems such as Gopher sites.

WWW documents are stored as plain text files (i.e. ASCII) and are marked up using a system called the Hypertext Mark-Up Language or HTML (a subset of the Standard Generalised Mark-Up Language--SGML). These documents then reside on a machine that acts as a server. To access these documents (and make any sense of them) one needs a WWW browser. Common browsers used at the moment are Netscape, Mosaic, and LYNX (for use as a plain text browser on a terminal); but there are many others already available or under development.

When browsing a document on the Web you will need to know its Uniform Resource Locator or URL. Though daunting to look at these simply record the scheme or protocol of the document and its pathname (i.e. the location of the document itself). One of the major advantages of the Web is that it can interface with several systems such as Gopher, FTP, or WAIS, thus allowing it to tap into previous Internet resources with ease. Documents produced for the Web and marked-up in HTML use the hypertext transfer protocol or 'http'. For example, the URL for the *Times Higher Education Supplement* is:

<http://www.timeshigher.newsint.co.uk/>

Here the prefix 'http' denotes that it is marked-up in HTML for the Web, and 'www.timeshigher.newsint.co.uk' is the pathname or Internet address of the document.

Within the Web documents themselves, links can be made to images (so that they appear as part of the file when reformatted by the browser), other documents (including remote access to sites elsewhere), sound files, and video files. Interactive graphics can be displayed with links attached to a number of elements; users need only click on the relevant section to activate them (e.g. see the interactive maps at Xerox -- <http://pubweb.parc.xerox.com/map>). With the presence of links, graphics, sound, and video, the Web is clearly the first step towards providing multimedia on an international basis.

2. Abandoning HyperCard

At the end of the last chapter it was noted that development of Rosenberg 2.0 never reached completion. This was due to the fact that HyperCard was deemed no longer adequate and that no other multimedia authoring tool offered a suitable alternative. The decision then, was taken to move away from traditional authoring packages to mount the next version of the Rosenberg material on the World-Wide Web. This decision, however, needs further clarification.

The choice for a multimedia author at the moment is coming down to two options. First, one can proceed with the standard authoring packages such as HyperCard, SuperCard, ToolBook, Director, and so on. Second, one can consider moving the publication onto the Internet via the very popular medium of the World-Wide Web. As can be seen from the above opening remarks the decision was taken to move the Rosenberg material onto the latter after much deliberation over the merits of each delivery medium. In an effort to help other developers in their project decisions some of the advantages and disadvantages of each have been listed:

3. Multimedia Authoring Tools (e.g. HyperCard, ToolBook, Director)

3.1 Advantages

- 1) Most of them have very sophisticated editing tools and functions allowing for elaborate special effects, screen design, inclusion of multimedia elements, and linking between applications. Background scripting languages can also allow for the addition of advanced functions.
- 2) Most will allow run-time versions to be distributed without the need for third parties to have the full version of the software they were created in (e.g. HyperCard player, etc.).
- 3) Due to their long history of development there is a substantial amount of supporting material and publications to help a prospective author.
- 4) The author tends to have control over the data, restricting its distribution, as well as the end-users' abilities to alter material.

3.2 Disadvantages

- 1) Every authoring package has its limitations. For example, HyperCard is poor in using colour, ToolBook (like HyperCard) is limited to a single platform, Director is poor in handling hypertext, and so on. Although these may be overcome in the future the situation at present is far from desirable.
- 2) Unless the author creates specialised importing features most of the data used in the final product will be locked into the package making subsequent editing a problem.
- 3) The life-expectancy of these products is questionable. Who is to say that a program designed in HyperCard will be usable in two or three years time with the speed at which new machines and operating systems are emerging?
- 4) The potential audience is limited by the distribution process (e.g. cost and speed of producing CD-ROMs), and the platform requirements. Mounting compressed programs on the Internet for FTP will also dictate a limitation on the size of the product.
- 5) If the product is upgraded this would have to be in conjunction with a re-issue of a new version, entailing all the problems of advertising these changes, plus a renewed round of distribution.
- 6) Although software houses have made great strides in making the authoring software more easy to use it should still be noted that the learning curve for some products is still very high.

