OE CAI: Computer-assisted Instruction of Old English

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ABSTRACT

This article offers a general but thorougli survey of Coiiiputer Assisted Instruction as applied to tlic Old English lariguage from tlic work of the late 80's pionecrs to Deceniber 2001. It cnibraces all tlic different facets of thc qucstion: stand-alone and wcb-bascd applications, Internet sites, CD-ROMs, graniniars, dictioriaries, general courscs, rcading software, extra-linguistic niatcrial, exerciscs, handouts, audio files... Each instruction iteni —whcther it be a websitc, a java exercisc, an online course or an clcctronic book— is revicwed and URLs are provided in footnotes. These rcvicws are acconipanied all tliroughout by the pertincnt theorctical background and practical advicc.

KEYWORDS:

Old English, Anglo-Saxon, English Historical Linguistics, History of English, Manuscripts, Rcading, Writing, Speaking. Listening, Granimar. Dictionaries, Computers. CALL (Coniputer Assisted Language Lcarning). CAI (Coniputcr Assisted Instruction), Software, Intcrnct, Browsers. Navigator, Internet Explorer. Microsoft. Java, Hypcrtext, Hyperniedia, Elcctronic Books. Elcctronic Editions

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> Tlie discipline of English as a whole (aiid certaiiily the world outside our rackct) always seems vaguely beinused by ihe affinity medievalists liavc for high-tech. When a server is dowii or a print queue doesn't respond, your cliances are usually better —·if not by much— wlien you call on the Anglo-Saxoriisi **iii** your departinent (ratlier than, say, tlie poststructuralist) to take it in hand. McNellis (2000)

I. INTKODUCTION

Computer-assisted language learning (CALL) and coniputer-assisted instruction (CAl) are normally associated witli modern living languages. However, the learning of ancient languagcs, such as Old Englisli (OE), may be equally enhanced through the use of computer technology. It would seem that little use would be made of computer technology in such traditional and long-established subjects as OE and History of the English Language (HEL). But, indccd, thcrc now exists a considerable nuniber of software applications, both Internet-based and stand-alone, devised for studcnts enrolled in an OE or an MEL course. Naturally, learning a dead language is quitc diffcrent from learning a living one, albeit not wholly. We shall lirst deal witli the diffcrcnccs.

In tlie lirst placc, tlie reasons why a student engages in studying Present-Day English (PDE) or OE arc obviously different. One learns Englisli in order to be ablc to cxchange information through reading, writing, listcning and speaking, either for personal pleasure or, morc likely, for educational and employment prospccts. Students of OE, on tlie other hand, will nevcr nccd to convcrsc or write in OE to obtain inforniation and they will seldom have to do any listening[1]. Reading would be tlie top or only priority and tlie reasons for reading OE arc exclusivcly scliolarly: literary criticism, religion, pliilosophy, history, anthropology, sociology, Iiistorical linguistics... OE syntax, to give just one example, is not studied in order to be able write well, but ratlier to equip oncsclf witli a sound basis on wliich to carry out research, say, on religion in Anglo-Saxon times, or writc a tlicsis on syntactic change, on concessive clauscs, on rlietorical deviccs, or write a descriptive grammar of OE prose in Ælfric. OE is therefore studied and taught at universities, especially in the final years or at a postgraduate level, and only a very sniall nuniber of students and scholars are involved. On the other hand, PDE lcarning and teaching is universal.

This has immediate consequences on tlie amount of financial support for OE computer-assisted instruction and on thc organizations providing it. While English as a Foreign Language (EFL) is a multi-million industry whose coniputcr courses may bc found on tlie shelves of aiiy large store, —for they are commercial commodities, just like best-sellers, music CDs, or camcras—, sol'tware for OE, on the other hand, is often tlie personal endeavour ol'a determined lecturer witli some knowledge of computing who wants to help his students morc than is customary. Naturally, it is normally a non-profit enterprise, which obviously does not appcal to commercial publishers and littlc investnicnt, wliether from public or privatc univcrsitics, can be expected Sor the implementation of an expensive product

with a small potential market. This, again, has an important bearing on the very nature of the software developed. While EFL coniputer programmes are very often attractive multimedia state-of-tlic-art applications, OE software lags far behind in this respect. We cannot expect OE lecturers to be experts in OE and expert programmers at the same time, to produce top-quality material. As Kitao (1995) says, it is a fact tliat "making coniputer niaterials requires a knowledge of developing [...] teacliing niaterials and also of coniputer prograiiiniing", and tliat "CAI materials are more complicated tlian textbooks, so it is difficult to make good ones". This brief depiction, of course, does not do justice to some outstanding lntcrnet sites nor to sonic very recent excellent editorial projects on CD-ROM, which I will review to further down.

As for the actual practice of teacliing tlic OE language seems largely, we can only say tliat by and large it seenis unaffected by new technologies. Although we all use our computers to write and file our class-material, it is very scldom that we find lecturers actually using coniputers in their OE classes. According to Davis (2000:7), the coniputer had influenced his research and adiiiinistrative career at university "beyond belief and recognition", but liad had "no effect wliatsocver" upon his teaching, until he started using an nct-conncctcd laptop and a TV nioiiitor, and a completely new and much inore efficient way of tcaching was unfolded to him It seems coiitradictory that most lecturers are no longer computer-illiterate but still fccl reluctant to employ coniputers in their teaching practice. The problem is tliat many lecturers "are not comfortable with high technology" and oftcn "only manage to rccoiiimend to their studciits CD-ROMs or Internet sites which are relevant to the syllabus, not having enough tinie to properly intcgrate CALL into thcir regular teaching, or help learners iiidividually by providing activities in self-acccss mode" (Jones, 2000:365-366).

However, when it comes to rcscarcli, tlic picture is different. As Wilcox (1998) puts it, "although they study tlic past, [OE scholars and Anglo-Saxonists] have not been shy of embracing iicw technologies", and he goes on to mention the ANSAXNEI', the Beowulf Project, tlic TOEDC. various Iiypertext editions of OE poenis. In this chapter we shall dwell upon niaiiy other instances of coniputer tcchnology for OE.

11. APPLICATIONS OR WEBSITES?

It is a long time since coniputers were unconnected to a nct and CALL software had to be installed and operated on one's computer. Yct, this is tlic picture tliat first comes to many teachers' minds when they hear tlie word *CALL*. But nowadays, not only can language instruction be carricd out online and the software opcrated froni a server, but the language applications iiiay be installed on our coniputer while still requiring many excursions to the lntcrnct for it to be implemented. The scope of CAI has increased enormously with the advent and popularisation of the Internet[2], so niucli so in fact tliat CAI can only be defined if tlic iicw medium is taken into account too.

In our opinion. CAI sliould bc vicwcd as tlie inevitable conibination of Intcrnct applications aiid authoring tools[3], wliicli nicans tliat a computer-assisted instruction projcct will contain many divcrsc clcnicnts wliicli nccd not Iiave been authorcd by thc sanic person. What is more, it cannot. As Joncs (2000:361) says: "Plainly, a new era in CALL has begun. The carly, uniiiiprcssivc phase of 'drill and kill' has passed. The fast improvcmcnt in tcclinology, tlie advent of the CD-IIOM, and especially that of the Internet. have cnlianccd tlic creative learning opportunitics of tlic mcdium." As Ball (1996:17) said: "While gopher, telnct aiid FTP (traditional Intcrnct tools) could propcrly bc coiisidcrcd "computing" in 1994, the Wcb has transformed tlie Internet into a vast public library of text, iinages. sound, software aiid other electronic resources". With respect io new OE and Anglo-Saxon coniputer software aiid dcvclopiiicnts. tlic reader is referred io the *Old English Newsletter[4]* "Circolwyrdc" section, and Bernstein (1997, 1998), Caie (1 999), Foys (1999, 2000), and Martín Arista (1999).

A furthcr clcmcnt sliould bc included in our dcfinition: tlic use of compiitcr sofiware as a tool in the classroom. Just as ovcrhcad projectors Iiave been tlie order of day since tlie seventies, wc iiow have tlic opportunity of using video projectors connected to oiir portable computers and of making tlic niost of such programmes as Microsoft *PowerPoinl.* Let's imaginc wc arc translating an OE pocm in class. We may want to present vocabulary items first and then the lincs to translatc. A *PowerPoint* prcsentation is niuch niorc eye-catching and cffcctive. and bcsidcs. as Kitao (1995) points out, "it would bc wastcful and cxpcnsive to do this oii papcr. but coniputcrs are an economical way to do it".

We should iicvcr minimize tlic rolc of the teacher or instructor nor should wc be misled into thinking that lcarning will takc placc without his guiding hand, especially when providing rclevant Intcrnct links for tlic studcnts to visit. Jones (2000:362) is quite cxplicit in this respcct: "if the coiiiputcr program is iindcrtakcn as part of an institutional course [...J. the teacher's rolc will be lar from minimal." I know Sroni cxpericncc that leaving siudenis alone facing tlic Internet is inefficient, time-consuming and sonictinics discouraging. Roper (1996) also warns that "the Wcb *seems* vcry easy to usc, but the enorniity of inforniation oui there can indccd bowl one ovcr. cspccially if onc has little expericncc with thc Internet." Not infrcquently, our studcnts do not know how to navigatc tlie Wcb and teachers sliould noi expect them "to be ablc to usc a ncw mcdium automatically by thcmselves, no matter how uscr-fricndly it might appcar" (Ropcr, 1996).[5] Beforc the CAI project starts, we sliould tcach our students about hicrarchics of information and about thc diffcrent "advanced search" options and tlie various information-retricval systems, Sor ihe "intellectual skills of categorization and gcneralization", says Ropcr (1996). "arc becoming morc crucial in an age of vast amounts of discontinuous information". Besides, all too often thc rolc of the student-navigator is passive, thcy cannot "talk back io tlic Web". as Roper (1996) says, a problem which may bc ovcrconic by tcaching them not only about thc crucial importance of organizing their browscr's "favoritcs carpct" but also of dcsigning a personal links page of thcir own with a *wyshyyg* editor. Again Roper (1996) hits the bull's eye: "I found that thc Web and the Labyrinth[6], for all their ncw-age sophistication, are still largely passive

instruments of information. That is, as you explore tlie Web, you may jump from link to link, and thereby actively flip to different pieces of information, but when you get there, you just look at or read what is on your screen; rarely do you interact with it, add to it, ask questions of it, manipulate it. Furthermore, you pui-sue only the links others have created". What is more, they should also be instructed on Iiow to use some website-extracting software so that they can later modify tlie information they have obtained. Finally, apart Goni sirnply providing links, students should be asked questions whose answers must be found on tlie web. or assigned projects whose implementation requires visiting recoinniended sites and retrieving information for subsequent treatment.[7]

III. GENERAL OE COURSES & GKAMMAK (**Stand-alone** or Web-based **Applications, and** Websites)

In this section we analyse OE CAl applications, whether tliey be stand-alone or web-based, or websites composed of a varying numbcr of inter-linked pages, with or without *Java* applets associated with them, witli or without frames. As we shall sec, not all of them yo to the same depths as far as contents are concerned. or have the same degree of quality in scholarship standards, design, or pedagogical features. For example, a common factor which all these courses suffer from is tlic fact that tlic students taking them are expected to have had little linguistic training, so that the courses must first go through "the parts of speech, tlie structure of a sentence, the skill of parsing, the basic concept of an inflected language, tlic relationship beiwcii subject and object". as complains Drout (1999:29). Besides, students do not always get tlie help they nccd. Paraphrasing Kitao (1995). coniputers sliould be prograninicd to give immediate feedback by confirming that an answer is correct. by giving the correct answer, by providing hints if tlic answer is incorrect. The fact remains that very few applications or websites provide intelligent feedback. As Kitao (1995) says, CAI should contribute to individualizing learning: "Students can study materials related to their individual goals and wliat tlicy nced or are interested in, witli tlie appropriate difficulty level and at tlicir own pace. Computers crin analyze tlie problems of eacli student, and tlie teaclicr can help individual students witli their problcnis based on tlic analysis". In fact, "CAI has tlie potential to enhance individualized instruction without requiring an increase in tlie nuniber of teachers" (Kitao, 1995). Stand-alone and web-based applications can "release a learner from his or her teacher's supervision at an early stage" (Jones. 2000:363). Finally, as far as quality is concerned, we are aware that "not all of these Web-based progranis, which are now steadily increasing in number, undergo tlie same degree of rigorous trialling and evaluation as commercial CD-ROMs." (Jones. 2000:361). As witli any other product, coniputers and software can only do wliat tlicy are programmed to do, and each kind of software has its own liiiiitatioiis. For example, such a useful feature as copying and pasting is impossible with the kind of javascript applications uscd by iiiany OE teachers / prograninicrs. The basic problem is that computer programmes "tailored to a particular user's needs" are cxpensive (Kitao,

1995). and the more advanced the programme or the more complex and grapliic-loaded the website, tlie more expensive tlie hardware needed. Normally, software is always one step aliead of hardware, and students (and universities too) may lack the financial resources to keep abreast of new new developments.

