

Extract from Dean Stanley's *Life of Dr. Arnold*

"In the common lessons, his scholarship was chiefly displayed in his power of extempore translation into English. This he had possessed in a remarkable degree from the time that he was a boy at Winchester, where the practice of reading the whole passage from Greek or Latin into good English without construing each particular sentence word by word, had been much encouraged by Dr. Gabell, and in his youthful vacations during his Oxford course he used to enliven the sick-bed of his sister Susannah by the readiness with which in the evenings he would sit by her side, and translate book after book of the history of Herodotus. So essential did he consider this method to a sound study of the classics, that he published an elaborate defence of it in the Quarterly Journal of Education, and, when delivering his Modern History lectures at Oxford, where he much lamented the prevalence of the opposite system, he could not resist the temptation of protesting against it, with no other excuse for introducing the subject, than the mention of the Latin style of the middle age historians. In itself, he looked upon it as the only means of really entering into the spirit of the ancient authors; and requiring as he did besides, that the translation should be made into idiomatic English, and if possible, into that style of

English which most corresponded to the period or the subject of the Greek or Latin writer in question, he considered it further as an excellent exercise in the principles of taste and in the knowledge and use of the English language, no less than those of Greece and Rome. No one must suppose that these translations in the least resembled the paraphrases in his notes to Thucydides, which are avowedly not translations, but explanations; he was constantly on the watch for any inadequacy or redundancy of expression – the version was to represent, and no more than represent, the exact words of the original; and those who, either as his colleagues or his pupils, were present at his lessons or examinations, well know the accuracy, with which every shade of meaning would be reproduced in a different shape, and the rapidity, with which he would pounce on any mistake of grammar or construction, however dextrously concealed in the folds of a free translation."

Dean Stanley, *The Life and Correspondence of Thomas Arnold, D.D.*, 4th Ed. 1891, p.83

Blitz Latin – Experiments with automatic translation of Latin William A Whitaker, McLean VA, USA & John F White, Wokingham England

Summary.

The application of the automatic translator Blitz Latin to a very large example set of Latin texts is described by the programmers. Translation difficulties are outlined, together with (sometimes) the solutions.

I. Introduction

Blitz Latin is a joint venture between the authors to create an automatic translator from Latin into English. The translator has been engineered by combination of a 30,000-word Latin electronic dictionary (WAW), including in-built conjugation/declension structures, with routines derived from artificial intelligence (JFW).

Although there exist numerous automatic translators into English for most modern languages, such as French, German, Spanish and Italian, we are not aware of any significant previous commercial alternatives for Latin. It was this shortfall that prompted one of us (JFW) to initiate the construction of a Latin translator as a result of a need to translate some legal, and also some fragmentary, Latin texts. This paper will describe some of the problems that we encountered.

Latin is an inflected language, and it is also an ancient and, perhaps by consequence, an over-loaded language. By 'over-loaded', we mean a language in which too many single words have multiple, unrelated meanings in English. An example is the Latin word *plaga*, -ae, fem, which has the translations: hunting net, snare, trap; tract, region, stretch of country, quarter, zone; stroke, blow, stripe, cut, thrust, wound, injury, misfortune, impression; Although many of these translations are duplicated, the principal alternatives of 'trap', 'region' and 'blow' possess widely different meanings in English.

An over-loaded language is inevitably one in which ambiguity of translation is likely to occur, and this is compounded when different meanings could be separated by pronunciation but where the words are

seen only in the written form. To take just one egregious example, the translators¹ of the inscribed *Res Gestae Divi Augusti* have stated that the word *quoque* had two different pronunciations and that a sentence bearing *quoque* could be translated accordingly in different ways. A contemporary reader of the *Res Gestae* must have deduced the correct pronunciation, not from context within the inscription (which would have been available to the translators), but from his wider knowledge of world affairs.

Latin inflections provide more tightly defined information about the usage of the stem of the word that they modify. Latin lacks a definite and an indefinite article, although use of words such as *quidam* provides a partial substitute. Prepositions may also be used to define the inflection of the following word more precisely. However, many Latin words may be encountered without such modifiers. For example, the single word *domin.o* (we use the full-stop to separate the stem from the inflection) can be taken to mean 'to the lord', 'by the lord', 'from the lord' and 'with the lord' if used without any context. English, which is not an inflected language, separates these meanings as listed above. Modern German is, like Latin, an inflected language, but the use of the article and a preposition provides unique translations: 'an dem Herrn', 'durch den Herrn', 'von dem Herrn' and 'mit dem Herrn'. It is not surprising to note that it is easier to translate a sentence of German into English than the corresponding line of Latin. Moreover it appears that the ordinary spoken language, the Vulgate, also relied heavily on prepositions and less on inflections.²

Latin, then, has a high degree of ambiguity built into the language, and the better-educated Romans preferred to express themselves in Greek. It is possible that many Latin speakers might even have availed themselves deliberately of the language's ambiguities in their dealings with others. However, it is equally true that sentences can also be expressed very concisely in Latin.

◆ The Electronic Latin Dictionary.

The electronic Latin dictionary was created by WAW over a period of seven years, as a hobby. It has been publicly available over the Internet for some 3 years now, and is periodically updated with new words of which many have been supplied by users. Our automatic translator uses a modified version of the latest release (1.97) of the dictionary, with some 30,000 words. The nature of the modifications will be discussed below.