4. The World-Wide Web

4.1 Advantages

- 1) Assuming one has access to a Web server (usually your institution's mainframe), publication of material (not including copyright costs) is free.

- 2) HTML, the hypertext mark-up language used in creating World-Wide Web documents, is very easy to learn.
- 3) The Web uses non-propriety standards thus giving the site a longer life expectancy: e.g. text is in plain ASCII, HTML is a sub-set of SGML, graphics appear as JPEG or GIF (thus industry standard), etc. It is subsequently cross-platform (i.e. the same document can be viewed through a Macintosh, a Windows machine, a UNIX box, and even a dumb terminal using such browsers as LYNX though this necessitates the loss of multimedia elements).
- 4) Once established, the material is made available to an international audience amounting to millions (with no extra distribution costs).
- 5) Linking from the document is not restricted to data elsewhere on the machine's hard drive or the CD-ROM the program is distributed on, but can be international (e.g. if a new site appeared giving historical information on the First World War a link could be created to this within a matter of minutes).
- 6) At present the browsing software needed for the Web is free (e.g. Netscape or Mosaic) and this has led to its enormous popularity.
- 7) The Web can deliver multimedia elements in addition to text (although only graphics were employed in this site).
- 8) Editing of existing files is straightforward. Furthermore, as it works on a client/server basis there is no onus on the developer to reissue upgrades.
- 9) There are substantial moves in developing the Web. Already it can easily launch other applications, interrogate databases, etc. Any limitations at the moment could well be overcome in the very near future with advances in CGI scripting.

4.2 Disadvantages

- 1) At present, the screen design facilities and animation capabilities of the Web are not as advanced as those provided with most of the authoring packages. However, Macromedia's Shockwave (<http://www.macromedia.com>) goes some way to addressing this allowing movies created in the authoring package Director to be played by Web browsers, and to have interactive links embedded within them. Similarly, the community is placing a lot of expectations on the benefits it is hoped Sun Microsystem's programming language Java will bring to Web development (<http://java.sun.com>).
- 2) Access on networks is slow (probably the most consistent criticism levelled at publishing on the Internet). Although this may improve with time this is a serious problem that will continue to frustrate on-line teachers and publishers. However, in answer to this, it should not be forgotten that HTML files can be read from local networks or hard drives thus dispensing with the reliance on the speed of the Internet. Academics wishing to provide on-line tutorials or notes via the Web could even distribute their files on floppy disks.
- 3) By opening up access to an international audience there are serious implications for copyright issues. A developer wishing to publish on the Web will probably have to agree world rights on the material they use.
- 4) As well as often being limited to a document metaphor (e.g. Web documents are designed more or less to be read from the top scrolling down to the bottom), overuse of inlaid graphics can greatly impede the downloading of material. This is the major problem with many Web sites around which use meaningless graphics simply for decorative purposes. This site attempted to avoid this by placing the emphasis on quantity rather than artistic value.

Although the above is a very simplified list of points both for and against the different delivery platforms, it does give some indication as to why the medium of the Web was chosen. The ability to easily edit material, deliver it to an international audience quickly, cheaply, and cross-platform, and to keep the data free of propriety software all added up to make the Web the most attractive prospect.

III. The Web Site: 'Isaac Rosenberg's 'Break of Day in the Trenches'' (1995)

<http://www.ox.ac.uk/depts/humanities/rose>.

1. Design

The strength of Rosenberg 1.0, 1.1, and 2.0 (though the latter was never completed) was the circular design of the product. That is to say a user was presented with the poem, then the supporting historical information, and finally the poem again. In many ways this was exploring (at a simple level) some interesting ideas involved with literary theory. How does our knowledge of the contextual information surrounding a piece of literature influence the way we interpret it? It was felt that this design structure should be maintained in the Web site, incorporating the attempts in Rosenberg 2.0 to actually record the reader's comments and make them available to all.