III.1. The Pioneers

It is to be cxpected that the first applications for learning OE on a computer should be stand-alone programmes creatcd by OE lecturers with an interest or somc training in computing. Thc first software to be madc generally available was J. Carroll's ***Flashcard*** programme[8], a DOS vocabulary drill programme allowing students to test themselvcs on OE vocabulary. It has a customizable dictionary and its vocabulary list may be adapted to students' particular needs. When presented witli flashcards, studcnts may not enter tlie ModE translation, just check whether their mental guess is correct. They can, however. choose tlie number of words they will be prcsented with in tlie list. Once they have finished the drill, they may view the entire flashcard list. In 1992 the author integratcd this application into a more coniplete one, called ***Old English Grammar Tutor***[9], which contains drills on NOUN, PRONOUN and VERB niorpliology. Another seminal application is McCrae-Gibson's 1988 DOS-runniiig ***Learning Old English: Computer Exercises***, an electronic version of his *Introduction to Old English*[10] whose exercises match the book's lessons. Although it was a real breakthrough, the programme has not stood the test of time. Usage instructions are not too easy to understand and the fact of its being a pre-mouse era prograninie makes usage difficult. Students are basically asked to identify syntactic functions and to translate sentences into PDE —and soiiic into OE. These translation exercises are limitcd by tlie fact that the students' input is cliecked against just one possible corrcct answcr, no variants or alternatives being adniitted. The sequence of "events" may not bc altered, except in the exercise on verbs. If thc students fail to enter the corrcct aiiswer, they are eventually asked whcther pertinent granmatical explanations should be shown. Finally, there is a unautliored commercial DOS-running application to learn ***O E morphology***, distributed by Libcration Philology Software[11], whicli prcsents NOUN and VERB niorpliology, together with a flashcard vocabulary programme. Explanations are followed by self-testing quizzes (multiple choice, blank-filling and parsing tests).

111.2. *The Essentials of Old English*

In 1998, J. Smith and J. Anderson, of tlie University of Glasgow, took OE learning software one stcp further by developing, as part the STELLA Project,[12] a computer application called *The Essentials Of Old English*, made up of two "Books", one for absolute beginners, the second for more advanced students. The software is easy to install and use, and takes up a little more of 1.5 niegas of hard-drive space. "Book 1" consists of an INTRODUCTION, a BASIC GRAMMAR, a series of EXERCISES and a GLOSSARY, apart from the EXERCISE SECTION accessible by clicking a button. The grammar section is a basic introduction to OE SPELLING AND PRONUNCIATION, to CLAUSE AND PHRASE SYNTAX, and to the nlain MORPHOLOGICAL PARADIGMS. "Book 2" contains a FOREWORD, a list of ABBREVIATIONS AND PHONETIC SIGNS, an INTRODUCTION with basic bibliography, a more extended but still basic GKAMMAK, with tlie same sections as tliat of "Book 1", a STUDY GUIDE for tlie students, and a GLOSSARY. Both "books" are pretty much tlie same in structure. Besides, tliey share tlie reading texts, only in "Book 2" tlie translated version pops up only upon tlie user's request. This would be more useful if the student could write his own translation and then check, but he is only allowed to read. As for tlie glossary, tliat of "Book 2" has an extra feature: a basic PDE-OE DICTIONARY. The format of tlie cxercises is quite similar to tliat of Carroll (1992) and McCrae-Gibson (1988). OS course, it's no longer a DOS-running but a *Java* application[13], but what students are asked to do. Iiow they do it and Iiow they are told their input is right or wrong is basically tlie same. In a typical exercisc. tlie student answers tlie questions by clicking on a particular word in a sentence; by ticking a check box and writing tlie correct word in an empty box; by writing tlie missing word in a sentence; by writing the PDE translation of tlie OE word niissing in a sentence; or by translating into PDE. If the answer is correct, he is told so by a tick which appears at tlie cnd of tlie sentence. If it is incorrect, he is invited to try again just once, bui he is riot told what was wrong, not even which grammar section he should revise. In a course meant for self-study, tlie student is simply left on his own and advised to read tlie GRAMMAR before continuing with tlie cxercise and find for himself where he went wrong. "Book 1" exercises deal about PART OF SPEECH RECOGNITION. ERROR RECOGNITION, DEMONSTRATIVES, and VERB FORMS. We deem the Exercises to be highly deficient in ternis of amount of practice: there are far too few senteiices in each excrcise. For example, the translation cxercise is made up of just one sentence. "Book 2" has exercises on NOUN AND VERB PHRASES, on PART OF SPEECH RECOGNITION, on the USE OF THE CASES, on ADJECTIVES, and on SUBORDINATE CLAUSES. The format of tlie exercises is as follows: either writing the translation of isolated OE words (nouns, vcrbs; a vocabulary exercise rather than a grammar one) or writiiig tlie OE translation of PDE phrases and words (verbs, nouns, pronouns. adjectivcs, conjunctions; inflected Ior different cases, tenses, degrees) inserted in the OE sentence, or viceversa. The "books" contain just text, no graphics and very little hypertext, not even tlie possibility of copying and pasting into another application. In other words, computer possibilities are left unexploited and the programme is just uscd to read and fill in blanks. Such a useful feature as would have been reading the texts and, through links,

reaching all the words in the glossary or relevant paradigms in the morphology section is simply non-existent. There are links only in the GRAMMAR's *Table of Contents* to go the relevant sections, but no links within the grammar. Highlighted words in the reading texts are not really links: the mouse left button simply works as the right key in many Microsoft applications, i.e. a sort of contextualized brief explanation bubble pops up. As for content and level, both "books" are basic, so that the use of the application in an OE or HEL subject in a Philology course would be limited to the first classes of the course. *Essentials* does not contribute much as far as innovation is concerned: we believe that pretty much the same could be achieved by reading a textbook and doing exercises on paper.

III.3. Calloe

CALLOE[14] stands for *Computer-Assisted Language Learning of Old English*, a Windows-running programme whose core application is ***MAOET*** —*Morphological Analysis of Old English Texts*. It was developed in 1996 by A. Miranda[15], J. Calle[16] and J.L. Triviño[17], of the University of Málaga, Spain, has undergone several improvements[18], and is currently used by OE students at this university. *MAOET* contains several modifiable texts which can be inputted for morphological parsing: excerpts from *Appolonius of Tyre*, the OE texts from manuals by de la Cruz and Cañete.[19] However, new texts may also be inputted by users for analysis, though they must be typed with the fonts provided. Parsing may be carried out in various manners. First, three morphological analysis options are given: long analysis, translate analysis and disambiguate. Second, the actual analysis may be implemented on the whole text or on the selected word(s). By combining these options, the parsing is performed on selected words, sentence by sentence or the whole texts. The output is presented in a new window and may be saved as a *txt* file. *CALLOE* also contains exercises on morphology. Typically the student is given a word, for example *habban*, together with a parser-like description of another form of the same word for example "VerbWeak3Plu1st,2nd, 3rd**PrsSub", and he is asked to write his guess in a blank box, *hæbben* in our example. Unless the right answer is keyed in by the student or inserted by clicking on the solution button, the programme does not allow moving on to the next questions. The option exists to limit the grammar elements to be practised (strong and weak nouns; strong and weak adjectives; pronouns; strong, weak, preterite-present and anomalous verbs; irregular words). The morphology to be practised in the exercises can be edited by the user for it is contained in a database, though the actual questions and the database itself are not user-modifiable. Finally, *CALLOE* also contains a grammar of OE, which can be opened from the *help* button. The grammar is devoted exclusively to nominal (nouns, pronouns, adjectives) and verbal morphology, plus a descriptive *chapter* on phonology. An extra feature is that some of the OE texts are presented with an audio-player for they have accompanying sound-files. Finally, all OE special characters (long vowels with macrons included) and phonetic symbols may be chosen from the Fast Character Window. The font files are included in the package for

manual installation. In our opinion, the parser has a couple of flaws. First, the output of the analysis is noi contcxt-spccific. It givcs all tlic possible *meanings* of a word. For cxaniple, thc OE word *rice* may bc an adjcctivc (powcrful, rich) or a noun (reign, power), and it is potentially inflected for many cascs, pcrsons. gcnders. and numbers, so that the parsing gives all 20 possibilitics. Thc uscr must then choose tlie correct analysis for thc tcxt and scntcncc being translated. Secondly, tlic layout of tlie morphological definition providcd is very unfriendly to tlic reading cyc

III.4. Multimedia History of Old English

D. Burnley of tlic University of Shcfficld has recently published tlic first CD-ROM of the *Multimedia History of the English Language*.[20] It contains tlie entire CORPUS OF OE VERSE and four fully scarchablc vcry extcnsivc PROSE TEXTS. It also features an illustrated gazetteer of ANGLO-SAXON SITES; a PHONETICS MODULE using sound, animation and glossary, an ILLUSTRATED HISTORY OF ANGLO-SAXON ENGLAND, plus sections on MORPHOLOGY, WORD FORMATION, WRITING SYSTEMS and DIALECTS. Conibining historical and cultural background with linguistic Iiistory. and using iniages, aniniation and audio, it cxploits hypertext to providc a liistory of tlic language which can be approached at more than onc level of sophistication. It is intcractivc, giving tlie uscr not only tlie barc facts. but also tlie opportunity to scarch cxicnsivc tcxts and io view itiiagcs of nianuscript sourcc material.

III.5. Hypercard stacks

Finally. there cxist some linguistic applications for Macintosh computcrs dcaling with Indo-European and Germanic: ***Indo-European Roots. Grinim's Laws, Comparative Reconstruction***.[21]

III.6. Old English Aerobics at the University of Virginia

OE computcr-assisted instruction was taken one gigantic step further by P. Baker[22] of tlie University of Virginia in 1999. 1-lis ***Old English Aerobics*** —composed of a GRAMMAR, EXERCISES, READING TEXTS, SOUND FILES, and a GLOSSARY—can be used either as a standalone application or online.[23] Actually, tlic *OEA* online version is niorc complete than the downloadable onc (niorc chapters —15 instcad of 8— more exercises, more reading texts[24]). At tlic tinic of writing this contribution, *OEA* was still "being reorganized and rewritten to accompany a new Old English grammar, wliicli will bc available both on tlie Web and in print form" (Baker, 1999a). *OEA* is a mixture of wcbpages and *Java* applications, which means that a standard Java-enabled Wcb-browscr is all tlic student needs on his computer,

apart froni *Real Player* for the sound files. One definite improvement on previous software is precisely tliat all the texts be either read or listened to. Of course, OE not being a living language, *OEA* lacks voice-recording and pronunciation features, but an "application that rclatcs to Old English, obviously, can dispense with such components and concentrate on intcractions with tlie text" (Bakcr, 1999b). *OEA* has 8 sections or chapters: an INTRODUCTION, witli clear instructions about how to use the method and do the exercises; SENTENCE ELEMENTS; CASES; PARTS OF SPEECH; the BIBLICAL NARRATION of Adam's fall with accompanying cxcrcises; AGREEMENT; VOWELS and PALATAL MUTATION; READING TEXTS: *The Life of St Æthelthryth, The Story of Caedmon, The Story of Caedmon* y *Wulf and Eadwacer.* The different chapters' mainpages can be accessed from the *OEA* principal page called *Workout Room.*

The chapters' mainpagcs arc divided into thrce horizontal framcs: the upper frame contains thc name of tlie coursc *(OLA).* a link to the *Workout Room.* and a little icon indicating that a *Java* application has been startcd; the middle frame contains relevant but extremely basic grammar explanations; and thc lower frame is reserved for thc *Real Audio* rcproduccr. The *Java* scrcens are divided into several horizontal sections: the title bar with the name of tlic excrcise; the button bar allowing to move from one exercise to another or froni onc sentence to another within an exercise, to submit a choice, to get help, and to sec onc's scorc; right undcrncath, scveral windows for the text. thc instructions, the fccdback niessagcs. and tlic multiple-choice or blank-filling exercises. Fccdback is given immediately after answering. There are basically two types of tasks: *find* tasks. such as "find nouns in the sentences", rcquirc the student to simply niouse-point at a noun in the tcxt and left-click the mouse, while in thc *multiple-choice* or *blank-filling* types of tasks the "submit" button has to bc used to input the answer. The lnstructions window may contain hyperlinks to grammar explanations. though these are extremcly basic. As for. the reading texts, they arc presented differently, though still in a *Java* screen. Each reading text has a mainpage giving basic information and a link to the corresponding audio file[25].

There exist, in our opinion. scveral faults in *OEA*. First of all, it assumes very little lingiiistic knowlcdgc on tlie part of the students and can only be considcred as material suitablc to complement a classroom- or book-based course. tliough this is a *problem* niany other applications suffer from. as we have alrcady statcd. Even tliough *OEA* is a much more complcte method —from both CAI and linguistic viewpoints— than *The Essentials of Old English,* it still remains a simple introduction to OE. Another feature which is lacking is that tlie tcxts, because they are accessible only from within the *Java* scrcens, cannot bc copied and pasted onto a word-processor for further exploitation by thc students. This inconvenience is partially obviatcd in tlic online version of *OLA* by possibility of downloading thc text in *pdf* format, although, unless one has the full Adobc *Acrobat* software, it can only be read or printed, but not changed. Also, once an answer has been inputtcd or an exercisc finished. it cannot bc rcdone. unless thc student exits the *Java* application and executes it again.