The electronic dictionary has been constructed pragmatically, and not according to any intentional bias. There is no concept of 'correct' Latin. If words exist, from any origin, and can be verified by a conventional dictionary, the word is added. No word is generated by automatic grammatical construction. The long-term intention is to make the dictionary as comprehensive as possible, although difficulties with alternative spellings (especially clashes between the Oxford Latin Dictionary and Lewis and Short's Latin Dictionary) have had to be resolved. Generally the Oxford dictionary, with its classical bias, has been preferred. Proper names are added only by popular demand.

Where the same word is known to appear as a noun or as an adjective (so-called substantive use, eg *bonus*) both words are added to the dictionary. Adjectives that correspond to verb past participles are also added if the meaning is significantly different. The dictionary is classified internally according to speech-type (eg noun, adjective, verb), and the main declensions and conjugations; five for nouns, four for verbs and three for adjectives. The declensions and conjugations are sub-divided in a less familiar manner, one that optimises efficient matching of word stems to their inflections.

Some of the difficulties of over-loaded words have been addressed in the dictionary. Each Latin stem is expressed as up to four parts (eg *am. am. amav. amat.* for the verb *am. are*), a series of letters and numerals denoting the speech-type and conjugation/declension types (eg V 1 1 for *am. are*), and a series of five auxiliary items of data providing information about:

1. frequency (how often the Latin stem is cited)
2. period (roughly when the word was used; eg general, classical, medieval)
3. context (eg general, legal, military)
4. area (where applicable, the geographic area where the word is commonly used)
5. source (typically Oxford Latin Dictionary or Lewis & Short's Latin Dictionary).

Finally, representative meanings for the Latin stem are attached.

During use of the electronic dictionary, any word to be translated is broken into its stem and its inflection (if any), which is looked up in a table of inflections. For the word *am. at*, the stem '*am.*', type V 1 1, would result in all inflections for '-at' being examined for those that were of type V 1 1.

◆ The Automatic Translator.

It will be apparent from the foregoing that construction of a computer program to translate Latin text creates some unusual challenges, relative to the translation of major modern European languages. We elected from the outset to allow the translator to operate on a standard IBM-compatible personal computer, running with Microsoft's Windows 95 (or later variant); the electronic Latin dictionary can additionally be used in DOS-mode, or with a Macintosh computer.

The first technical problem was that of an appropriate computer-programming language. The language 'C++' is very fast, flexible and familiar to one of us (JFW) in the context of creating algorithms and heuristics for artificial intelligence, including the programming of computers to play chess. The latter imposes a particularly fierce discipline on computer programmers. When time limits are applied for each move in a game of chess, optimisation of code for speed becomes of overwhelming importance. There are occasions when the ability of a chess

program can be made to run sufficiently fast, it will subsequently be possible to trade off excess speed for superior translation routines. This approach should be contrasted with those used more conventionally for automatic translators, where the programs (in our experience) run slowly potentially limiting how many translation heuristics will be tolerated by the user.

Application of the principles of optimisation of program speed has resulted in an extraordinarily fast Latin translator, based on WAW's electronic Latin dictionary. The original word replacement routines (of Latin by English) were so fast that the program's translation speed depended on its rate of access to the computer's hard-drive and other system resources. Subsequently, as foretold, all of this 'wasted' speed (where the program has to wait to let other system resources catch up), and more besides, has been used to improve translation quality with increasingly complex heuristics. Even so, the current version of our translator can translate the nine million Latin words of our Latin Example Set (defined below) within three hours on a five-year-old 166 MHz PC. To take a specific example, the lengthy 'vita' of the emperor Aurelian by 'Vopiscus' (Augustan Histories) can be translated on the same computer in 17 seconds from a 'standing start', but requires only six seconds when the hard-drive file buffer already contains the file through having been loaded previously. We have named our translator 'Blitz Latin', to reflect its lightning speed.

◆ Blitz Latin's Translation Strategy.

Blitz Latin is sentence-based. That is, it carries out all its processing by reading in individual sentences and acting on each sentence in isolation. Some time is spent in advance on breaking the user's input into proper sentences, and saving the results to a temporary file which will later be used in place of the user's actual input file. Sentences are deemed to end with a full-stop, a colon, a semi-colon, a question mark or an exclamation.

Blitz Latin carries out automatic translation in several stages:

1. 'Load Text'. Delineation of sentences and sub-clauses. Intelligent tidying-up is done at this stage, checking for punctuation.
2. 'Parser'. Construction of tables for each word in a sentence. One original word may have several Latin stems (eg nouns, pronouns, verbs, adjectives) each with several inflections modifying the meanings. All the possible combinations are stored for each original word provided by the user.
3. 'Clear-out'. Removal of improbable words or meanings using grammatical principles.
4. 'AI-Select'. Use of AI heuristics to determine which surviving meanings for a word are the most probable. The most probable combination of stem and inflection is selected.
5. 'Elaborate'. Use of the best meaning from the best word's translation and its inflection. For example, a 2nd person future of the verb *amare* will be constructed as 'you will love'.
6. 'Polish'. Use of look-up tables to polish dis-jointed meanings as far as possible.
7. 'Best Order'. Analysis of the best polished meanings to improve the word order. This can make a big difference to comprehension of the final output.
8. 'Output'. Output of the polished translation to a file which is subsequently displayed on screen.