This, however, does have serious implications. To maintain consistency in the comment's by readers one has to do two things: 1) try to insure that all users have the opportunity to access exactly the same amount of material; 2) following on from this once the Web site has been 'published' you cannot add any extra material to the historical archive--the site, apart from the addition of user's comments, becomes frozen. Taking 1 and 2 together this also meant that when designing the site it had to made a closed site (i.e. there were, and still are, no links to external sites).

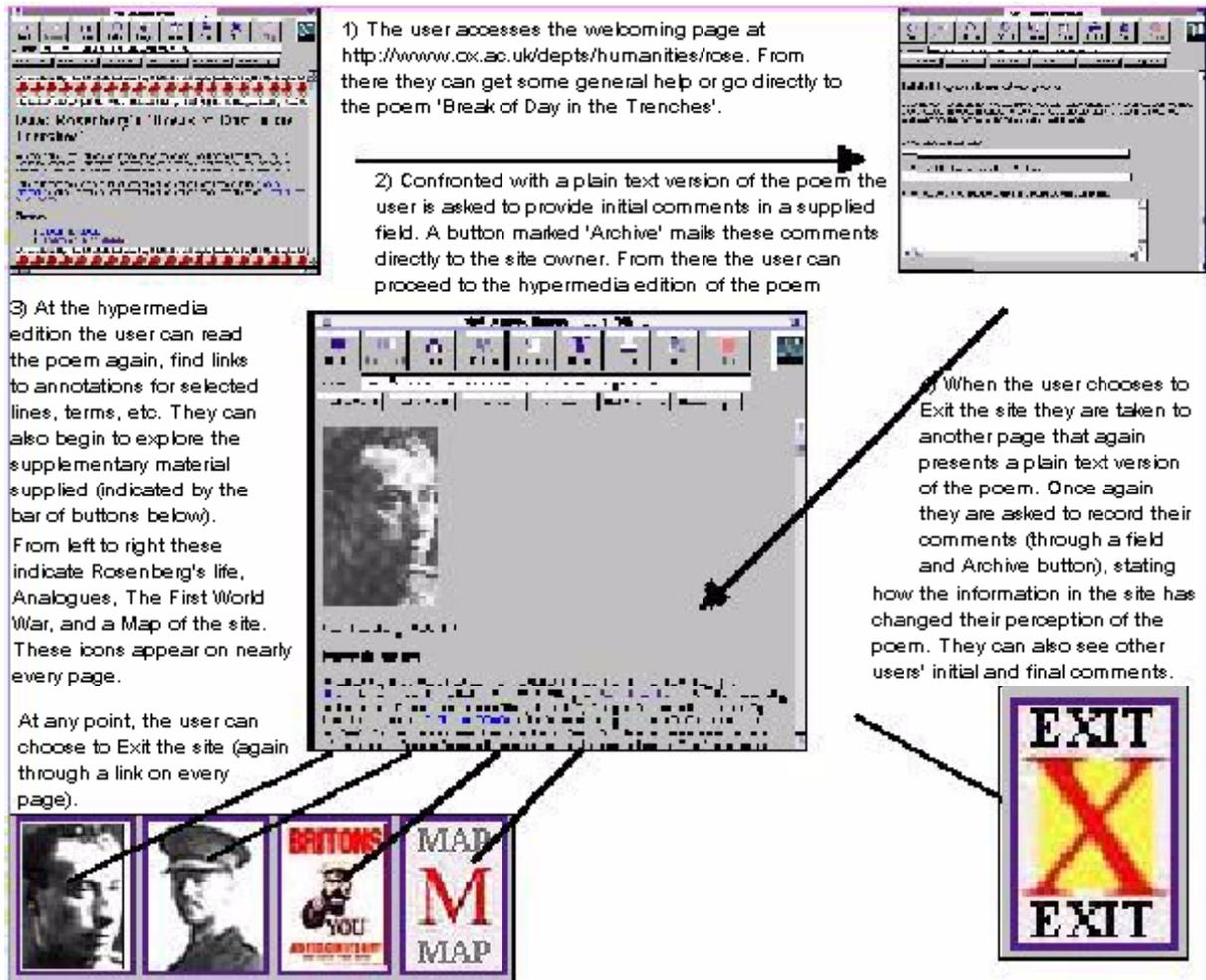
The structure of the site is detailed in Figure 10. The user comes to a welcoming screen offering general advice on the site and how to navigate it, plus a direct link to 'Break of Day in the Trenches' (top left). If they choose the latter they are then taken to a simple version of the poem with no supporting information apart from the fact that it was written by Isaac Rosenberg (top right). Instructions are given for them to read the poem and using the Web form at the bottom of the page they should record their name, e-mail address (optional), and their initial impressions of the poem. A button marked 'Archive' allows them to mail the message directly off to the username xzcainfo@sable.ox.ac.uk which is monitored continually.