Ilowevcr, *OLA* has niany pros. First of all, it is free. Secondly, apart froni being an application that may bc used onlinc, it may be downloaded to bc run as a stand-alone

application on one's personal computer. Furthermore, permission is given to install it on a Web server for any lecturer's students to use. Thirdly, there is a little box on the upper bar of the *Java* apps indicating the total number of correct answers. This is particularly important: learners should have opportunities, as Simic (2000) says, not only "to make decisions that control or influence the computer task" but also "to monitor their own learning" and "self-check and correct their own errors".[26] Fourth, we have also found it quite handy that the Java apps should start and terminate automatically when browsing to and fro from the different chapters' mainpages. Fifth, a particularly useful feature of *OEA* is the fact that all the words in the texts and sentences are hypertext links. Indeed, highlighted words are straightforward left-clickable links to relevant historical, biographical or cultural information, which appears in the central frame of the text's mainpage. Besides, all words, whether highlighted or not, can be rightclicked to access information of various kind. Some of the information items of these *contextualized menus*, namely "view grammar"[27], "look up word"[28], "look up idiom" and "view clause type", appear in small *ad-hoc* windows which pop up in the bottom right corner of the screen. The other two produce different results: "select clause" highlights the clause against a black background, and "play audio", obviously, plays the audio file (fully or by parts). Mention should also be made of the fact that the hyperlinks in *OEA*'s reading texts are not underlined nor written in another colour. This is something the author himself purported to achieve by using SGML tagging (Cf. Baker, 1999b). This feature of *OEA* alone is enough to make it a much more advanced application than previous ones. Last, but not least, the author has made the source code file-writing instruction publicly available[29], even though "[it] is incredibly tedious to write the SGML files you need for this application" (Baker, 1999a).

III.7. Verbix

So far we have seen web-based and javascript applications to learn or practise OE grammar. There exists an interesting commercial piece of software that generates inflected verb forms in many languages —OE included— called *Verbix 4.2 for Windows*[30]. The application is also available as a free Internet service under the name of *WebVerbix*, though this version does not have as many features[31]. In order to be able to view special characters correctly on the screen, the latest browser versions are recommended and *Unicode*® codification[32] must be selected or supported, though some vowels with macrons seem unwilling to show properly. The consultation page has buttons linking to the glossaries, which can work in any direction, e.g. from OE to PDE, or viceversa. The commercial version is very useful for OE students for it is able to convert any inflected form into an infinitive, and it can very well supplement an electronic dictionary, where verb entries are naturally in the infinitive.[33]

III.8. Hwæt! Old English in Context at Georgetown University

Back in 1996. C. Ball[34], of Georgetown University, created ***Hwæt! Old English in Context***[35], a little course to acquire OE vocabulary at an elementary level "for those who would like io learn some basic Old English without Iiaving to hold a grammar book in one Iiand and a dictionary in tlie other" (Ball, 1996a). What we have Iound innovative is tlie application to OE learning of a long-standing pedagogical tenet in niodcrn language learning: vocabulary is Icarni if vocabulnry is prcscntcd to tlic studcnts in contcxt, if they arc allowed to use their knowledge of the world, their intuition about OE words' reflexes in PDE or their cognates in other languages. The course is niade up of seven chapters entitled COUNTING, NATURE, GREETINGS, NAMING, MONTHS & SEASONS, FISH, FOUL & FOUR-FOOTED BEASTS, and THE BODY. No translations of the texts are offered io the student, nor is there a bilingual glossary. Tlic words coritaincd in thc glossary and some words in the texts or sentences are hyperlinks to picture lilcs. Besides, some woids in tlie glossary can be listened to individually (*aiff.* audio lilcs). *Hwæt!* is a mixture of non-acadciiiic features, such as tlic pictorial glossary, and rigorous acadcniic edition: all texts, or rather sentences, are excerpted from tlic *Toronto Dictionary of Old English Corpus*[36].[37] *Hwæt!* is obviously more of a personal experiment than a really usable course. though tlie autlior herself has uscd it witli her students, she admits having liad to rcsort to other methods "including concordances for morphology and syntactic constructions and some translation exerciscs" (Ball. 1996a). Shc is also absolutely right when she says that Iier method lacks all kind of feedback wliatsoever for tlie students to monitor their progress aiid. besides, it does not allow them to automatically move "from tlie known to tlic unknown, acquiring tlic grammar and lexicon of OE along the way" (Ball. 1996a). In other words. tlic programme docs not accoinniodate aiid change according to tlie siudcnt's progress. Of course, tliis sccms quite difficult to achieve just on *html* language, and *Hwæt!* is not tlic only programme lacking tliis feature. In any cvent, there is no doubt that this vocabulary-acquisition method is entertaining aiid effective.

111.9. Learning Old English

In 1997 'f. Jcbson published ***Learning Olrl English*** on the Internet. There now exist two versions, an unmaintained one[38] and an updated but still unfinished one (2001)[39] which only ruiis oii Microsoft *Internet Explorer* and allows Latin-extended characters A. From the CALL poiiit of view, the course is poor Ior it consisis of just a mainpage witli a Table of Contents whose items point at tlie rest of ilic wcbpages. cach wcbpage bcing a chapter. Now, these webpages coiitaiii no links whatsoever. They are just text pages to be read or prinied. However, from a linguistic poiiit of view the information is philologically and linguistically sound and quite complete. Tlic autlior decidcd to write *LOE* urged by his nccd to present readers witli a guidc that would overconic the difficulties he himself liad cxpcrienced when studying OE oii Iiis owii by using Mitchell & Kobinson's *Guide to Old English*.[40]

III.10. King Alfred at Whraton College

A recent OE CAI application on tlic Web is Michael Drout[41] and David Dudek's *King Alfred, A Teacher-Controlled, Web-Interfaced Old English Learning Assistant* [42]. This is a translation application wliicli coachcs tlie studcnt towards conipctcncc in OE. Wliat niakes this programme different from both *The Essentials of Old English* and *OEA* is tlic help and fcedback functions. The studciits' help requests —available at all stages by clicking on any word— are storcd by tlie programme to be consulted at any time. One of tlie *fortes* of *King Alfred* is that tlie application "using a sortitig algorithm tliat [tlie authors] are currently upgrading to a true 'intclligent agcnt' prioritizcs tlic granmatical arcas for the student to revicw" (Drout, 1999). For example, tlic application delivers tlie following fcedback: "*King Alfred* suggests tliat you revicw tlie *Verb*, particularly tlie *Preterite-Present_Verbs*; the *Noun*, particularly tlic *Accusative Case*, and the *Adverb*", and the student may reacli tlie relevant section in tlie onlinc grammar by clicking on tlic any of tlic undcrlined words. The application can also give students a list of tlic lexical items for wliicli they had requcsted help in the translation phasc. wliicli can be printed out. This means tliat tlie application "provides individually customizcd Sccdback to studcnts" and "individualized advice and study suggcstions" (Drout, 1999). Another advantagc of *King Alfred* is tliat tlie paradignis for each wosd are providcd in full. Sccondly, once students havc inputtcd their translation. they can compare it witli tlie programme's suggcstcd translation and asscss its qualiiy. Thc autliors rightly believe that this mcthod is bcttcr than onc in which, bccause of a simple word-ordcr change, a diffcrcnt lexical choice or a word misspelt, tlic application will mark tlic translation as wrong, thus dcmotivaiing studciits. Thirdly, OE instructors can easily change or update the contents to mcct their own prefcrences or requirements: "A series of easy-to-usc pop-up menus in a database allows a teachcr to input tlie sentences (witli tlie cliaractcristics of eacli word) that hc or she will usc in the program" (Drout, 1999). The program is claimcd to spccd up OE lcarning: according to tlic author. by tlic cnd of a fourteen-wcck course in 1999, Drout's students wcrc able to translate not only OE prose but poetry (*The Wanderer*, *The Seafarer*, *The Dream of the Rood*).[43]

111.11. English 401 at the University of Calgary

Another OE computer-assisted course. intcgratcd within a Univcrsity of Calgary syllabus, is *English 401*[44], a thorough fully-flcdgcd distance-education Intcrnct-based online course crcated by Murray McGillivray[45]. All tlie pages are interlinkcd so tliat navigation within tlic sitc provcs quite casy. Bcsides, tlic logo picturc at thc top of cach page includes links to eacli of the main scctions of tlic coursc: COURSE INFORMATION, LESSONS, TEXTS, GRAMMAR, CREDIT EXERCISES[46], LINKS, and SITE INDEX. Likewise. all lessons may be acccsscd from any onc lesson through tlic links at tlie bottom of cach page. Wliat is morc, users always know where exactly thcy arc: this information is providcd in a linc just undcrncath tlic logo on cacli

pagc. and cach of the coniponents of tliis line is a link to tlic relevant section. This may sceni trivial but it ccrtainly is not. ln fact, it is an extrcniely useful feature that well-designcd pages should always contain.[47]

Each of the 15 lcssons** has a short introduction followed by thc *Tasks* to be done by the studcnts. There arc various typcs of tasks. which can be reached througli hypcrtcxt linking words. By way of cxaniplc we shall nicntion the tasks required in Lesson 5 (Weak Verbs): reading tlic *The Voyage of Ohpere*[49], reading tlie Grammar webpagcs on Strong Feminine Nouns, tlie vcrb *heon* and tlic Personal Pronouns, flashcard exercises on weak nouns, following some links to relevant wcbsites on othcr servers, of non-linguistic —and non-scholarly— coiitent. likc tlie *King Alfred the Great Website*[50], and finally sending a "succinct, relevant niessagc" to tlie course's listserver. Tlie *grammar webpages* are basic as far as contcnt is conccrncd. albcit clear, wcll-explained and sufficiently illustrated. These pagcs contain vcry fcw links, consisting niainly of plain text, which niakes them a coniputer alternativc to a tcxtbook. but this is a contents area within a large website, a layer which by dcfinition sliould providc only core information. One scrious flaw in tliis section is tlie fact that OE syntax is only approaclied superficially and indirectly in the chaptcr on tlie use of the *dreaded* subjunctivc. *Flashcards* arc coniposed of an "instructions" section and a basic *Java* application in tlic lower half of tlie webpage. but it does not allow writing tlic answers and submitting thcm for correction. Tlie *credit exercises* are not available publicly, so that we have bccn unablc to evaluate thcni. The *course's texts* are not ncccssarily hosted at the U. of Calgary's scrvcr. but elscwhere on tlie lnternct[51], which precisely supports our definition of CALL and CAI as having to includc the Web. Extcrnal links of this sort are to be expected and advisablc. since sonic vcry high quality and uscful editions of OE texts have already been published on the lnternct and it would be wasteful not to take advantage of what already exists in tlie web.[52] A typical tcxt webpage is divided into three horizontal franies. The upper frame is fixcd and contains links to tlic other scctions in the course. The middle franie is itself dividcd into two vertical frames, tlic left one for the OE text and the right one for the PDE translation. At tlie beginning of the OE text tliere is a link to the audio file, sliould one want to rcad and listen to the text siniultaneously. Tlie lower franie is the bilingual glossary. Each word in tlic tcxt is a hypcrlink to tlic relcvant letter section or word in tlie glossary, which gives not only tlie PDE cquivalent but also morphological information. Some glossaries, such as that for *The Voyage of Ohpere*, contain a links to all instances of each word in the text, which is a uscful feature, should one wish to see tlic word in different contexts.

111.12. Old English Lessons at Brown University

Ec-Ing Ong[53] publishcd in 1999 a scrics of 16 OE tutorials called ***Old Englisli Lessons***.[54] Tlie mainpagc contains tlie hypcrtcxt links to tlic *tutorials* or lessons. Thesc tutorials are meant to complcment a tcxtbook- and classroom-based course. Each one consists of a single webpage with instructions on how to do tlie Icsson's javascript excrcise, which is activated tlirough a

button at the bottom of the page. Exercise pages typically consists of several frames in different colours. Each lesson has only one exercise of the gap-filling type, the gap being an empty box. The gap-filling exercise, in the top left frame of all the tutorials, is made up of just seven questions, or rather seven OE sentences. The dictionary entry form (nominative or infinitive) of the word is written in brackets immediately before the box, and, besides, the student can consult the PDE translation underneath. After writing in the answer, the *submit answer* button must be clicked and feedback is given to the student in the right frame. The lower right frame shows the full OE sentence together with the word entered by the student. The lower middle frame contains information on OE special graphemes. The top right frame contains information about the feedback frame underneath, which in turn provides two types of information about the student's input: if the answer is wrong, a choice of four possibilities is offered to the student so that he may re-enter the answer; if the answer is right, further information on the word or on any other item or feature of the sentence is given. As far as linguistic content is concerned, the tutorials are concerned almost exclusively with OE morphology at an elementary level. All the OE sentences are attested sentences, and relevant references are given. One of the technical problems with this tutorial is the way special OE characters have to be keyed in. For example, the thorn, "þ", cannot be written simply by pressing Alt+0254, which would cumbersome enough in any case, but the combination "þ" must be entered instead, otherwise the programme will not accept the answer, the reason being, according to the author, that "the javascript and the dynamic fonts are very uncooperative"(Ee-Ing Ong, 1999).

III.13. Old English Pages

There exists an unfinished and unauthored[55] site hosted on a Russian server called *Old English Pages*[56] containing several sections: SAXONICA, AN ANGLO-SAXON KNOWLEDGE BOOK (most of whose contents structure dangerously resembles C. Ball's *Hwæt!*[57], while the grammar section is acknowledged as being excerpted from M. Drout's *King Ælfred Grammar*); an OLD ENGLISH LIBRARY with some unedited OE texts (no notes, no references, and no hypertext); OLD ENGLISH STUDY TOOLS composed, among other tools, of an "Old English Glossary" (with an input box for the word to be searched in a web-supported database) and a "Latin-Old English Intergloss"[58]. The site looks promising on first visiting it, but its internal structure is somewhat opaque, for it contains sections which are called the same but whose contents are slightly different.