For an inflected language, it is evident that as many words should be translated as possible. Any unknown word results not only in the loss of the meaning of that word, but also a loss of context for neighbouring words. To take an example, if the Latin phrase is *urbs regis est pulchra*, we have the meaning 'the city of the king is beautiful'. If, however, the Latin phrase is *urbs regis [unknown] pulchra*, the meaning of the phrase alters significantly to give 'O beautiful city you rule [unknown]'.

Blitz Latin therefore makes every effort to assign words correctly.

Firstly the dictionary has been rendered case-sensitive, so that for

Secondly, syncope and many other substitutions (such as a leading *irr-* being changed to give *inr-*) are tested for words not found in the dictionary. Failing here, we look for a limited number of synthetic words, building, for example, the feminine noun *tralatio*, *tralationis* from a stem *tralat* and a suffix. We describe these substitutions generically as 'tricks'.

Thirdly, since tricks are expensive in computer time, Latin words that commonly are translated due to the use of tricks are identified and added to revisions of the dictionary, so that in future they may be called more cheaply. This has a big effect on program speed during trials!

Fourthly, in a handful of cases we have enough information to determine the declension type of a noun, but cannot find its translation in any dictionary. These words are still entered into the electronic dictionary, so that the translator may at least know the context in which the word is used, while the meaning is set equal to the stem written in upper-case characters. An example is the noun *appreciat.um*, *-i*, *nt*, whose meaning we assign as APPRECIAT.

Fifthly, any unknown words still remaining that also begin with a capital letter are assumed to be proper names and rules are applied to try to determine the correct inflection (and thence the gender and the declension, 1st, 2nd or 3rd). The rules are such that a neuter proper name noun can never be recognised. Thus the city *Mediolanum* would be wrongly attributed as the accusative case of the unknown proper name *Mediolanus*. The solution to this difficulty is simple, once identified. We add *Mediolanum* to the dictionary.

Sixthly, the user can add his own words to a user-defined dictionary, created as a simple text file.

◆ Blitz Latin's Dictionary.

There is an important difference between translations by a dictionary and those used by an automatic translator. The electronic Latin dictionary provides multiple meanings for a single word, many of them simple alternatives one for another. In other cases, the translations may vary quite dramatically. However, an automatic translator requires that only a single meaning be provided for a Latin stem. This required a technique to cut down the number of alternative meanings. In practice, we assumed that all single-word first-encountered meanings for any Latin stem were good. Some one thousand many-word first meanings were isolated automatically from the electronic dictionary and examined by eye, manually altering the meanings to be simpler. Multiple translations for a single Latin stem, separated by semi-colons, were made available to the user as selectable, alternative translations.

An example will make this clearer. For the translation of the Latin verb stems:

accend.o accend.ere accend.i accens.um

the alternative meanings are listed in the dictionary as:

*kindle, set on fire, light; illuminate; inflame, stir up, arouse;
make bright;*

The computer pre-processes these alternatives (before the user has access to the program) to the limited set of meanings:

kindle/illuminate/inflame/make bright

which can be picked by the user in editing mode. In normal translation mode, the program simply chooses the first, and most probable, alternative:

accendere = to kindle.

◆ Artificial Intelligence (AI-Selection).

Scoring heuristics with dynamic (variable) weightings pick the best Latin stem out of several alternatives for each original Latin word in a clause. If, after the initial examination of all the words in a clause, the translator discovers that there is a defect (for example, the clause has been assigned a nominative and an accusative noun, but no verb), the words are re-examined with new weightings. The context of the clause within its sentence is also considered.

Each re-examination of all the words in a clause requires a finite time,

and it is here that Blitz Latin's lightning speed confers a strong advantage over other automatic translators (for any language). Efficient design of the selection algorithms means nevertheless that the average number of examinations is well under two; frequently only one suffices.

◆ The Latin Example Set.

Two web-sites, found on the Internet at <http://patriot.net/~lillard/cp/latlib> ('Latin Library') and at http://www.fh-augsburg.de/~harsch/a_chron.html ('Augsburg'), together provide comprehensive coverage of virtually all the major classical Latin texts, and many more besides. Texts in the Example Set include all the major extant examples of such well-known Latin authors as Julius Caesar, Cicero, Horace, Livy, Ovid, Pliny (older and younger), St. Augustine, Suetonius, Tacitus, Vergil and many, many more besides, as well as a selection of medieval and post-medieval authors. The major legal codices and digests of Theodosius and Justinian are also included. The two web-sites contain a considerable degree of overlap which was, as far as practical, eliminated. There may remain some slight duplication where the two web-sites use different names for the texts of medieval authors.

Most of these Latin texts have apparently been scanned into computer files from books, a procedure well-known (to those who have to do it) to cause so-called scanning errors, where letters are not reproduced accurately. A common fault is for the letter 'i' to be represented as the letter 'l', and for either to appear as the numeral '1'. Thus scanned texts require very careful proof-reading for accuracy, and the quality of texts from, especially, the Latin Library is very uneven. However, corrupt texts provide very good tests of the error handling of Blitz Latin, so we have deliberately not corrected text errors even when (as sometimes happens) a complete paragraph of original text has been replaced by seemingly-random characters.