Once they have completed the form (although there is no mechanism to enforce them to do this) they then move on to the hypermedia edition (centre of screen) and from there to information on the Life of Rosenberg, Other Poets, The First World War, a Map of the Site (bottom left), and an Exit facility (bottom right). If they choose the Exit facility they are taken to a final page where the poem is repeated and they are asked to record their final thoughts using an identical Web form and 'Archive' button. At this point they also have the ability to see other reader's initial and final comments.

Designing for the Web presents many difficulties which are not encountered when designing for such packages as HyperCard or ToolBook. These include:

1. 1 Graphics.

To begin with, due to the slowness of the networks you have to avoid the over-use of inlaid graphics (if there are too many most users will simply turn off the 'auto-load images' option on their browser). If a large graphic is needed it is best to include a thumbnail image first with an indication of how big (in file size) the full image would be if users were to attempt to download it. It also had to be remembered that many users might be viewing the site with a non-graphical browser (such as LYNX) and thus if an image was to be used as a link there had to be a text alternative included in the mark-up (using the ALT= element in HTML).



1.2 Moving around a page

Many users would be used to hypertext linking in HyperCard or ToolBook whereby when the screen changed they were in fact going to a separate card/stack or ToolBook page/book. This is not always the case in a Web document. Many links in the Rosenberg Web site used the HTML system of NAMES and thus the link was actually to within the same document but at a point further down the page. To try to impress this on users it was decided that throughout the notation 'Return to the Top of the Page' would be used with an anchor or link being made to a NAME in the first header.

1.3 Video/Sound

Although it was noted earlier that Rosenberg 1.1 included sound and video files these were not included in the Rosenberg Web site. This is not because the Web does not allow for the inclusion of such multimedia elements--it clearly does--but rather because to put up any useful piece of video would require a reasonably large file which would take far too long to download (particularly in the context of this on-line seminar). It was felt that the place for video and sound files would be in an archive of such material, and not in a quick-stop seminar where it is constantly the aim to maintain the user's attention.

2. Creating the Web Pages

Where possible text files and graphics were extracted from the previous Rosenberg HyperCard stacks and converted (e.g. graphics from HyperCard require changing PICT files to JPEG format). Mark-up of the text documents was done using a standard word-processor (Microsoft Word 5.1) as conversion tools (such as RTF2HTML) were not appropriate, and the existing

editing packages (e.g. HTML Assistant) were deemed to be a bit limited. There was still a need for the digitising of more material and this was done using OmniPage Pro for OCR, and Adobe Photoshop for graphics (and graphic conversion). Working on a basis of man-hours this whole process took c.50 hours (spread out over the Spring and Summer of 1995). To maintain the policy of making this site available to as many people as possible no Netscape extensions were used.

The documents were tested on a local hard-drive to begin with. Once it was found that all the links worked they were mounted on Oxford University's UNIX mainframe in a public HTML directory (a facility open to all users of Oxford University Computing Services). Technical help was sought from David Snowling, the Web advisor at the Computing Services, to fine-tune the operation of the Web forms.