III.14. Old English Exercises at the University of Massachusetts

In 2001, University of Massachusetts S. Harris[59], published *Olrl English Exercises*[60], wliicli. according to tlic autlior, coniplenicnt Drout's *King Alfred.* The site contains several applications, two of wliicli are dircctly relatcd to OE CAl. First, there is the *Old English Exercises* proper[61], a series of six basic javascript excrcises for students to practise OE morphology (DEMONSTRATIVES AND ARTICLES, PERSONAL PRONOUNS, CASES, GENDER, and NUMBER). The type of exercise is very simple indced: tlie student identifies what he is asked (a demonstrative, a case, a number) either by typing it in an enipty box and then clicking tlie **check** button for Seedback. or by choosing tlie correct option in a listbox. *OEE* is more of an experiment or the initial stage of an OE CAI project than a real application Sor learning OE. In fact, each cxcrcise is coniposcd of just 10 sentences. No special graphemes are adniitted: tlic thorn ("þ") must replaced by the digraph "th". 'flic application does not allow to return to a previous question in tlie exercise, so that in order to re-do a particular sentence. tlie student lias to go back to tlic previous wcbpage and click on tlic link once again and start froni scratcli. Ilowcvcr. he can proceed forward even if tlie answer is wrong. The second application is tlic *Beowulf Parser*[62], wliicli can parse *Beowulf* for personal and dcmonstrative pronouns. The possibility of looking at attested examples of pronoun usage partially niakes up lor tlie fact that in *OEE* tlic sentences uscd are made up for tlie purpose[63]. The same author lias also created anotlier two pieccs of software: *Search ASPR*[64]and an *Olrl English Grammar Chart*[65], which may be consulted by students while doing online exercises.

111.15. The Historical Grammar of the Old English Language

An online OE grammar is *The Historical Grammar of the Olrl English Language*[66], created by C. Babaev[67]. The webpages contain a few links to sound files (to hear some words pronounced) aiid a little hypertext to cxplain some terms (niainly nanies of languages). The table of contents is laid out both at tlic top and tlie bottom of'each page in ordcr to facilitate iiavigatioii. for, like Jebson's wcbsite, there are no frames. The defect language codification of tlic pages is "Cyrillic" and uscrs niust manually clioose "Western European" in order to view characters corrcctly. 'flic grammar is niade up of ten chapters (devoted to pronunciation and morphology) and a couple of appendices (one with three plain OE texts aiid their PDE translation. aiiotlicr about OE Icxicon).

111.16. Handouts on the web

This is anotlier way tlie Internet cari he integrated into ari OE CAI progranime. Handouts and class notes or lectures inay be dowiiloadcd by students from a server. Some *Handouts about O E grammar*[68] may be found at tlie Adaiii Mickiewicz University (Poznán) School of

English HELL website (History of tlic English Languagc and Linguistics): OE
PRONUNCIATION AND SOUND CHANGES, and NOUN AND VERR MORPHOLOGY. Likcwise, R.I.
Binnick[69], of tlic University of Toronto, providcs **Handouts and Problems about Language
Change**[70], some of which are *html* liles. and sonie *pdf*. In 1999 R. Stcvick[71] publislied an
online *pdf*-format book called **Case in Old English**[72]. This is yet another facet of CAI:
making notes, lectures and books clectronically available to students. Also, by pcrforniing
advanced searches on Internet searching engines that allow to ask for specific file-types, likc
Google[73], oiic may lind, among other docuiiieiits. *PowerPoint* prescntations. such as G.
Lampcrt's **A History of English**[74]. Finally, University ol' Kcntucky K. Kiernan's wcbpagc
with O E *paradigms*.[75]

IV. READING

IV.1. Iritrodiiction

One important component of any OU coursc is rcading. As wc have sccn, tcxts of' variable
length and degrcc of scholarship may bc incorporatcd into OE CAI applications and wcbsitcs.
so that students can lcarn grammar or translate. Howcvcr, students may also nccd to access
tcxts iiidepcndcntly from an OE CAI coursc or application. Undcrgraduates may havc been
required to read a particular author or work and write a philological, linguistic or literary
cssay. while postgraduate stiidents may want to study textual variants and iiianuscripts. An
OE CAI sitc or application sliould thcrcforc contain selected links to tlic hugc number of
websitcs offcring OE tcxts, cithcr to bc dowiiloadcd or iiscd online. whether thcy are reading
applications or wcbpagcs. whether thcy arc prcscntcd as simple text or liypcrtcxt, with or
without translations, critical analyscs, notcs, bibliographical rcfcrcnccs, links to otlicr
resourccs, etc. But tlic supcrvising cyc of thc teachcr sliould always be there. As Joncs
(2000:363) says, "the shccr wcalth of material on offcr places cvcn niorc rcsponsibility on tlic
teacher" for, "due to tlic Wcb's lack of structure, there is real potential for disorientation".

 Thc first and obvioiis placc to go to is, ol'course. is a text clearing housc, such as tlie
Oxford Text Archive[76] —whcre wc may download thc entire *Dictionary of Old English
Corpus in Electronic Form*[77]. should we nccd cvcrytliing cvcr written in Old English. tlie
York-Helsinki Parsed Corpus of Old English Poetry, tlic *Anglo-Saxon Poetic Records*, King
Alfrcd's version of St. Augustinc *Soliloquies*, a collcction of Anglo-Saxoii cliarters. and
Alfrcd's *Orosius*— or tlic **Online** Book **Initiative** ftp site[78] —which also houses thc *ASPR*[79],
a PDE translation ol' tlic *Anglo-Saxon* Chronicle, and somc translations of *Beowulf.* OTA
and 0131 contain mostly public domain frecly rcdistributable material.[80] Other places to visit
are virtual libraries offcriug online material, likc tlic Labyrinth **Library's** O E Literature
section[81]. Bcforc wc move on to spccilic tcxts and works. we must dwell for a whilc on
hypcrtextuality and elcctronic cditions.

IV.2. The rationale: Hypertext, hypermedia and electronic books

One of the great advantages of turning a codex or paper book into an electronic book is the possibility of reading it without temporal and spatial constraints. If a book is composed of many smaller documents (chapters, lessons…), notes, graphics, references to other works, glosses, etc., its transfer to an electronic format enables the reader to reach and see these parts simultaneously. As McGann (1995) says, "computerization organizes [...] sequential engagements with nonsequential forms of knowledge and experience" and, according to Silver (1997), "along with its dynamic appearance, another striking feature of hypermedia is its lack of traditional linearity". He adds: "Unlike the linear, largely sequential writing which characterizes print-based publications, well-designed hypermedia makes possible - if not promotes - non-linear or multi-linear presentations. Instead of offering readers a single, sequential path to follow, hypermedia projects put forth many, often interlinked paths, roads, diversions, and excursions". This is what Nilsen (1997) calls "multilinearity". Both of them follow Nelson (1981, 0/2), who coined the term *hypertext*: "electronic text as *nonsequential writing*, a text that branches and allows choices to the reader, [...] a series of text chunks connected by links which offer the reader different pathways." Another term, frequently used in connection with *hypertext*, is *hypermedia* or *multimedia*. Silver (1997) gives the following definition: "Multimedia elements can include text, photographs, images, and graphics, video and sound clips, and basic animation. They can exist side by side on a single screen; they can exist upon or overlapping one another; they can be hidden, revealed with a strategic button click or entered command". To sum it up, "multimedia environments allow for the addition of visual and auditory information to a text in order to improve comprehension". (Chun & Plass, 1997:63) These electronic texts can then be "distributed in self-contained forms (e.g., on CD-ROM disks, like the *Perseus Project*) or they can be structured for transmission through the Network" (McGann, 1995).

Let us point out what the practical advantages of hypertext are in OE CAI or in electronic editions of OE texts. Firstly, it is now possible to teach text and context at the same time. The ideal OE CAI programme should be like a encyclopaedia containing an OE grammar, an OE dictionary, critical editions of OE literature, articles on Anglo-Saxon culture, a vast collections of graphics, etc., to sum it up, it must be a specialized encyclopaedia. Mitchell (1995) is actually the book equivalent of what an OE CAI programme should be like. By combining language and culture in digital form and by using multimedia, the OE language would no longer be "just a list of grammatical paradigms or lexical items", for it would be "intimately associated with all kinds of verbal and paraverbal behaviors, an acoustic and visual context that is indissociable from the larger societal context in which the words are uttered" or written (Kramsch & Andersen, 1999:31). Language would thus become culture. At the same time, as Kramsch & Andersen (1999:31) say, culture would no longer be "just the factual pieces of information that textbooks present in the form of culture capsules on foreign mores, but [it would be] produced and reproduced under our very eyes, on the screen", through what Anglo-Saxons said or, rather, wrote.

Secondly, an electronic edition of an OE work presents many advantages over a printed one, the most obvious one being that "the apparatus of the edition can be hyperlinked to the texts themselves so that the relevant notes, variants, sources, and glosses may be accessed with the click of a mouse" (Lionarons, 2000). Besides, "two or more texts can be compared side by side in adjoining frames, searches can be performed quickly and painlessly, and the texts themselves may be manipulated to reveal or conceal manuscript context, scribal interpolations, and emended or doubtful passages" (Lionarons, 2000). Finally, the editor "need no longer choose between offering a diplomatic edition, a critical edition, or a simple manuscript transcription: all three can be provided simultaneously, and the interested student is thereby afforded an opportunity to see both the homilist and the editor at work" (Lionarons, 2000). To this we may add another reason, namely, that electronic editions are "a lot cheaper for people to get access to (and easier)" (Lee, 1990). Also, by definition, an electronic edition is constantly changing, improving and growing: "its contents and its webwork of relations (both internal and external) can be indefinitely expanded and developed" (McGann, 1995). To give an example, Lee (2000: Foreword) says that at the moment of publishing his edition on the web, "the hypertext linking is almost non-existent but that can be added to in the future", and that "any corrections needed will not result in future reprints and further costs for the end user."

From the point of view of the reader too, electronic editions have advantages. Lomicka (1998:41) claims that "computerized reading with full glossing may promote a deeper level of text comprehension". In the case of OE texts, where most words are unfamiliar at an initial stage, links or glosses, "may help to limit continual dictionary consultation that may hinder and interrupt the L2 reading comprehension process" (Lomicka, 1998:41). However, other authors, like Ziegfeld (1989:363) warn that reading a hypertext may take up to five or six times as long as the same text in printed format. So how much glossing or linking should an electronic text contain. Do links really improve reading comprehension o do they hinder it? Davis & Lyman-Hager (1989:42) point out that this may depend on the students themselves: "hypertext is 'invisible and unobtrusive', allowing the user to consult as much or as little information as s/he desires". Besides, multimedia programme annotations are not limited to textual information and can take the form of video, sound, and pictures, as Chun & Plass (1996) point out. In other words, "computer aided glossing can provide much more than the 'traditional' glosses (definitions, translations, and grammatical notes)" (Lomicka, 1998:42). This implies that, the new multimedia annotations, such as images, sounds, cultural, historical and geographical references, and guiding questions could enhance comprehension; cf. Martinez-Lage (1997:149). Besides, access to these annotations is immediate and "not as intrusive as the steps required in looking up words in the dictionary" (Lomicka, 1998:42) or consulting encyclopaedias, other editions, or articles, we may add.[82]

Now, what should hypertext look like? Where should links be present? What sort of information should they point to? Glosses are sometimes presented obtrusively, especially if the file is in *html* format, for links are always presented in another colour and underlined. Links to other sites or other parts of the same site should belong to another frame, while

hypertext should not look like liypertext, wliich is what *OEA* achieves. It is iniportant that
electronic editions sliould Iiave a hierarchical index tliat may be accessed at all times, that is,
from the different screens of tlic application, from tlic different webpages or frames of a
website. It sliould be "easy for a reader to return from anywliere in tlic Iiypertext to tlie
starting point or *home* screeii, so that readers are rarely disorientated while reading or
searching" (Miall, 1999). Often. as we shall see, texis appear in one of the various frames of
tlic website, but in order io read tlic text a single-window layout is preferable. As Miall
(1999) says. "except for pop-up comment boxes. useful Tor short editorial comments or
annotations[83], texts can only be read iii full screen niode" for it is an "environment fosters the
integrity of tlic single text and tlic sustained attention it requires from readers". Now. tliis
may cause trouble in the case of webpages containing frames. Bui we shall conic back to this
later on.

        Following Bernhardt (1991) and Davis & Lyman-Hager (1997), we believe that textual
links should target the following types of information. First of all, words niust be secognized.
so liiiks sliould be provided to access a glossary, preferably to be viewed in a different frame.
Alternatively. a diciionary database (*Access* or *mySQL*, for exaniple) sliould ninde available
in another frame. This glossary sliould provide lexical information, whether in tlic form of a
translation or a definition. Secondly. it sliould contain phonological and grapheniic
information. This is important in tlic case of OE not only because phonology is an essential
component of an OE course but also because OE spelling varies according to dialect and
period. Some of tlic applications reviewed here do in fact contain sound files Ior individual
words. Thirdly, to reinforce comprehension of tlic text. grammatical information sliould be
given. morphological nnd syntactic. Fourth, in order to improve global understanding and
help students relate text and ideas, intratextual liiiks sliould be provided. of semantic and
linguistic nature. We have noticed tliat, in ilic applications and text editions reviewed in this
chapter, most of tlic hypertext liiiks are esternal. i.e. they point to otlier sections of" tlie
website or to documents hosted on other servers. This may be due io ilic tiresonic process of
hypermarking text or else to insufficient awareness of the dual nature of links. As Roby
(1999) points out, "Glosses [are] characterized by their Iocus. Some point tlic reader bock to
ilic text. whereas others bring new information to it." Lastly, ilic reader's prior knowledge
should be increased by means of" cultural references links (history, philosophy, religion.
biography, art, etc.).