In addition, the Example Set includes some Latin texts scanned in by one of us from Latin books kept at the Joint Library of the Hellenic and Roman Societies in London, and also of Latin texts by 19th Century translators of some fragmentary Greek authors, such as Dexippus. To provide translations of these last-named Latin texts was the original purpose of the entire coding exercise.

To summarise briefly, our Example Set comprises the following:

- Classical Latin (to end of 5th Century AD): 5 million words;
- Theodosius/Justinian legal Latin: 1.7 million words;
- Vulgate Latin bible: 600,000 words;
- Medieval/post-medieval texts: 1.6 million words (possibly some duplication from texts listed with different names).
- Total: ca. 9 million Latin words.

◆ Operating Procedure for Blitz Latin.

The commercial version of Blitz Latin provides automatic grammar for, and translation of, single Latin words, sentences, paragraphs or complete Latin texts. The latter are usually, but not necessarily, provided in the form of computer text files of single chapters of ancient books; however, very long text files of complete books can also be translated.

For the purpose of examining Latin generally, for test purposes and the subject of this paper, a modified version of Blitz Latin was created which could process sequentially hundreds of files without user intervention. In addition, the test program could send to a file called 'fails' a complete list of all words which it could not find in the dictionary. The combined unknown words from hundreds of Latin files were sorted into alphabetical order, identical words combined and counted, and the resulting list sorted into declining numerical order. This automated process enabled the commonest unknown words to be found and added to the electronic dictionary. By constant repetition of this process, it became possible to whittle away the number of common unknown Latin words to the extent that we may now claim that Blitz Latin will translate any single Latin word (excepting proper names) that occurs more than 20 times in our 9-million-word Example Set. The great majority of words that occur fewer than 20 times in the Example Set will also be translated.

As one might expect, an automatic translator that has been used so often to digest so many words of such uncertain types in so many files from so many sources has become very robust indeed in use.

◆ Frequencies of Latin Stem Usage.

As well as the problem of a simple Latin stem having over-loaded meanings, it is also the case that there may be several identical stems using different inflections that also have different meanings. There may also occur identical Latin stems with different speech-types (eg noun or verb), although these can usually be readily differentiated by context in the sentence to be translated. Where irresolvable clashes do occur between Latin stems, Blitz Latin selects the stem that is listed as being more frequently used. The frequencies of use are ultimately derived from the number of times that stems are cited in standard dictionaries, although we have made manual changes in the light of experience. For example the stem *mult.* in practice virtually always has the meaning ADJ='much', rather than NOUN='penalty'.

Latin stems cited only once in the Oxford Latin Dictionary or Lewis and Short's Latin Dictionary, and which are spelled the same as more common Latin stems, will generally be marked as 'unknown' by Blitz Latin, even although they may appear in the electronic dictionary. Equally, words known only from Pliny's Natural History are ignored by the translator. The reason is a desire not to overburden the translation routines with too many improbable translation choices, while essential words can always be added to the user-file. Of course, it sometimes occurs that little-cited words are found very frequently in the list of 'unknown' words rejected by the translator. When this happens, we increase the citation frequency of the stem in the electronic dictionary.

Latin stems that are unique cannot confuse the translation routines, no matter how rarely they may be used. We found that incorporation of unique Latin stems cited only once in standard dictionaries into Blitz Latin increased the computer memory (RAM) requirement by some 10%, but reduced the number of 'unknown' Latin words rejected by only 1-2%. Many of these rare words had previously been picked up by the translator's tricks to synthesise words not found in the dictionary, and were therefore already 'known'.

II. Results from Blitz Latin Translations

Blitz Latin's ability to translate Latin has been examined carefully with various Latin texts. We must point out that, although the translator has been used to translate all the Latin words of our Example Set, and to make known to us all unknown words which it cannot translate in decreasing frequency of occurrence, it is not practical for us to examine thoroughly literally every text – that would take many years.

The most important result to us is also the result which may be stated most concisely: The latest versions of Blitz Latin translate the legal and fragmentary Latin texts for which it was originally created to a satisfactory degree of accuracy. That is, the sense is immediately apparent without the translator having been optimised specifically for these texts. It carries out these translations at lightning speed.

However, in the course of achieving this goal, a number of incidental, but interesting, observations were also made.

◆ A. The Super-Adjective.

As part of its translation strategy, Blitz Latin always tries to tie up nouns and pronouns with adjectives/participles that match for case, gender and plurality.

An unexpected development for Blitz Latin's translation routines, and thence for the electronic dictionary, was the need for a new speech-type which behaved like a pronoun, but declined like an adjective. While the substantive use of an adjective as a noun is already incorporated into the dictionary, certain pronoun-like adjectives are not so recognised. For internal computational reasons we give this new speech-type the designation SADJ (super-adjective), although only a handful have been identified so far. An example is the Latin stem *integri*, as in the phrase:

in integrum restitutionis...

Integer, *-ri* is defined in any Latin dictionary as an adjective. Yet certainly in the short phrase above the word is being used as a pronoun. Blitz Latin cannot make any sense of the above phrase if *integrum* is an adjective – what noun does it qualify? As a pronoun, or rather as a SADJ, the phrase is translated correctly. Other adjectives commonly encountered as SADJ include *-plerus*, *multus*, *alius*, *malus* and *qualis*.