3. Copyright

The last time permission to use any of the material had been sought from the copyright holders had been with the dissemination of Rosenberg 1.1 (Rosenberg 2.0 was never issued). This meant that agreement had to be reached on all documents/graphics that were used. A standard letter was sent to all the appropriate bodies once they had been identified as holders of copyright:

Permissions Manager
Tower Hamlets Amenities Committee/Library
Bancroft's Library
277 Bancroft's Road
London E1 4DQ

7/4/95

Dear Sir/Madam,

I am writing to you to ask permission to use some material in a project of mine centred on First World War poetry (in particular Isaac Rosenberg). The project aims to create an international teaching resource on the Internet, and is thus both educational and non-profit making. The material will be mounted on the World-Wide Web and will be accessible by anyone in the world who has an internet connection. Therefore it would be almost impossible for me to limit its distribution. Naturally Tower Hamlets would be given full credit for all its help and I would be more than happy to provide a link to any Web pages you have in existence (I would need to know the address of these however).

I am writing to you therefore to ask for permission to use the following items:

Picture of Isaac Rosenberg in uniform, found on an autographed postcard of 1917. This photo is widely available in printed material but can be found opposite page 157 of J. M. Wilson's *Isaac Rosenberg: Poet and Painter* (London: Cecil Woolf, 1975). Photocopy enclosed.

I look forward to hearing from you,

Yours
Dr Stuart Lee
Humanities IT Support Officer

In most cases this worked very well. However, needless to say this process did not go as smoothly as one would have liked. One author wrote back with much indignation refusing to give permission for his material to be used and threatening to bring in the Society of Authors. In reply a copy of the letter (as above) was sent to the Society of Authors who commented that they felt that the writer was over-reacting. As a consequence the passages in question were not included in the Web site, nor was mention of the author's book in the Bibliography section (thus removing a potential source of advertising his publication to an international audience).

Slightly more annoying was the inconsistency of many of the institutions approached. The National Portrait Gallery refused permission to use paintings of Rosenberg because they felt that the resulting digitised files would be of sufficient quality to be downloaded remotely and used in publications elsewhere. Contrary to this The Imperial War Museum's Art Department would only allow the use of some of their pictures if high-resolution photographs of the paintings were paid for (the ones produced in their educational packs were said to be of insufficient resolution) to ensure that any documents of theirs published on the Internet would be of a high-quality. It was calculated that the cost of using the eight images (covering the Image Licence, Transparency Hire for the eight pictures, and Reproduction fees--colour and for World Rights as they were to go on the Internet), would amount to 1010.46 (pounds sterling). This was far too expensive to be met by the project's limited budget. Ironically, another Department at the Imperial War Museum allowed the use of facsimiles of their documents free of charge recognising that this was an educational project. Eventually, however, copyright was agreed on all the material used and the testing of the site could go ahead.

4. Beta-Testing

In conjunction with choosing a selection of staff from OUCS, a note was put out on HUMANIST-L (a discussion list for Humanities Computing) asking for beta-testers of the site. A list of a dozen testers was drawn up (several from the US to test speed of access across the Atlantic link), and the site was tested for two weeks.

This process was very useful and is recommended to all Web publishers. Problems of navigation were highlighted, some buttons and links were redesigned, and spelling mistakes were noticed.

5. Going Public

On the 1st July, 1995, the Web site was advertised widely on various discussion lists with a request to cross-post. Notices were also posted to various Web gateways, such as Yahoo (<http://www.w3.org/hypertext/DataSources/bySubject/Overview.html>), and the 'What's New' section under Netscape (<http://home.netscape.com/home/whats-new.html>). All of this clearly had a snowball effect and several other Web sites picked up on the address (including the Voice of the Shuttle site maintained by Alan Liu, mirrored at the English Faculty, Oxford--<http://info.ox.ac.uk:80/~enginfo/shuttle/--which concentrates on literary links>).

At first the number of accesses was low but this could well have been a reflection of the fact that the launch was in the middle of the Summer vacation (July-August). However, even taking this into account, accesses were around the two hundred mark per month. By September/October this had doubled to 400 a month.

6. Feedback and Media Attention

Feedback on the site took two forms. First, there were the comments themselves on the poem using the Web form at the end of the introductory page and exit page. It was calculated that about 10% of people who accessed the site took the time to complete the first form requesting their initial interpretation of the poem. However, only 2% of people completed the cycle by recording their final impressions of the poem prior to leaving. Below is a selection of some of these which provide interesting indicators to the potential for using such a medium in teaching.