        A distinction sliould be drawn between tlie use of liypertext for study purposes and its
use to read literature, tlic latter use being opposed to by many writers. According to Miall
(1999). one of tlic significant advantages of tlic electronic medium is the fact tliat it is
"practically unlimited iii terms of space (and large colour grapliics take up a good deal of
space), bringing benefits impossible to achieve with a printed text". At tlie sanic time, tliis
author warns that "tlic availability of otlier iexts and colour grapliics also threatens to displace
tlic kind of literary reading I Iiave been describing, and substitute links to further texts and
pictures for tlic sustained attention tliat yields literary understanding". Students of Anglo-
Saxon literature should therefore be aware tliat following all liiiks to understand and

contextualize a literary work is not the same as reading it. The primary task of reading should perhaps be carried out on a non-hypertextual electronic text or a printed one, if available.

Other useful features, which most applications and websites analyzed lack, are readers' utilities. It would be most convenient for readers of an electronic text to be able to create bookmarks so that they can return to the same point in the text from anywhere in the hypertext" (Miall, 1999). Likewise, small windows could be called up for readers "to enter their own comments", so that they can later be saved on disk or exported to a word processor. In a translation application, this can be achieved simply by inserting a text box. Finally, a feature which all the sites lack is a links basket. If working on our own computer, we may store sites visited and links in the Favourites Folder. However, when working in a computer lab or in a cybercafé, students won't have this possibility, so that a links basket which can be emptied into a file at the end of the session would prove very useful.

A final *caveat* about electronic books is the fact applications have massively migrated to the Internet in the last few years. As Hall (2000) says, "In some respects the greatest value of the Internet is the incredible amount of primary materials now being made available free and online. While proprietary learning programs and CD-ROMs once dominated teaching technology, the advent of the Web has inspired a popular revolution." The danger is that students should be sent to websites containing editions of poor scholarly standard. Student should therefore be trained to be critical and enquire about the authors, their sources of information, the server the resource is hosted in, the date of creation or publication, how it compares to other printed or web-based resources, whether it is referenced in academic literature or linked to from reliable websites.[84] "Navigating the vastness of the Web presents a challenge to teachers and students alike, but it also introduces another means of teaching students to learn to use their judgement and skills of critical evaluation" (Hall, 2000). Lee & Cooper's (2000: Review, Information Quality) give similar warnings and add that, even if the original site or application passes our quality control test, "the linked material may be inferior in quality to the site to which it is linked —and one must evaluate that as well" (Lee & Cooper, 2000: Review, The Pitfalls).[85] Duggan (1994) summarized the situation thus: "All too often in the preparation and publication of electronic texts, the chief criterion for choosing a text to be 'input' for the electronic edition is expiration of copyright. Computerized literary scholars have so far demonstrated a tendency to exploit the computers for quick-and-dirty textual solutions, to expend their efforts upon compiling massive amounts of textually uneven materials rather than upon producing reliable scholarly editions." The situation has changed a little, but many of the web-based editions reviewed here are not wholly scholarly, though still usable but students.

IV.3. Non-scholarly editions

There are niany sites wliere studcnts may find OE texts to read and often what is needed is not a scholarly or hypertext edition but just tlic plain text or the translation. Of course, texts published as part of an application or a well-designed website may be hypcrniarked and linked to accompanying glossaries, notes, or translations, which prove invaluablc help for studcnts. But simpler stuff should not bc looked down on and students need to be told wliere to gct it. though tliey should be aware of tlic scliolarly quality of what tliey are using.

For cxample, students' course projects may take thc forni of wcbsites and sonie are available online. M. Hcroux[86], has published a webpagc[87] with sonie *OE poetry* as his coursc project. The five pocms are presentcd in OE. PDE and as a scanned images. Tlie texts are: *Almsgiving*, *Bede's Death Song*, A Cliarni. *Deor*, *The Seafarer*. Likewise, *H*. Ahrens[88] has niouiited a page containing the OE poeni *The Wife's Lament*[89], a free translation, a line-by-line translation. together witli an introduction. a comnientary on the translation and bibliograpliy. Each linc in tlie OE text has a nuniber, which is a link to tliat line's translation in tlic linc-by-line translation. wliich in turn contains a link to get back to thc original text. Another webpage called *A Brief Old English Text Page*[90] was published in 1996 by high school tcacher B. Zahn[91], and tlie texts were selected "for no otlier reason tliat they were rclatively short" and could be typcd in "pretty quickly": *The Dream of the Rood*, *Neoxnawang* and *The Battle of Brunanburh*. *The Battle of Brunanburh*[92], is also available onlinc. both in OE and PDE, witli thc fcature tliat cach OE line is linked to tlie corrcsponding PDE translation Another OE poeni, *The Ruin*[93], is presented in a two-framed page, witli tlie OE on tlic left onc and cither of two translations[94] on tlie riglit one. Also, tlic *Vercelli* Book OE poetry is offered onlinc by the Associazione "Rete Civica Vercellese" at their wcbpage, called "**Il Vercelli Book**"[95]. An unedited vcrsion *Rune Poem*[96] in OE, has been published onlinc in tlic non-academic **Anglo-Saxon Heathenism** wcbsite[97]. One websitc to visit to access biblical texts online in OE is M. van der Hock's[98] *New Anglo-Saxon Bible*[99], which is still unfinishcd but already contains a good nuniber of texts, not only froni tlic Old and thc New Testaments, but also otlier non-biblical Christian texts. An interesting site is *The Polyglot Bible*, cicatcd by *M*. Davies, of Illinois State University. It contains the cntire Gospel of St. Lukc in 30 languagcs, OE includcd[100], and allows full-text searching and side-by-side vicwiiig. The Internet Sacred Text Archive servcr[101] provides tlie *Complete Corpus of Anglo-Saxon Poetry*[102] and *Beowulf* (PDE[103] and OE[104]). Sonietinics, it is just a translation tliat our studcnts may need. Translations are equally useful and there arc niany sites offering PDE vcrsions of OE works. apart from tlie clearing houses mentioned above. For cxaniple. there exists a site containing an unautliorcd translation of *Tlie Battle of Maldon*[105], one of the Anglo-Saxon poems most widely uscd in OE courscs, plus links together witli maps and pictures of tlic actual sitc of the battle. Some translations from OE works are also published commcrcially on CD-ROM: tlic *Anglo-Saxon Chronicle*, *Beowulf* and tlic Codex Junius can be found in tlic *Literature on CD-ROM*[106], publislicd by Seedy Press. Also, *The English Poetry Full-Text Database* is a commercial CD-ROM published by ProQucst Information

and Learning.[107] It claims to be a database of the complete English poetic cannon from Anglo-Saxon times. The great majority of tlie texts are out of copyright, so that many university libraries give members access to the collection for them to use freely. Finally, L. **Rodrigues electronic editions** of Anglo-Saxon poetry are sold online by Nospine.com.[108]

Many lecturers too mount websites with OE texts for their students to read. R. Liuza[109], of Tulane University. has published a number of copyright-free OE *texts*[110] for his 1999 *Introduction to Old English* Course[111]. These texts correspond in tlie main to those found in Mitchell & Robinson's *Guide*.[112] J. Tinkler[113], of Towson University, provides OE prose excerpts for his **History and Development of** English **Prose** course[114] (from the *Anglo-Saxon Chronicle*, King Alfred, Ælfric and Wulfstan), with an interlinear translation of his own. M. Seibert, of tlie University of Virginia, has published a page called An **Old** English **Translation Aid**[115] in which we may tind links to online hypertext editions of *Cædmon's Hymn*, the *Dream of the Rood* and to some OE *Riddles. Cædmon's Hymn* is presented two frames: the left one present the hypertextual edition and the right one the glossary, and by clicking on any word of tlie text grammatical and lexical information about it is given in the glossary. The *Riddles*, however, are shown by means of three franies. What is interesting and an example of how tlie Web may be used in OE CAI is the fact that what is shown in the extra frame is a picture of *The Exeter Book,* a picture which is hosted on a different server located in tlie England and which belongs to an institution unrelated to the author's. However. the danger of relying on external material is that if it is removed or changed to another server. or if the server is down, tlie webpage is left blame, which is exactly what I iound happened to the *Dream of the Rood*.[116] In 1999, A.M. Bruce[117], of Florida Southern College. mounted a website called Roorl *and Ruthwell, the* Poem *and the Cross*[118] where the *Dream of the Rood* may be read online. On the niainpage the author says that "the information herein, while interesting and certainly worth perusing, is not meant to be exhaustive; only basic theories, commentaries, and explanations are offered". The poem may be viewed in different fashions: a PDE translation, the OE version[119], and interlaced PDE and OE text. Once again, it is a pity that the poeni should not be hypertextual and that there should be no glossary. Also available is a transcription of the Ruthwell Cross's runes plus photographs of the cross from different angles. We must also mention an advertising-supported well-designed website called **Beowulf in Hypertext**[120], created by R. Ismail[121] and K. Ghosh[122]. offering not only the poeni but also a considerable amount of information about it. The inainpage contains two franies: the left one for the table of contents (INTRODUCTION, THE TEXT, CHARACTERS, HISTORY, SEARCH, SELF QUIZZ, LINKS, and CREDITS) and the right one for viewing tlie various content itenis. The TEXTS may be read either in OE or PDE, and chapters are chosen through a list-box. Each chapter or section of tlie poeni, whether the OE[123] or the PDE[124] edition, is then displayed on tlie right frame, and next to it there is a differently-coloured table containing a summary and relevant bibliography. As with other reading matcrial on the web, it is a pity that tlie poeni should not be hypertextual, i.e. no links to a glossary. to tlie same line in the other text edition, to relevant items in the Characters or History sections. In any case. no glossary is available. We can't see why the website was

entitled "in Hypertext". Another flaw is that the two texts may not be collated. which would have been possible by dividing the right frame into two horizontal ones. The only hypertext in the poeni's editions are, in tlie first place, the hardly-visible note numbers, which hyperlink to the notes section at the bottom of the page, and an icon placed between the text and the notes, which sends the user to the equivalent OE or PDE version, as the case may be. One of the strong points of this website is that the poeni's background is made available to the users through some of the items in the HISTORY section (particularly "Manuscript" and "Archeology"). T e javascript SELF QUIZZ section is still very much unfinished, the only one published dealing with characters in *Beowulf.* Since the site is commercially supported, from time to time browser windows with advertisements annoyingly open up. Finally, an interesting website about *The Wanderer* is Utah Valley State College lecturer R. McDonald's *The Wanderer Project*[125]. There are images from The *Exeter* Book, a non-hypertextual edition of the poem, five different translations into PDE, and a Glossary, among other pages.

More reliable are the electronic editions offered online by the library servers of several universitics. Thc University of Toronto Library has published poetry edited by menibers of its Department of English. The website. which can be searched in various ways, is called *Representative Poetry Online*[126] and the available texts are: *Cædmon's Hymn*[127], *Bede's Death Song*[128], and the *ASPR* edition of *Beowulf*[129] and an interlinear translation by Gummere[130&131].

IV.4. Scholarly electronic online editions

In this section we are going to review some well-designed websites offering high quality editions of OE works.

IV.4.1. *Old English Edition Reader*

In 1993, some years before he creatcd OEA. P. Baker designed a scholarly application called *Old English Edition Reader*[132], containing the full editions of *Wulf and Eadwacer*, The *Wanderer, The Battle of Brunanburh* and a partial edition *Beowulf.* lt is "a program for displaying and manipulating 'on-line cditions' of Old English poetry" and the aim was to "offer rcadcrs the ability to consiruct their own critical versions by providing structured access to variant readings or variant texts".[133] The interface has three sections. one for the text. another for the textual notes, and a third one with information on the line the cursor is on and on whethcr there exist textual variants of the word the cursor is on. The programme shows a totally edited text: capital letters, punctuations, niacrons, editor's corrections and variants. Each text has diffcrent sources and readers may swap between them, including their own cdition, which is precisely thc strong point of the application, for they can enter their own corrections and eniendations.

IV.4.2. *The Anglo-Saxon Chronicle* at Georgetown University

T. Jebson's[134] project to publish a critical edition of the *Anglo-Saxon Chronicle*[135] was started in 1994 but was apparently abandoned early. Of the seven manuscripts only the Parker MS has been tackled.

IV.4.3. *Appolonius* of Tyre at Georgetown University

In 1995 C. Ball, of Georgetown University, published a hypertext edition of Thorpe's edition and translation of the OE *Appolonius* of *Tyre*[136&137]. Both text and translation may be viewed simultaneously, not in different frames but by opening another window of the browser and resizing the two of them! Each paragraph has a number —serving as a link to the corresponding paragraph in the translation— and a reference to the corresponding page in Thorpe, and to the page and line number in Goolden's edition[138]. Ball's edition contains no glossary and the text itself is not hypermarked.

IV.4.4. *The Paris Psalter* at Augusta College

Students may read the first fifty psalms of the *Paris Psalter*[139], together with the Latin original, and consult a glossary. thanks to an online edition prepared by R. Stracke[140], of Augusta State University. Just as in the manuscript, the Latin is shown on the left and the English on the right. The glossary gives the translation into PDE and line references of all instances of the word in the psalms. These references are at the same time links to those instances.