The following phrase, taken from the Vulgate Bible, uses *domini* adjectively, and is therefore the reverse of the SADJ problem.

gratia Domini Iesu...

Blitz Latin is unable to distinguish the adjectival use of a noun, and therefore the translation becomes 'with the gratitude of Lord to Jesus...'. This translation is in fact legal.

◆ B. 3rd-Person Verbs and S/he/it.

At present, Blitz Latin seeks to assign 3rd-person singular verbs to their nominative-case nouns/pronouns/SADJ. If such nominatives cannot be found, the phrase 's/he/it' is supplied as the nominative pronoun.

As already remarked, Blitz Latin is sentence-based, but in trials we have made a large effort to 'remember' information from one sentence to another. Thus if *Gallienus* is mentioned in sentence one, 's/he/it' in sentence two might be assumed to apply to Gallienus. Unfortunately, things are not nearly so simple in real Latin texts. Consider these (imaginary) sentences:

1. Gallienus (masculine) and his dog (feminine) besieged Mediolanum (neuter).
2. S/he/it was surrounded by a large wall (masculine).
3. S/he/it was killed shortly afterwards.
4. Then s/he/it was demolished by the troops.

It is evident that sentence two above refers to Mediolanum (previously accusative case), sentence three to Gallienus (previously nominative) and sentence four to the wall (previously ablative). Why is it evident? Because the alternatives make no sense to humans with their wide general knowledge. But an automatic translator lacks this knowledge and is unable to make the assignments correctly. To say that she (the dog) was surrounded by a large wall would be a perfectly legal rendition. As programmers, we cannot generalise that 's/he/it' always refers to the last nominative noun mentioned, nor to the last accusative noun, nor to the last proper name. Indeed, we know of no grammatical rule that would fit the examples cited above.

Similarly, the adjective *su.us* has to be translated as 'his/her/its/their'.

C. Gerunds and Gerundives.

The gerund and gerundive of a verb are grammatically defined as future passive past participles. However, a translation of *amandus* as 'will be loved' would probably not be accepted by most Latin readers. The Collins Latin Dictionary Plus Grammar (3) provides a number of examples of gerunds and gerundives with suitable translations that show no consistent pattern which can be used mindlessly by a computer program. We have experimented with *amandus* = 'soon loved' and *amandus* = 'to be loved' (in the sense of 'requiring to be loved'). Neither alternative is particularly satisfactory, but both will fit the Collins examples with some stretch of the imagination.

◆ D. Ambiguity of Translations.

We have already seen that many Latin stems are 'over-loaded' with meanings. Unfortunately, the solution provided by the electronic dictionary, viz. provision of tags to indicate in which field or area the stem applies, proves to be inadequate. An example illustrates the reason. In an historical text, the narrator (Zonaras, via a 19th Century Greek-to-Latin translator) suddenly begins a new paragraph:

Recusantem apud Aurelianum, qui tum imperabat, detulerunt orthodoxi: qui cum decreto iis ecclesiam attribui iussisset quibus Romani et Italici episcopi suffragarentur, Paulo per ignominiam pulso Domnus successit.

Recusantem can be translated as 'rejecting' or, in law, as 'pleading'. It is again evident to the human reader, with his wide general knowledge, that 'rejecting' is nonsense, while 'pleading' is good. Yet how is an automatic translator to know this? The phrase has popped up unexpectedly in an historical text; thus the user will not have set an option to indicate a legal translation. Moreover, there are no obvious legal key words in the paragraph to alert the program automatically to change the subject matter. It will be a long time indeed before any automatic Latin translator of general applicability can provide the correct meaning here for *recusantem*. It is for this reason that Blitz Latin provides an editing mode, so that the user can make his own amendments manually.

◆ E. Legal Codices and Digests.

The legal codices and digests of the emperors Theodosius and Justinian in our Example Set pose a particular problem to an automatic translator, beyond the trivial fact that legal texts in any language tend to be difficult to read. Unlike the usual practice in edited Latin texts, all the proper names have lower-case initial letters. This means that Blitz Latin repeatedly regards words such as 'theodosius' and 'iustinianus' as unknown, and its list of reported failures to find the meaning of a word is by far the longest for these legal texts.

'Unknown' emperors are easy to spot in the list of un-translated words, but their co-consuls are not so readily distinguished. One particularly confusing name (to us) was the word *abundantio*, which proved to be a consul's name. A partial solution to this irritating problem is to supply a list of lower-case emperors and consuls in the optional user-file of dictionary words.

Another general problem of Latin translation, neatly exemplified in the Justinian Digest, occurs when the Latin scribe decides that a word should not be conjugated/declined conventionally. Whereas the verb *adire* is usually reported in Latin dictionaries as *adeo, -ire, -ivi, -itum*, the writers of the Digest prefer to assume the first conjugation, as in *adeatur*. Similarly, *abeatur* (from *abeo, -ire*) is favoured. Other examples are more commonly found in medieval Latin, eg *contempnere* as the infinitive form of *contemno, -nere, -psi, -ptum*.

◆ F. Plautus.