6.1 A Selection of Initial and Final Comments (typos retained)

Reader #1

Initial Comment

Seems to me an adequate poem, no more. The images of rat and poppy are strong, though less so than once they must have been. I suppose that one ought to "un-know" later war (and anti-war) poetry, and discount the poppy's familiarity as symbol, in order to restore its originality to the poem. Hard to do.

Final Comment

The supporting material helps to locate the poem within the tradition and, to a lesser extent, helps to anchor the historical moment. I didn't feel the exegetic passages did anything to deepen the emotional impact of the poem, but this may be fin-de-siecle cynicism...

Reader #2

Initial Comment

I had not read the Rosenberg poem before, but it did make connections for me: with the Thomas Hardy poem about the English soldier thinking of an enemy soldier and how under other circumstances, in different contexts, they might have been friends and sat down to drink together. The rat in the Rosenberg poem is a wonderful symbol, perhaps more so because of the rats I knew and heard about when I was in Viet Nam, different wars, the same carriers. What a wonderful image to carry that touch from one side of no-man's land to the other. And the poppy as symbol, the blood drop, that made me think of Flanders's Field. A fine poem that I'm glad I got to know.

Final Comment

The bio of Rosenberg was especially helpful, but the other Rosenberg poems helped put "Break of Day in the Trenches" in a broader context of WWI and poets like Sassoon and Owen. Not, I think Rupert Brooke, a context of realistic writing, non-romantic. I would never expect an "If I should die..." statement from Rosenberg. Because of the hypertext possibility of building links between poems, between writers like Sassoon and Rosenberg, I didn't learn more about the *particular* poem, but much more about the instance of the poem (if that makes sense). I don't want to overuse the word context, but the hypertext version does just that, places the poem in the greater scene of what was happening at that time, not just the war scene, but also the poetry scene (the Harriet Monroe material and so on).

Reader #3

Initial Comment

Probably to its first audience this poem rang horribly true. For me, though, it's hard to take some of its rhetoric quite seriously. Why should the "sardonic" rat even care what it sees in the doomed soldiers' eyes? What is the function of diction like "quaver" and "ever dropping"? Are these not illegitimate consolations of art -- Rosenberg decking the bottomless real horror with comfortable old poetic devices? A "poppy" in the "ear", in a sense R probably didn't intend. Also, the claim at the end is a little too faux-naïf -- we know very well that he doesn't think a poppy in his ear is "safe" -- to work as irony. This said, the rhythm is very nicely handled: pushed just to the limit of irregularity, in number of feet and in substitutions, that will still allow the unrhymed lines to be heard as "verse".

Final Comment

Since I read Fussell's book long ago, little of the material was truly unfamiliar. I did find myself forced to rethink the significance of the poppy a little, and grudgingly admitted some of Silkin's points. But I'm still uncomfortable with the Georgian cosinesses that infect the poem.

I wonder, though, about the utility of the hypertext medium. A good critic can exert considerable control over the effect of his auxiliary material on his argument and even on the poem. (Hugh Kenner is a master in this.) In hypertext, the connections are contingent and easy to miss or resist. This may be especially true for literary thinking, in which subtlety, originality and even eccentricity of association and argument are valued.

Also, hypertext provides no compulsion to read well; the World-Wide Web especially encourages skipping on before more than a few words have been scanned. I wonder if the reader who found poppies the weakest "concrete object" in the poem stuck around long enough to find out that they're something a little more than concrete.

Reader #4

Initial Comment

Generally well written, of course, and also emotive and imaginative, but not nearly as immediate as the poems of, say Wilfred Owen or Siegfried Sassoon. The image of the poppy behind the ear, and the ironic reference to its safety was quite effective. Sorry, that's all I can come up with on the spur of the moment.

Final Comment

My initial impressions still stand, although I appreciate the more complete context the accessory information provides, and I feel a hypertext setting such as this would be of particular value to students who have no familiarity with the military history. And having said all THAT, I must also congratulate you on a fine setting, because having taken the time I find I have been engaged by the work in a way I was not before I stumbled upon your page. The work still has the power to move after all these years. I realize I am writing about your technique instead of the poem, but thank you -- thank you again, and I will be sure to send students by this page during the coming semester.