IV.4.5. *Sermo Lupi ad Anglos* at the University of Kochester

University of Rochester M. Berstein[141] started to publish in 1996 a three-framed electronic edition of Wulfstan's *Sermo Lupi ad Anglos*[142]. The left frame contains the links to all the different sections of the site: help, bibliography. grammatical notes, document comparison, critical edition, notes, translation, analogues in other OE works, glossary and manuscript image. The upper frame contains the text and the lower frame may contain either the translation or the textual notes. Unlike Owen's edition of *The Seafarer*, Bernstein's edition of the sermon is not hypermarked: if one wants to the meaning of a word, the glossary must be consulted independently. The edition contains the versions of the five surviving manuscripts containing the sermon plus a translation, all of which may be combined for comparison thanks to the frame division of the page.

IV.4.6. *The Seafarer*

C. Owcn's 1999 thesis (University of Saskatchewan) is a scholarly hypertext edition of *The Seafarer*[143] and it is ccrtainly wortli using by students of Anglo-Saxon literature. It includes a transcription of tlic nianuscript. an cditcd hypcrtext version of the poeni, another hypertext version with the concordancc to tlie formulaic diction, three renowned translations of the poeni. all *The Exeter* Book poetry online, plus critical apparatus and analysis, and bibliograpliy. Owen has made sound use of frames and hypertcxt, and offers several viewing niodes. In tlie first place. the reading mode, in wliich the screen is split into frames, the left one for tlie poeni and tlie right one for the notes and emendations. Sonie of the words of the poeni are in boldtypc, which indicates tliat they are links to the notes and eniendations. Glossary consultation while reading is very simple: by positioning the mouse pointer over any onc word. basic grammatical and lexical information is given in the bottoni message bar. Other viewing niodes are tlie split and tlie quartered screens, if one chooses to view two or four texts simultancously.

1V.4.7. *The Wanderer*

T. Romano published in 1999 an online electronic scholarly edition and translation of *The Wanderer*.[144] This poem is presented in a five-framed javascript page. Wliat makes it differcnt from other scrccn-split pages is tlie "synchronized scrolling" feature: the right middle frame shows a picture or copy of the original nianuscript and as one moves the mouse pointer from linc to linc, the transcription in the right upper frame moves too to keep in synchrony witli tlic nianuscript. so that it is very easy to compare. It is also the frame where the links in the lcft upper panc show up: INSTRUCTIONS, PREFACE, INTRODUCTION, the FOUR FOLIOS of *The Exeter* Book containing the poem. the TEXT or edited poem, a CHIASMUS EDITION. a COMMENTARY, a list of the WORKS CONSULTED, and finally a FREE TRANSLATION of tlic poeni. The right bottoni frame is for the glossary. Neither thc transcription of tlie nianuscript nor tlie edited poeni is hypertextual. So, again. we miss direct links to the glossary from tlic cach word in tlie tcxt. Also lacking are links to other Web resources.

IV.4.8. Three Homilies by Ælfric at the Oxford University

University of Oxford S.D. Lee[145] published in 1999 an electronic online edition of **Ælfric's Homilies on** *Judith,* *Esther,* **and** *The Maccabees*.[146] This is another excellent scholarly electronic publication, consisting of 16 chapters or sections which can be reached from the index in the left frame and which are shown in the right frame. The critical editions of the homilies are in *pdf* format and must be read with *Acrobat Reader*.

IV.4.9. Wulfstan's *Eschatological Homilies* at Ursinus College

Wulfstan's Eschatological Homilies,[147] another thorough piece of scholarship, was published on the Internet in 2000, by J.T. Lionarons[148]. In the *Introduction* the author says: "This electronic edition of the Old English eschatological homilies is designed to bring together Wulfstan's writings on the last days and his sources in an easily accessible format. It includes newly edited texts and new translations of the five homilies, fully glossed texts of each homily, and transcriptions of the manuscripts in which they are preserved, combined with the Latin and Old English sources and analogues which pertain to Wulfstan's work and a bibliography of primary and secondary materials." The left frame contains an index to all sections of the website. The homilies are shown on the right upper frame and textual notes in the right bottom frame. The left frame links allows users to view the five edited homilies (from MS. Cotton 113) or the transcriptions of all five manuscripts. A very useful feature is that any two texts may be compared, for which purpose a new screen-splitted browser window opens automatically. On each screen side we are given an index of all the homilies and manuscripts, and a PDE translation. The edited homilies are not hypertextual, except for the notes numbers, for again there is no glossary. The site is very well designed and navigation is extremely easy for there exist links everywhere to be able to go straight to any other section.

IV.4.10. *Wulf and Eadwacer* at Western Michigan University

An excellent critical edition of *Wulf and Eadwacer*[149], published by M.D. Livingston in 2001 within the Old English Online Editions series, is available from the Western Michigan University's Medieval Institute's server. The webpage contains four adjustable frames with hypertextual elements. The upper frame is for the title of the book; the left frame contains an index of the different sections; the middle frame displays the INTRODUCTION, the EDITORIAL PROCEDURES, the MANUSCRIPT[150], the EDITION and the TRANSLATION; the lower frame is for the NOTES about the manuscript and the CRITICAL EDITION, and COMMENTARIES. The GLOSSARY is displayed on an independent browser window. Each line of the edited poem contains two links, one for the textual apparatus and the other for the commentaries.

IV.4.11. *The Seafarer's Voyage at Wheaton College*

The Seafarer, a Voyagr *Through the Worlds* of *Medieval England, version 6,* is an online electronic book created by A.J. Frantzen and J. Ruffing in 1992, subsequently revised and altered until converted into *html* by M.D.C. Drout and S. Lima in 1998.[151] The book deals with salicnt aspects of English medieval society and culture in general and as seen in or exemplified by a selection of OE texts. Just like *Beowulf in Hypertext*, this site's forte is the way OE texts are completely contextualized. On entering the site, we are presented with a screen split into four resizable frames. The left top frame contains the links to the site's different modules, i.e. it is the book's table of contents. The modules or chapters are: BOOK, LABOR, MAGIC, MONASTERY, MONASTIC LIFE, MEDICINE, NAVIGATION, PENANCE, RANKS, and TEXTS. When clicking on a module. the module interface or chapter structure, which is common to all modules except TEXTS, is displayed in the right bottom frame. This interface is simply a division of each module's sections: NARRATIVE, LEXICON, LINKS, SO WHAT? IMAGES, BIBLIOGRAPHY, and SELF-TEST. By clicking on any of them, they are displayed in the left bottoni franie. NARRATIVE is the essay proper, which opens with a short index of the essay. LEXICON is a glossary of the tcrnis specific to that module. LINKS contains a list of short essays in which the main topic dealt with in NARRATIVE is further developed in connection with particular OE or ME texts and students are given hints for papers. IMAGES and BIBLIOGRAPHY contain precisely what is expected. All sections of a niodule contain hyperlinks to the other sections in the module. The right upper frame is meant for students to take notes. By clicking on it, a new browser window opens up, with a *cgi*-like text-box on which to paste text from *The Seafarer* or simply write, although everything written here must be copicd and pasted onto a word processor before leaving *The Seafarer*. The last module or chapter, TEXTS behaves differently. When clicked on, a new browser window opens up, with an eight-framed page. The page is in fact split into two horizontal halves with four frames in the upper half and another identical four frames in the bottom half. The left upper frame of each half contains the links to cach text: Ælfric's *Colloquy*, The *Dream of the Rood, Ohþere and Wulfstan, Ceolfriþ, Scriftboc*, and *Leoftgyþ*. Again, by choosing any one test, some of the relevant text interface items or sections appear in the right lower frame: SOUNDS of [each text]. PROSE/VERSE TRANSLATION, ANGLO-SAXON POETIC RECORDS EDITION, LATIN/OTHER SOURCES, DIPLOMATIC EDITION, EDITION, COMMENTARY, GATEWAYS. MANUSCRIPTS, and DDD. The purpose of having the screen split into two halves is, of course, to allow users to read any two sections of the same OE text simultaneously, for example, "DIPLOMATIC EDITION" al the lop and "TRANSLATION" at the bottom.

V. MANUSCRIPTS

Often students are unaware that the text they are reading in their OE literature class or translating and analyzing in their OE language course is an edited version of Anglo-Saxon nianuscript. Since access to nianuscript is nearly always impossible, recent developments in manuscript digitilization and their public availability on tlie Internet have nieant a momentous step forward for students and scholars. Sonie of the above-nientioned scholarly editions do offer images of the original manuscripts, whether partial —such as M. Berstein's edition of *Sermo Lupi ad Anglos*— or complete —such as T. Romano's edition of The *Wanderer*. However, the texts uscd by siudcnts may not have been edited and published on the web. Still, links to relevant websites should be offered to the students in OE CAI. An excellent introduction to tlie subject of nianuscripts together with a downloadable *Excel* database of OE nianuscripts by J. Herrington may be found Georgetown University server[152]. As for webpagcs with links to Aiiglo-Saxon nianuscripts. we shall only mention a few: University of Arizona K. Berkhout's[153] *Anglo-Saxon Manuscripts*[154], Georgetown University C. Ball's *Old English Pages*[155] webpage *Texts and Manuscripts*[156], Canibridge University S.D. Keync's *Anglo-Saxon Manuscripts* page[157], D. Tillotson's website *Medieval Writing — History, Heritage and Data Source*[158], Belmont University J. Byrne's[159] *Images* from *Manuscripts*[160].

When translating texts from the Testaments, students should have tlie opportunity to apprcciate ilic beauty of the illuminations of tlie *Lindisfarne* Gospels (Cotton Nero D.iv)[161]. The British Library website[162] has sonie iniages online, and tlie whole manuscript was recently digitalized and published[163]. What is more, for an OE student these Gospels are also interesting for they may read Aldrcd's interlinear OE glosses. Another similar electronic edition is *The* Book *of Kells CD-ROM*[164], which contains digital iniages of the 340 folios: the four Gospels, with their Prefaces. Sumniaries and Canon Tables. *Beowulf*, which is obligatory reading in Anglo-Saxon literature subjccts. is also available in a digital format on two CD-ROMs: *The Electronic Beowulf*, edited by K. Kiernan[165] of tlie University of Kentucky.[166] It is an imagc-based cdiiion of tlie poem in Cotton Vitellius A. xv., with many features for scholarly research: the18th c. Thorkelin transcriptions. copies of tlie 1815 first edition, two early 19th c. collations of the manuscripts by Conybeare and Madden, a conipreliensive glossarial index, a new edition with transcript together with search facilities for both tlie editioii and tlie transcript, a comprehensive bibliograpliy, a section about the project's history, including many online articlcs. From tlie user's point of view, one of tlie most striking fcatures is tlie possibility of viewing tlie nianuscript and tlie edition, or the transcriptions, on one scrccii, plus tlie glossary, using any of thc various modes available. Again. for students aiid tcachers working with *Christ, Guthlac, The* Phoenix, *Juliana, The Wanderer, The Seafarer, Widsith, Deor* or any of tlie *Riddles*, University of Melbourne N. Kennedy[167] & B. Muir[168] and havc very rccently published an electronic CD-ROM edition of *The Exeter Anthology* of *Old English Poetry*[169], a web-based multinicdia application that has converted

the papcr book into a "virtual nianuscript", with a Iiypertext edition fully cross-referenced to the virtual nianuscript, plus audio readings of the poems.[170]

Naturally, apart from CD-ROMs, niany websites offer either inforniation on manuscripts or actual digitalized iniages. The University of Oxford hosts an impressive collection of iiianuscripts witli woiks in OE, niany of which can be viewed online at *The Early Manuscripts at Oxford University*[171]: the *Homily on The Invention* of *the Cross* (MS. Auct F. 4. 32). sonie O E *glosses* (MS. Bodl. 572 or 'Codex Oxoniensis Posterior'), the "Cædmon Manuscript' (MS. Junius 11), containing parts of *Genesis*, *Exodus* and Daniel, illustrated with Anglo-Saxon drawings. tlic *Life* of *St. Basil* (MS. Rawl. Q. e. 20), the *Preface* lo *the Anglo-Saxon Chronicle* (MS Laud Misc. 636, fol. Ir). all at the Bodleian Library; the *Rule of St. Benedict* (MS. 197). the OE translation of Bede's Historia *ecclesiastica gentis Anglorum* (MS. 279B) at Corpus Christi College; and finally, Ælfric's *Grammar* (MS. 154), at St. John's College. Equally interesting is tlie 11th century *Anglo-Saxon Glossary* (MS Brussels, Royal Library 1650). an excellent scholarly study on these marginal glosscs published on the Wcb by D.W. Porter[172] in 1995.[173]

Finally, wc would like to nicntion a stand-alone or web-based application to manipulate or study digitalizcd manuscripts and palaeography: *Ductus*[174], developed at the University of Mclbournc by N. Kennedy[175] for B. Muir[176]. It is an interactive multimedia program designed to teach tlic history of western European handwriting. One interesting feature is that transcripts for each linc can bc viewcd by passing tlie niouse over the line nuniber. Last but noi least, we must mention another excellent and useful website: Northwestern University C. Regan's[177] *Early English Scribal Culture*[178], where students may be instructed online on the Anglo-Saxon scribal procedures and practise transcription of OE nianuscripts.