Latin was spoken colloquially as well as being immortalised in classic writings and stone inscriptions. Echoes of the way the ordinary Romans actually spoke Latin can be found in their printed plays, such as those of Plautus (ca. 250-184 BC). A particular feature of Plautus' Latin is his habit of eliding a 'word' followed by 'est' to give 'wordst'; for example, *factum + est = factumst*. Less regular are words ending in -s, such as *opus + est = opust*. The early writer Terence (born ca. 170 BC) made similar elisions in works such as *Hecyra*, and furthermore truncated words ending in -is, -os and -us to give respectively -i', -o' and -u'. A good example from Terence is the short phrase: *agendi tempu' mihi datumst*.

Blitz Latin now provides a user-selectable option for Plautus-like words ending in '-xst'. The option converts all endings where 'x' is equal to 'm, a, i, o' to give '-x' + 'est', and endings where 'x' is equal to 'u' are converted to '-xs' + 'est'. The Latin words *post* and *ast* are not altered. This heuristic is quite successful and very fast at resolving the 'Plautus-problem', although inevitably some words are mishandled. In particular, elisions with words ending in '-e', such as *facilest*, are not handled at all in order to avoid difficult decisions about whether the word is a verb ending in '-est'. Since the alternative is not to translate these words at all, the result must be accounted beneficial to the user. The modification also tackles the Terence ending of -x'.

◆ G. Medieval Latin.

When the Roman world dissolved, the Latin tongue slowly disintegrated into local pseudo-Latin dialects that would eventually become the Romance languages of French, Spanish and Italian. Standing aloof was the former colony of Britannia, now the Land of Angles, where an Anglo-Saxon tongue was spoken. The result was that 'English Latin' was not

barbarised and was later re-seeded into continental Europe by English monks.

In the meantime, medieval monks in mainland Europe were all writing their own dialects of local Latin in a confusing medley of words, many of which were being invented. New terms were used to describe the theory and practice of music; writers such as Boemus used a whole lexicon of new Greek-based nouns, such as *parhypaton*, *lichanos*, *diatessaron* and *diapente*. Christian terms superceded the earlier pagan meanings for many Latin religious words.

These jumbled medieval texts pose a severe problem to any automatic translator of Latin. At the heart lies the vexed philosophical question of the extent to which any translator should be expected to deal with idiosyncracies, whether as extensions to the grammar or as additions to the dictionary. As usual, Blitz Latin takes a pragmatic approach, adopting the most common new words and introducing medieval 'tricks', such as the replacement of an internal -ci- syllable with -ti-. Even so, medieval texts contain proportionately far more words 'unknown' to the translator's dictionary than classical texts.

A nice example of the difficulties of medieval translation can be found in the 'Magna Carta', the celebrated Latin text curtailing the king's powers reluctantly signed by King John in 1215 at Runnymede, England. The barons of the land are addressed, in formal phrases ranking them with other high-ranking secular and ecclesiastical officials, as *barones*. Any Latin dictionary gives *baro, baronis*, fem, as 'blockhead' or 'dunce', with no alternatives. We must assume that those who drafted the Magna Carta were ignorant of the conventional usage, or they would hardly have allowed the use of a word with such a pejorative alternative meaning for their noble barons.

◆ H. Albertanus of Brescia (13th Century AD)

Another curious example of medieval Latin occurs with the texts attributed to sermons by Albertanus. The Latin Library and the Augsburg web-sites together contain some 11 unique texts attributed to this author. In eight of these texts, the inflection -ae on feminine nouns and adjectives has been reduced to -e. Common examples include *sapientie, divitie, persone, scientie, tue* and *ecclesie*. This reduction to -e is also found in a very few other medieval texts, including the contemporary Magna Carta. In the remaining three Albertanus texts, the feminine inflection remains as -ae.

What are we to make of this? Either Albertanus did not write some of the texts attributed to him (the authorship of better known ancient texts has been disputed on far flimsier grounds) or, more probably, scribes with different ideas about grammar copied the original sermons. Use of another computer program 'Counter' (JFW), to analyse the texts according to the techniques described by Marriott (4), gives the following results:

| Albertanus | No. words | No. sentences. | Mean words/sentence | Std Devtn. |
|-----------------------------------|-----------|----------------|---------------------|------------|
| <i>Texts with -e inflection:</i> | | | | |
| De Amore (4 texts) | 37123 | 3069 | 12.1 | 7.4 |
| Brescia Sermon1 | 2819 | 252 | 11.2 | 7.5 |
| Brescia Sermon2 | 3063 | 290 | 10.6 | 7.6 |
| Brescia Sermon3 | 3347 | 389 | 8.6 | 6.0 |
| Brescia Sermon4 | 1594 | 169 | 9.4 | 8.8 |
| <i>Texts with -ae inflection:</i> | | | | |
| Genoa Sermon | 2475 | 182 | 13.6 | 10.1 |
| Consol. et Cons. | 18741 | 1559 | 12.0 | 10.1 |
| Ars loqu. et Tac. | 5665 | 629 | 9.0 | 6.7 |

The range of differences is not statistically significant, and the mean words per sentence lie within quite a narrow range, compare similar results for contemporary medieval writers:

| | | | | |
|----------------|-------|------|-----|------|
| Biella Records | 24611 | 2808 | 8.6 | 11.0 |
| Carmina Burana | 53638 | 7341 | 7.4 | 6.5 |

Modification of Blitz Latin so that it would pick up the inflection –e as a feminine noun/adjective alternative to –ae resulted unfortunately in a small number of masculine unknown proper names of the 2nd declension (vocative case) also being attributed an –ae inflection and made thereby into feminine proper names. This modification was therefore initially abandoned, but has been re-introduced, with new code, for the version of Blitz Latin used for this paper.