Reader #5

Initial Comment

Not especially imaginative use of nature (mouse) to contrast with unnatural aspects of war.

Final Comment

I was glad to become acquainted with Rosenberg, although my initial impression of his poem didn't change much. I think it suffered by comparison with the work of Brooke, Owen, and Sassoon, and even with his own "Marching."

Second Posting

When I first read the poem yesterday, it seemed contrived. After reflecting on the contextual information, I knew why. Rosenberg did not, because he could not, tell the truth. He lived in mud. He had forgotten what it was like not to feel tired. He couldn't tell us that. He was too polite, and he knew we didn't want to hear it. And he did not want to hear it himself. He needed to believe there was some nobility, some humanity in what was happening. So he told us a lie.

He took a poem he remembered and turned it inside out. What the rat really told him was: "Rosie, you cow'rin, tim'rous beastie! You already live in a furrow. You've seen the fields laid bare and waste. And you are just waiting for the plow to come back"

Thanks for protecting us, Rosie. But you could have told us the truth. We might not have listened, but you could have tried.

Reader #6

Initial Comment

what strikes me immediately about the poem is the line where the speaker's asks the rat what it sees in the soldiers eyes? That more than anything else in the poem brings home the impact of the war on those condemned to leave, and die, in the trench.

Final Comment

my impression of the poem hasn't really changed. it's intensified. i think i admire r's achievement more because of the conditions in which he had to live and write. the quiet humour of the poem is thus a remarkable achievement considering what he went through.

Reader #7

Initial Comment

The poem ironically comments on the difference between the "lower" form of life, the rat, and its ability to remain aloof from the war, able to range from side to side, from the British to the German, and regard the behavior of the more rational being.

Final Comment

The letters from the trenches and the descriptions of the major battles not only intensify the initial impression of the poem but also illustrate the difference between the reality of the real world and the reality of the poetic world.

Reader #8

Initial Comment

I was struck first of all by the taught complexity of the imagery and the rhythmic schemes of the lines. The imagery of two distant lines, connected by the traveling rat, is powerful, bleak, and vivid;

Final Comment

After seeing the hyper-media version of Rosenberg, I have increased my understanding of the poem. Especially helpful to me were the literary critical comments all easily available to give me insight into the influences on his choices of imagery, etc. Rosenberg's poem becomes even more impressive when you consider the discipline and detachment he had to martial to compose such a poem on the battlefield. That he should have been thinking in this way, drawing on a disciplined intellectual tradition in the midst of such horror, is impressive. The pictures assembled in hyper-media add very much to our understanding of what he was experiencing, especially the telegram containing notice of a son's death. (Compare the prose and rhythms of the telegram with his poetry: the two main texts in this exercise). However, the pictures avoid the really awful images of people (or horses) blown to pieces, which is really what Rosenberg was facing. Including these is important. However, I also agree with the exit commentator who said that Hyper-media encourages you to read without thoroughness: to jump from one thing to another without depth or rigor. This is a problem because of the playful nature of the medium itself. You have to choose to exercise thoroughness and rigor, and resist the temptation to learn in a shallow, facile way.

Reader #9

Initial Comment

I am unfamiliar with the work of Rosenberg though I am acquainted with the writing of Wilfred Owen and Rupert Brookes etc. Having read these other poems dealing with similar topics I felt the communality of the concerns such as the fear of imminent death, the futility of the fighting. This particular poem was well-written but I did not find it especially moving.

Final Comment

I have enjoyed and been enlightened by the time spent using this Web site. The navigation is excellent. It is easy to find information and read what one wants to read. I found it particularly interesting to cross-reference this poem with other poems. Despite this I cannot say that I like the poem any better nor am I more moved by it than on first reading.

Reader #10

Initial Comment

The first part of the time has an intense impact upon me with the grotesque encounter with the rat. Yet the rat provides a means for the speaker to objectify and view ironically the violence of human civilization. The rat's openness to both German and Allie makes it oddly more civilized, more cosmopolitan. I am more puzzled by the more family image of the poppy. I am not sure how to take the final lines. These puzzle me in particular.