VI. WKITING

As wc said above, active skills such as speaking and writing do not make much sense if the language is no longer spoken. However, from a pedagogical point of view or just for sheer pleasure, tlic active skills may —or perhaps, should— be fostered. Since those able and willing io use Old English for coniniunication are but very few and very distant from one anothcr. it is clear that coniputer technology can help. The best tool to carry out such communication is a discussion list or group, and one such group does indeed exist, *The Englisc List*.[179] This list was begun by Meniorial University and Georgetown University prolessors B. Schipper and C. Ball in 1996. The principal aim of the list is pedagogical and practical. As statcd in tlie niainpage of tlie list's website: "here is an opportunity for you to hone your skills at a challenging niedieval language —in a way that more passive. traditional methods of study don't offer— and learn how to teach it." Of course, people willing to participate in such a foruni are mainly scholars, for writing in and traiislating into a *dead* language "is not a simple process, but requires a thorough knowledge of available Old

English texts and of the contexts for particular words and not just some Old English grammar" (Schipper & Higley, 1996:16). Subscribers to the list are required, among other things, to compose messages or texts in OE, to translate PDE texts into OE, to pose questions about OE grammar and vocabulary. In order to provide contributors with conversational plirases to get started with, C. Ball created a useful webpage called ***Instant Old English***[180], subtitled "A Conversational Phrase Book Culled from the Old English Corpus for the Englisc List".

In 1998 a news service was originated in this forum: ***Tidunga on Englisce*** or ***NASC***[181] (*The New Anglo-Saxon Chronicle*), a monthly announcenient of the world's news written in OE, many of whose contributors are members of ***Thr Englisc List***. Since 1999 it has been hosted and maintained by Antliony Appleyard[182].

VII. LISTENING

There are two types of materials available for this skill, theoretical and practical. As far as tlicory is concerned, there are not many websites specifically devoted to OE phonology. In 2000 Furman University lecturer W.E. Rogers[183] and D. Ervin created a website called ***The History of English Phonemes***[184]. In the mainpage of the site, the authors themselves admit that the "information contained in the site is available in any good textbook on the history of the language", but while "printed texts normally present the inforniation in a linear fashion corresponding to the chronological developnient of English", this website's value is "the hypertextual treatnient of the information, which is meant to keep students from having to spciid a great deal of time leafing through textbooks." The site is meant to support undergraduates students enrolled in *History of the English Language* courses. It is a pity that, in order io avoid viewing problenis, many users would have to view special phonetic syiiibols, special combinations have been made up. such at /c</ for /ĺ/, instead of the IPA symbols. The webpage is divided into two screens: the left one contains an index to the different sections of the website and the right one is where the different sections are displaycd. Sections relevant for OE CAI are: CONSONANTS, VOWEL AND SOUND CHANGES. The dcsigii of the website is very clear and facilitates easy reading, except for the fact that Iiypertextuality is not takcn Sull advantage of, so that users need to use the back and forth browser buttons. However, the level is very basic, even for an introduction. One particularly pedagogical flaw is that no examples are provided, which is especially noticeable in the Sound Cliangcs section. As for downloadable materials, which is another important facet of CAI —making notes, lectures and books electronically available to students— we must mention R. Stevick's[185] online *pdf*-format book. ***The Sounds of Old English***.[186]

Witli respect to listening practice, the reason for listening to OE is not to be able to carry a conversation, but rather for students to recognize the phonemes studied in their OE or HEL course —which is actually a feature of iiiany of the courses and applications reviewed

here—, or to appreciate poctry rccitation and the way pocrns were experienced at a time when they wcrc declaimed before an audicnce. D a ***Engliscan Gesipas***'s website[187] has a page called ***Readings*** of ***Old English Poetry***[188] a collection of OE verse read by S. Pollington: *Deor*, *The Funeral of Scyld Scefing*, and *The Battle of Brunanburh*.[189] Undoubtedly, one of tlie niost popular courscbooks aniong OE teachers is Mitchell & Robinson's *Guide ...*[190], so it seems natural that sonicone should have thought of converting some of its texts into soundfilcs. P. Baker[191] has done so and creatcd a webpagc called ***Readings from A Guide to Old English***[192]. Commercial material is also available: Draca BCS Ltd.[193] has published a multimedia O E CD-ROM, which has a 1000-word picture-sound dictionary, plus grarnrnar, vocabulary and tests.

VIII. DICTIONAKIES & GLOSSAKIES

Electronic dictionaries are beconiing increasingly popular with English language learners because thcy offer a fast and convcnient rnethod of looking up words while working with another computer application, for cxample writing a coniposition. According to Laufer & Hill (2000:68), students are often reluctant to consult unfaniiliar words in a paper dictionary becausc of "tlie time involvcd in flicking through tlie dictionary pages and tlie subsequent disruption of the flow of rcading" and they claim that an "electronic dictionary may provide a good solution to this problem". As far as OE is concerned, the sheer wealth of electronic texts available makcs it natural that reading sliould go hand in hand with electronic dictionary and glossary consultation. We believe that is precisely the ease and rapidity characterizing electronic dictionaries tliat increases the nuniber of word lookups on the part of the students, thercby contributing to "more fluent reading" and to a greater "chance of acquiring the lookcd up words", as Laufer & Hill (2000:68) put it.

No cmpirical studics have been carried of O E electronic reading and dictionary consultation which could prove our claim to be right or wrong. However, research conducted with modern languages on the usefulness of electronic dictionaries and glossaries as on-line helping tools and as contributors to text coniprehension and incidental vocabulary learning seem to support our belief.[194]

The design of tlie glossaries and dictionaries sliould be such as to promote learning. According to Laufer & Hill, 2000:58, "multiple dictionary information reinforces learning" which implies tliat "a variety of lookup options [sliould be allowed for] catering to different lookup prcferences […] when assigning tasks tliat involve reading coniprehension and understanding of unfamiliar words." It seems undeniable tliat "tlie more a learner pays attcntion to a word's morphophonological, ortliographic, prosodic, semantic, and pragmatic fcaturcs and to intraword and intcrword relations, the more likely it is tliat tlie new lexical information will be retained" and this can only be achieved if the glossary or dictionary providcs a "multiplicity of lexical information" (Laufer & Hill, 2000:71). If learners could

"select the type of inforniation they consider most appropriate for the task and feel most comfortable with" (Laufer & Hill. 2000:69), learning would indced be greatly facilitated. This seems to be more important than the nuniber of times a word is looked up.

Now, what is the situation concerning OE electronic glossaries and dictionaries? They do not meet all the requirenients of the "optimal dictionary" just depicted: easy, fast, compatible with different lookup preferences. Often, OE glossaries provide very little information about a word: word type, morphology, and some rough PDE equivalents. Admittedly, sonie scholarly electronic editions of OE words cater for this need through analogues in other OE works. As for OE electronic dictionaries. the only one we know of, *Wendere*, is available as a rough Microsoft Access table. Of course, it is extremely time-consuming to dcsign a glossary that meets these requirements, let alone a whole dictionary.

What are then tlie resourccs available to our OE students, whether on CD-ROM downloadable from the web, or online? We cannot but start by mentioning a monumental work: the second electronic version of the *Oxford English* Dictionary (Second Edition), which is available both on CD-ROM[195] and online by subscription[196]. Secondly, B. Scliipper's *Modern to Old English Vocabulary* rnay prove useful for it is the only one we know of in which words are sorted by the PDE word.[197] Thirdly, in 1997, K. Jarnbeck published a vcry short *Introductory Glossary and Translation Guide*[198] for OE students using Moore, Knott & Hulbert's *The Elements of Old English.*[199] Fourthly, M. Robbins[200], although he describes himself as "an interested hobbyist in the language"[201], has produced a most lhandy quick-reference OE-PDE-OE dictionary, which he has entitled *Wendere.*[202] It is downloadablc as a 685 kb *zip*-file[203], which deconipresses into a 1.9 Mb file. *Wendere* is in Iact a Microsoft Access database with over 28,000 entries. The huge advantage of its being a database is that the dictionary may be used from OE to PDE or from PDE to OE and, since it also contains fields for grammar labels, registers may also be sorted by these labels. To perforni word lookups, one may usc Access, both in table or presentation layout, or convert it into an *.asp*-extension wcbpage so that it may be consulted froni a server. Fifthly, University of Pcnnsylvania S. Crist[204] has made three OE lexical works publicly available on the web[205]: the glossary of **Bright's *Anglo-Saxon*** Reader[206] (pages 241-385 of the text), Bosworth and **Toller's *Anglo-Saxon Dictionary***[207], and Clark Hall's A *Concise Anglo-Saxon Dictionary*[208]. *Bright's Glossary* is available as a single 572 Kb fully readable html file. *Bosworth & Toller's dictionary* is available as 10 *html* files (about 21 Mg) and it is the rough output of an OCR programme, so it needs further processing before it becornes really usable. *Clark Hall's Dictionary* is available only as scanned images which still have not reached the OCR processing stage. We must also mention an online glossary working only frorn PDE to OE, the *Present Day English Searchable Glossary* for *Old English Terms*[209], but its vocabulary is limited to that found in the lessons and exercises in Pollington's *First Steps.*[210] It docs not sccni to bc operative. Finally, an lndcx of OE names found in OE works is the webpagc *Englisce Naman*[211], which belongs to the website **Folcspræc**[212] developed by Dean Easton[213]

IX. HISTORY AND NON-LINGUISTIC RESOURCES

The OE language cannot be studied independently of the extant written materials (not only literary works but also other texts of a religious, historical, medical, legal ... nature) and artefacts. In order to fully comprehend all these materials, students should also be instructed in what we may simply call "Anglo-Saxon culture", which is precisely what Mitchell (1995) purported to achieve. There are many electronic resources dealing with Anglo-Saxon culture, providing all kind of information which complements an OE Language or Anglo-Saxon literature course. These resources may be online university courses, websites or commercial CD-ROMs. Some are scholarly, while others a simply re-enactment societies' websites or edutainment software.

We shall start by reviewing a few commercial CD-ROMs and then move on to websites. Research Machines PLC and the British Museum have jointly developed *The Anglo-Saxons: An Exploration of their Art, Literature and Way of Life*.[214] The contents of this CD-ROM —Digging up London, Monks and Nuns, Marvellous Objects, Amazing Animals, Kings and Kingdoms, Anglo-Saxon Writing, Places, Further Study— may be explored by using text, images and there is some voice narration. Images can be enlarged and alternative views can be selected to enable users to see the artefacts in greater detail. Graphyle Publications has published the *Anglo-Saxons CD-ROM*[215], covering the period prior to the Anglo-Saxon invasion of England through to the death of Alfred at the end of the 9th century. Another commercial CD-ROM containing a huge library of images is *The Western Civilization CD-ROM*[216], with a subsection entitled "Anglo-Saxon England, 500-1066". It includes software for classroom presentations, but it is also possible to use the images and videos in a *PowerPoint* presentation. Another two titles relevant in an OE course are *The World of Vikings CD-ROM*[217] and *1066 and the Norman Conquest CD-ROM*[218]. See also Lee & Fraser (undated webpage).

As for the Internet, we must first mention the online electronic book entitled *The Seafarer*[219] described above. This is very good example of how "external" and "internal" history of the language may be combined so that students do not lose sight of the close relationship between language and the culture in which that language was used. Another online book, though without the hypertext and frame features of *The Seafarer*, has been edited by S.J. Harris & B.L. Grigsby and is hosted by the Orb (Online Reference Book for Medieval Studies) server: *Misconceptions about the Middle Ages*[220], which tackles the Crusades, medieval medicine, medieval children, the church and the austerity of the epoch. The *Online Guide to Anglo-Saxon Culture*[221] mounted by member of the University of Toronto Graduate Department of English is a webpage with links to short online articles about many different aspects of the culture of that period. *Bede Net*[222] is an academic resource, maintained by S.J. Harris[223] devoted to the works of the venerable monk offering online bibliography of scholarly articles and books. As for King Alfred, Ken Roberts has created a page (text and links) called *King Alfred the Great*[224]. *Angulseaxan* or the Anglo-Saxons Net[225] is an ongoing Web project created by S. Miller[226] to "bring back to life a

people […] who turn out to be as vivid and varied as ourselves" (Miller, Mainpage). The "Coins" page contains a link to tlie excellent *Early* Medieval Corpus of *Coin Finds*[227] created by the sanie author but hosted on Canibridge's Fitzwilliam Museum server. The corpus inforniation is stored in a *php* database which may be searched[228] according to various critcria (kingdom, ruler, mint, county). Therc also exist different options to view and order the results obtained in the search. Tliose interested in Anglo-Saxon buildings and archaeology and 6th-8th century Northumbrian figures may visit *Bede's World*[229], which also contains many links to othcr Bedc and Anglo-Saxon sites. Still another website devoted to Bede is R.P. Crisp's[230] *The Venerable Bede*[231]. Students looking for historical information of the Anglo-Saxon pcriod are also well catered to. If it is niaps they want, there's tlie Historical *maps and illustrations*[232] webpage, published on the Internet by D. Gibbon for his 1996 *English Dialects and Sociolects* Course.[233] A good *Anglo-Saxon England map* by M. Whitc[234] has been put up on tlie Web by C. Ball[235] and more niaps are available online at Britannia[236]. As for history, first-hand inforniation may be found at tlie *Anglo-Saxon Charters*[237] website, put up on the Web by tlie British Acadeniy and the Royal Historical Socicty. This is an excellent scholarly wcbsite with a wealth of inforniation and material of interest to specialists. A non-academic site that provides valuable, succinct and useful database inforniation about, among other things, Anglo-Saxon history and culture is *Britannia's History Department*[238]. Another hypertextual website with basic database historical information is History *World*[239], with various searching niodes. Finally, we must nicntion a webpage with general but vcry relevant inforniation and many links: *Anglo-Saxon Index*[240], by S.D. Keynes, of Cambridge Univcrsity.