◆ I. Tricks are Expensive.

Every time that a Latin stem cannot be found in the dictionary, tricks are used to modify the original Latin word (stem and inflection) to see if the word can be found with a fresh search of the dictionary. We soon discovered that the application of tricks indiscriminately to a Latin word results in repeated, fruitless searching of implausible letter combinations. This was particularly the case with medieval words with their countless spellings and mis-spellings. As a result, tricks are now severely limited to four categories. Each category is called only if a match has not already been found in the dictionary, and then only once. The categories are ordered by efficiency of search and likelihood of a success being found. In turn Blitz Latin searches: syncope forms, first character replacements (eg –inr to –irr) and synthetic word creations (eg *tralat* from *tralat* + ending, *superstruo* from *super* + *struo*). Replacements within each of these categories are in turn ordered in decreasing probability that they will be used. (Optional) medieval internal replacements (eg –e- to –ae-) are searched more vigorously.

The result is a very fast system of re-searching the most likely modifications to Latin words, but inevitably a lot of words are missed. For example, the word *ecclesi.e*, with its ‘Albertanus inflection’, is not re-examined as *ecclesi.ae* (as it should be), but as *aecclesi.e* and *ecclaei.e*, which remain unknown words. Note that a rigorous search would require examination of every combination of *e/ae-ccl-e/ae-si-e/ae*, a total of eight searches in the worst case. The latest version of Blitz Latin however recognises the Albertanus inflection of *ecclesi.e*, and thus can translate the word.

◆ J. Music in Latin.

The University of Indiana (USA) hosts the TML project for documenting the origin of music in Latin texts (<http://www.music.indiana.edu/tml/>). The number of such texts explodes exponentially in late medieval times; therefore our Example Music Set comprises 189 files/1.1 million words downloaded from the web-site for the 3rd-11th Centuries AD. The most common Latin words hitherto unknown have been added to the electronic dictionary, although we have been plagued by alternative medieval spellings. To take just one example, the word listed in Lewis and Short’s Latin Dictionary as *synemmenon* is variously spelled as *synnemmenon*, *synemenon*, *sinemenon* and *sinemmenon*. To take another example, *hypaton* also occurs as *ypton* and *hipaton*. It is not, then, surprising that there are many words that we cannot find in standard dictionaries at all, and for this reason (and because we do not wish to turn our electronic dictionary into an encyclopaedia of mis-spellings of Latin music terms), that we have allowed the higher limit of 50 occurrences of any one unknown word from all music files, compared with the limit of 20 occurrences from classical Latin texts.

◆ K. Inscriptions.

Blitz Latin will make an attempt to translate Latin inscriptions, after the user sets a special option. The translator cannot render the raw inscription, but requires interpreted texts, such as those supplied by Frankfurt University (Germany, <http://www.rz.uni-frankfurt.de/~clauss/indexe.html>). An example is given below.

IRT 953.

*Imp(erator) Cae(s)ar L(ucius) D(o)mit(ius) Aure(lianus) Inv(ictus) P(ius)
F(elix) A(ug(ustus) pontif(ex) max(imus) tri(b(unicia) pot(estate)
II / mil(iarium) / C[*

The user option simply tells the translator to disregard all non-alpha text so that brackets, forward slashes and the like are ignored. Translation quality is mixed (the translator is confused by the lack of verbs in inscriptions), and no attempt has been made to test the translator on all of Frankfurt’s thousands of inscriptions.

◆ L. Encapsulated Phrases.

Latin writers are very fond of phrases encapsulated between a noun and a participle or preposition, matched for case. Examples:

1. *Gallieno Mediolanum adhuc obsidente...*

2. *...contra Christi cultores....*

Blitz Latin seeks to tie together the matching speech-types in such phrases. While generally successful, there appears to be no satisfactory rule for ordering the resulting translation into English. Thus, in example 1, we could say ‘with Gallienus at Mediolanum hitherto besieging...’, or ‘with Gallienus besieging at Mediolanum hitherto...’. Either would be intelligible. Unfortunately there exist cases where one or other of the word-ordering alternatives makes the sentence confusing.

With text exemplified by sentence 2, Blitz Latin will usually invert the word order, from ‘against of Christ the inhabitants...’ to ‘against the inhabitants of Christ...’.

◆ M. Repetition of Latin Words.

Common sense suggests that, if Blitz Latin encounters a phrase such as *rex amat reginam*, it is quite likely to encounter *rex* and *regina(m)* again. Nouns, in particular, tend to be re-used in the following sentences. It is a pity to compute a complete word table for Blitz Latin each time that a word such as *rex* is encountered. It might be faster just to store the original table and re-use it whenever *rex* occurs again.

In practice this idea of re-using tables does not work so well as it might, partly because Latin tends to use a lot of nouns so that very large storage tables are required and partly because the indexing into the electronic dictionary is already very fast so that the benefit for words found at once in the dictionary is comparatively small. There remain two circumstances when the storage of word tables is beneficial:

1. For use with proper names.

2. For use with ‘unknown’ words, which especially would otherwise have been fruitlessly examined and re-examined repeatedly before final rejection.