Final Comment

The connections of the poem with the metaphysical tradition of Donne were especially helpful to me in encountering the closing of the poem more meaningfully. I have not exhausted the information available in this hypertext setup, but I am impressed with the critical thinking it encourages, especially for young critical readers.

Reader #11

Initial Comment

The beginning and end seem well-written the middle less so. The images are emotive and imaginative.

Final Comment

Having read the poem again after working reading though other poems in the tutorial I find the poem 'written', that is the poet as said "I will write a poem on this theme in this style" other poem including ones from the same poet seem to have flowed. The tutorial layout and content was very good but I found that the actual poem one was studying was lost and the tutorial become one about the First World War and its poets in general.

Reader #12

Initial Comment

The poem is very interesting in the impression of war that it gives. I am not familiar with the poetry of this time, thus I have no means of comparison, but the manner in which impressions are give is intriguing. I want to know more about the poppy and what it symbolizes, and how all the images fit together. The images in the poem are virbrant, and strong. I find it strange to try and read what is on the computer screen. I want to hold the poem in my hand, in order to read it. This whole experience I find interesting, and would be interested in knowing the results of this study.

Final Comment

My impression of the poem have changed, now that I have gained a context for it. I can understand more fully what image were being captured in this poem. In this day of smart bombs, and enemies that we can not see, the idea of trench warfare is far removed from my mind. The ability to get more information, and in so many different topics was wonderful, it made the poem come alive for me. I was able to gain a better understand what was being said, and compare it to other writing of the time. What an interesting experience this has been.

6.2 Evaluating the Site and Media Attention

In addition to the actual comments on the poem (some of which contained notes on how appropriate the Web was for teaching) there were also other postings (via e-mail messages) which provided evaluation. Alan Liu, the editor of the literary site 'Voice of the Shuttle' described it as 'innovative' in its design. Some institutions noted that they would be using it in their teaching (e.g. Royal Holloway and Bedford New College; University of Alabama; Piam County Community College; and the Houston College of Continuing Education).

In addition, the site was mentioned in the on-line section of *The Guardian* (21/9/95), the Interface section of *The Times* (27/9/95), and the magazine *The Web* (November/December, 1995). It was noted that soon after these appeared (particularly with reference to the newspapers), accesses to the site increased by 50% for the subsequent week.

The site is still on-line and can be accessed by anyone with a World-Wide Web browser. It is used as a role model by the CTI Centre for Textual Studies on their visits to Higher Education Institutions within the UK to illustrate how academics could mount their own on-line teaching resources.

IV. Summary

1. A Retrospective Look

This project has been running now for three years, transforming itself from a simple series of HyperCard stacks with the original Rosenberg 1.0 to a popular World-Wide Web site. The experience has been educational in a number of areas, leading to the following observations:

- 1) The demand for computer-based pedagogic material of use in Higher Education is greater than ever. This, it could be argued, is a result of several influential factors: need to supplement the decline in staff/student ratios; growing computer literacy amongst staff and students; awareness of the potential of IT; and the climate of support for IT in the UK with such initiatives as SIMA, the CTI Centres, ITTI, and TLTP.
- 2) The model of the Rosenberg material, whereby students were directly asked to analyse a concept whilst at the same time participating in a hypermedia environment, worked well. Students, like seminars or tutorials, need a structure to work to.
- 3) The advantages of using the World-Wide Web over traditional multimedia authoring packages are already substantial

2. The Future

It is hoped that development of the concepts outlined in the above report will continue. At the time of writing a bid has been put into the JISC Technology Applications Programme (J-TAP) to fund the development of a similar project working with more Rosenberg material, plus the Wilfred Owen archive at the English Faculty, Oxford. If successful, this will allow us to develop a facility whereby students and lecturers will be able to draw on an archive of material to create their own on-line virtual seminars (akin to the Rosenberg Web site), lecture notes, or hypermedia essays. Even if this bid is unsuccessful, staff at Oxford will continue to work in this area, paying particular attention to the guidelines which will be forthcoming from the JISC-funded Arts and Humanities Data Service.

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