Howcvcr, not all the wcbsites are acadeniic or scholarly. Some of thcm were put up on tlie Wcb by living-history or re-cnactnient societies, but often the type the type of information thcy providc supplenients that of more scholarly sites and may thus be used in an OE CAI coursc. *Angelcynn*[241] is a society seeking to recreate different aspects of Anglo-Saxon life. It coiitains non-acadcniic articles on food, crafts, warfare, pastinies, clothing, weaponry, artefacts, etc.. witli a few grapliics and photographs; biographies of kings; an online glossary; an illustrated dcscription of a reconstructed Anglo-Saxon village called West Stow. The site is well-designcd for frames allow users not to get lost in it, links to the different sections being always availablc. However, tlie articlcs' text is not hypertextual. *Regia* Anglorum, Anglo-Saxon, Viking, Nornian and British History[242] is another society devoted to the recreation ol'a cross section of English life around the tum of the first millennium, including the rcconstruction of an Anglo-Saxon nianor house, Wychurst[243], a Viking settlement, Wichamstow[244], and an earl's nianor, Drenghani[245]. The Manor of Drenghani page contains links to online articles on the Anglo-Saxon legal systeni, warfare and daily life (food and drink, feasting and fasting, niusic, games, verse, pastinies). Da *Engliscan Gesipas*[246] is another society, nore acadeniic. created 1966 and devoted to the study of the Anglo-Saxon period: language and litcrature, archaeology, anthropology, architecture, art, religion, mythology, folklore and material culture. It provides a correspondence course of OE (by S. Pollington[247]), a Select **Bibliography** for Anglo-Saxon Studies (by C.P. Biggam),

inforniation about Germanic and OE runes (again by S. Pollington)[248], about the Firsby Anglo-Saxon **Village** Project, audio recordings of OE **poetry** (again by S. Pollington), and a useful links page. An obvious niatter of interest for students of OE is the ***Sutton*** Hoo ***Burial Ship***, to which are devoted many websites, such as the Sutton Hoo **Room**[249] and the Sutton Hoo WWW **Site**[250]. Finally, tliough not intended for university students and even less so for scliolars, sonie wcbsites deserve to be included here simply as examples of what can be done with computers. All sorts of activities, texts and even javascript games for school students concerning tlie ***Anglo-Saxons*** and tlie ***Vikings*** have been mounted on the Web by BBC[251]. Also for secondary school children, there is the ***The History Net website***[252-253].

X. CONCLUSION

An OE CAI course should have an index page crcated by the instructor witli a site map or contents index, pernianently visible in an frame or at least always accessible from any page of the site. The course should have class materials both in *html* and *pdf* formats —class notes. Iiandouts. complementary materials, bibliography—, all the obligatory primary OE texts, translations, text-specific glossaries and a web-based OE dictionary, online grammar and vocabulary exercises created with sonie suitable authoring tool, links to materials and resources hosted on other servers and precise instructions on what to do with tliem —online articles, dictionaries, niaps. scholarly edited texts, nianuscripts, libraries' catalogues and online material, museums, searching engines—, and Internet or intranet online access to the different CD-KOMS reviewed in this chapter. I totally agree with Roper (1996) in that what undcigraduatcs need is not only, a virtual library such as The Labyrinth, but also "something niorc like the *Perseus* or De Italia *CD-ROM* programs[254], which are essentially encyclopaedias, with very basic information that we, as niedievalists, already know — simple, beginncr entries on *fin amour*, a book of hours, what a nionk is and what a friar is, cross-linked with hypertextual links."[255] Finally, electronic mail should be taken full advantage of, either for instructor-student communication or. by means of a listserver, for general discussion on course and subject matters.[256] Undoubtedly, future hardware and software developnients will make it possible to include more unthought-of coniponents. As Foys (1999:20) said and hoped, "the mercurial nature of coniputer software and hardware development niakes it difficult to surmise what the next few years will hold, but I hope that new nicdia beyond straightforward webpages, audio files and JPEG nianuscript pages will cnierge".

NOTES

O f coursc. as wc shall see. OE poetry iiiay be recitcd and listened to, and this could be iiiade available in sound files. Also, tlic tcaching of OE sounds iiiay be cnlianced if sound files are used.

[2] There exist today coiiiiectioiis stable and fast enough for online training to be perfectly feasible. In Spain, cable, ADSL. RDSI are bccoiniiig increasingly affordable and available throughout tlic country for individuals.

[3] For multimedia authoring tools, readers iiiay visit the *Computer Based Teaching* ond *Learning Sites* webpage (lorien.ncl.ac.uk/ming/resources/cal/mmedia.htm). We would also like to inention a very useful. easy and free tool: tlie *Hot Potatoes Suite* (www.halfbakcdsoftware.com/hotpot).

[4] www.wmich.edu/medieval/oen.

[5] We would like to rccoiiiiiiciid soiiie short introductory manuals to get started in web-browsing: Web *Skills* for *Language Learning* (www.well.ac.uk/wellproj/wellbook.htm), published by WELL Project (www.well.ac.uk/wellproj/index.html); *How to Do Research on the Internet* (www.lib.monash.cdu.au/vl/www/wwwcon.htm), published by Monash University Library; Ball (1996b); Lee & Coopcr (7000).

[6] *Labyrinth: Resources for Medieval Studies.* Georgctowii University (www.georgetown.edu/labyrinth).

[7] This is what sccondary-school tcaclier Cynthia Miniter does in licr webpage The *Hunt* for *Anglo-Saxon Information - An Internet Treasure Hunt* on *Anglo-Saxon* Period (www.kn.pacbell.com/wired/fil/pages/huntanglosacy.html).

[8] Available froiii tlic listserver ANSAXNET. It is called FLASHCRD SOFTDOS. To download subscription to ANSAX-L is rcquircd. Ansaxdat is tlic list's database: www.mun.ca/Ansaxdat.

[9] Also available from ANSAX-L archives.

[10] O.D. McCrac-Gibson. *Learning Old English.* A Progressive *Course with Text, Tape* and *Exercises.* Third editioii. Published by thc autlior at 43 Rubislaw Den South, Abcrdeen AB2 6BD, 1984.

[11] members.aol.com/libphil.

[12] stella@arts.gla.ac.uk; www.arts.gla.ac.uk/STELLA. A description o f the initial stages o f the Project appears in Kay & Smith (1990).

[13] Bernstein (1997:27. iiotc 4) defines JavaScript as "a platforin-independcnt scriptiiig language (inoditied programming language) uscd to crcatc small prograins. or applets, that run from their source code on the Internet instcad of from programs, or applications, tliat you have installed oii your personal computer."

[14] alcor.lcc.uma.cs/~trivino/calloc.

[15] amiranda@uma.cs.

[16] jcalle@uma.cs.

[17] trivino@lcc.uma.cs.

[18] Tlic vcrsioii wc arc revicwiiig is 4.10.

[19] J.M. dc la Cruz. *Iniciación práctica al inglés antiguo.* Madrid: Alhainbra, 1986; J.M. de la Cruz & A. Cañete. *Introducción histórica a la lengua inglesa.* Málaga: Ágora. 1995.

[20] Burnley (7000).

[21] www.ruf.ricc.cdu/~barlow/#soft.

[22] psb6m@virginia.edu.

[23] It iiiay be dowiiloaded as a zip-coinprcssed file froin www.engl.virginia.edu/OE/OEA.download/index.html and installed oii a personal coiiiputer. or else it iiiay be used online from the hosting server itself (www.cngl.virginia.cdu/OE/OEA/index.html).

[24] Individually downloadable as *pdf* files to bc vicwcd with *Acrobat Reader.*

[25] Once clickcd oii. tlic content o f tlic lowcr frame displays tlie Real *Player* audio application interface.

[26] Kitao (1995) is of the sainc opinion, as wc saw abovc.

[27] This option providcs inforiiiatioii oii word class, geiider, case, number, person, tense, inood. etc.

[28] This option gives both a general cquivalcnt o f tlic word in PDE and a more specific translation given the coiitcst it appears in tlic text.

[29] www.cngl.virginia.cdu/OE/OEA.download/index.html.

[30] www.vcrbix.com/index.html. Tlic same application under the naine o f *Conjugue* is available at loadsoft.narod.ru/cducation_and_scicncc/languagcs/review_23490_index.html.

[31] Technical features iiiay bc coiisultcd at www.verbix.com/info.asp.

[32] www.uiiicodc.org and homc.att.nct/%7Ejameskass.

[33] A little javascript applicatioii which has caught our attention is *Count the* Micc (www.draca.freeserve.co.uk/ocnos.htm) designcd to learn to count in OE, up to number ten.

[34] cball@gusun.gcorgctown.cdu

[35] www.gcorgctown.cdu/cball/hwaet/hwact06.html.

[36] *TDOEC.* www.doc.utoronto.ca.

[37] Each sentence is preceded by a sliort reference, e.g. "ÆGenPref 105". These short references are hyperlinks to tlie short title, c.g. "Ælfric, *Preface to Genesis*. Ælfric's Preface to liis translation of Genesis, edited by Crawford (1922)", where "Crawford" is yet another link to the full title, that is, "Crawford, S. J, ed. 1922. The *Old English Version of the Heptateuch, Ælfric's Treatise* on *the* Old *and* New *Testament* and *His Preface to Genesis.* EETS OS 160. Rcpriiited 1969 with additions by N.R. Ker. London: Oxford University Press".For refcrence rnethod, visit www.georgetown.edu/cball/hwaet/hwaet_texts.html.

[38] www.lonestar.texas.net/~jebbo/learn-as/contents.htm.

[39] www.lonestar.texas.net/~jebbo/learn-oe/contents.htm.

[40] For a brief explanation of the shortfalls lie found in Mitcliell & Robinson's *Guide*, see the section ABOUT THIS GUIDE at www.lonestar.texas.net/~jcbbo/learn-oe/about.htm. The manual's full reference is B. Mitcliell & F.C. Robiiison. A *Guide to Old English*. Loiidoii: Blackwell, 1999.

[41] www.wheatoncollege.edu/Faculty/MichaelDrout.html.

[42] db.wheatonma.edu/King_Alfred/start; KingAlfred.net; KingAlfred.wheatoncollege.edu.

[43] Sec Gray (1999) for a revicw of tlie prograiniiie.

[44] McGillivray (2001): www.ucalgary.ca/UofC/eduweb/engl401.

[45] www.ucalgary.ca/~mmcgilli.

[46] Only students cnrolled in tlie coursc liave acccss to tlie exercise pages through a keyword.

[47] For webpage style. readers are refeired to www.webestilo.com/guia/navega.php3.

[48] Tlie coursc outlinc is detailed iii tlie SITE INDEX page (www.mirror.org/people/ken.roberts/king.alfred.html).

[49] Tlic texts of tlic readiiig assignments can also be reaclied through tlie TEXTS rnainpage.

[50] www.mirror.org/people/ken.roberts/king.alfred.html.

[51] Servers at tlic Universitics of Rocliestcr, Lethbridge. Florida Soutlierii College, Richard Stockton College ot' New Jcrscy. to name but a few.

[52] Howevcr. it inay liappen tliat soine of tliese hosting servcrs inay restrict access after a public period. Unless the OECAI site is reoularly updated, broken links inay prcvent activities froin being implemented.

[53] Ee_Ong@brown.edu.

[54] www.brown.edu/Departments/Medieval_Studies/lessons.

[55] Tlie autlior gives liis email address (alex@mail.lisgroup.net), but not his naine.

[50] amsancho.narod.ru/ex/index.htm.

[57] In tlie webpage about tlie projcct (amsancho.narod.ru/ex/Saxonica/inf.htm). tlie autlior acknowledges tliat the idea of building this sort of ciicyclopaedia of tlie Anglo-Saxon world came to hiin or lier while visiting C. Ball's *Hwæt!* course, reviewed above.

[58] Neither of these tools was operative on tlie day we visited the site (30 Nov 2001).

[59] sharris@english.umass.edu.

[60] www-unix.oit.umass.edu/~bede/exercises.html.

[61] www-unix.oit.umass.edu/~bede/ex/pron.html.

[62] www-unix.oit.umass.edu/~bede/parse.html.

[63] Coiitrary to tlic seiitences uscd by Ee-Ing Ong in his *Old English Lessons* or C. Ball's *Hwæt!*.

[64] *ASPR.* Tlie *Anglo-Saxon Poetic Records* liave been encoded in *html* by McCrae-Gibson and are publicly availablc oii tlie Internet from various scrvers. Rcaders are referred to gopher.std.com/obi/Anglo-Saxon/aspr/readme.html for further iiiforination oii this convcrsion into an electronic docuinent.

[65] www-unix.oit.umass.edu/~sharris/in/GrammarChart.html.

[66] www.ticd.narod.ru/project/grammar/grammar41.html;

www.geocitics.com/indoeurop/project/grammar/grammar41.html.

[67] cyril@babaev.com: babaev.narod.ru/about.html.

[68] www.clex.amu.edu.pl/~hell/download.html.

[69] www.scar.utoronto.ca/cgi-bin/People?R.+Binnick.

[70] www.scar.utoronto.ca/~binnick/LINC06.

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[81] www.georgetown.edu/labyrinth/library/oe/oe.html.

[K2] For scholars and rescarclicrs in linguistics, history or literary criticism, electronic editions, "lend themselves to sophisticated scarchcs. coiicordancing, collations, and other torins of text retrieval" (SEENET, 2001). Since scholarly research falls outsidc the scopc of this chapter, we shall merely refer readers to Duggan (1994).

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[168] www.medieval.unimelb.edu.au/bernard.
[169] www.medieval.unimelb.edu.au/exeter and
www.unimelb.edu.au/ExtRels/Media/UN/archive/multimediatwo/medievalpoetryincddebut.html.
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