The latest version of Blitz Latin implements these ideas via a fast hashing system which always holds a selection only of the latest entries encountered. Note that re-use of pre-calculated information has no effect on the final translation, only on the speed with which the translation is acquired.

A real and lasting benefit is seen from the re-use of tables from proper names. Time savings over hundreds of Latin files in our ‘Example Set’ and ‘Example Music Set’ average 7%, well worth the programming effort. However, the only files that benefit significantly from the saving of information about unknown words are those that constitute Justinian’s Codex and those of the ‘Example Music Set’. In the case of the Codex, fast recall of abbreviations (eg *quaest.*), sentence numbering (eg *[aa]*), and lower-case proper names not picked up by the normal mechanism for proper names beginning with an upper-case letter (eg *abundantio*), results in a time saving of some 2.5%. For the music files, with the introduction of new terms and consistent mis-spelling of existing words, all of which recur repeatedly in neighbouring paragraphs or sentences, there is also a time saving of some 2.4%. Time savings on other files, including those of Justinian’s Digest, are generally negligible, although medieval files occasionally show some slight benefit.

These results are significant. It appears that proper names are used frequently once encountered, and thus remembering the result is beneficial. Unknown words generally are not re-encountered, or are prematurely replaced by other unknown words – despite a maximum storage of 512 different entries before replacement must occur and an average final occupancy per file of only 20-25% of the storage table. The net result is a

meaningful benefit for those texts that make much use of proper names, while requiring a storage hash-table of some 50 Kbytes (for comparison, general data and tables used by the program occupy nearly 3 Mbytes of computer memory).

III. Conclusions

The creation of a perfect Latin to English translation tool requires a better understanding of the context in which Latin words are used. We have addressed this in Blitz Latin by:

1. Ensuring that as many Latin words as possible are in the electronic dictionary, or are accessible through tricks.
2. Trying to assign a category for words in the dictionary from which their usage may be deduced (inscriptions, frequency of use, context, age, area). Unfortunately this modification has proved to be largely unsuccessful for real Latin sentences.
3. Refining of the sentence-context algorithms for each word.

We have created a very fast automatic translator that successfully translates 'unknown' Latin text into English. Although we believe that further incremental improvements are still possible, especially from item 3 above, and perhaps by changes to the indexing of the electronic dictionary (which would be a massive undertaking), it is clear that major advances to the translator's ability must come from giving it a better understanding of wider knowledge.

The most promising line of research at present for conferring knowledge on a computer program is that known as a 'neural network'. The principle (in the context of a Latin translator) would be that groups of sentences containing just one 'over-loaded' Latin word are examined by human Latin experts and the correct meaning of the over-loaded word is assigned for each sentence. The sentences are then examined in the neural network computer program to determine whether different patterns of usage emerge for each separate meaning of the over-loaded Latin word. For example, it might occur that a legal meaning is always assigned to the word in the presence of a local noun with an ablative case, or a military meaning in the presence of a local pronoun/adjective combination with a genitive case. This knowledge is then used to apply context to the same Latin word in sentences that were not part of the original examined set.

While these occurrences, or contexts, may appear to be deeply implausible, or beyond reasonable explanation, it is surprising what unexpected patterns that neural networks can sometimes turn up, and probabilities of their dependability can also be statistically calculated. The neural network approach to supplying context for Latin words would require a huge labour, quite beyond the capabilities of the present authors

who have other responsibilities beyond Blitz Latin. We suggest however that examination of just 10-20 over-loaded Latin words in a neural network might make a potentially interesting three-year research project for a Latin student.

Finally, we point up the largest difficulty of all that remains to be overcome, with the example (5) below:

Aurelianus...rogavit quo pacto imperandum esset.

This may be translated literally as 'Aurelian ...has asked by which manner it might be ruled.' Blitz Latin's translation is 'Aurelian ...has asked with which bargain might be soon commanded.' The phrase could be better expressed as 'Aurelian...asked how he should rule.' Clearly, the inelegant effort of Blitz Latin is actually pretty good, but there is a big step of imagination required to reach the polished version.

We used a modified version of Blitz Latin 1.38 for our experiment. The current commercial version is 1.37, with most of the functionality of 1.38. A free trial version can be downloaded from <http://www.software-partners.co.uk>. The Joint Library of the Hellenic and Roman Societies at the Senate House, Malet Street, London, currently has an unrestricted copy of version 1.37 for readers' convenience. The WORDS electronic Latin dictionary version 1.97 (augmented in Blitz Latin) can be downloaded free from <http://www.erols.com/whitaker/words.htm>.

IV. References

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NOTE:

Blitz Latin has moved on a little since this article. The brand-new version 1.41 is, in the most literal sense, "bigger (in dictionary size), better (in translation) and faster", as well as now possessing powerful text-searching facilities. Blitz Latin is distributed by the independent retailers Software Partners (<http://www.software-partners.co.uk>).

The Cutting Edge of Classics: Debates & Dilemmas LTSN

This article contains four pieces which have been written by people involved in the teaching of Classics in Great Britain and Ireland. Its objective is to provide a forum to air views and highlight debates about the future priorities and developments of Classics teaching at university. Classics is here used generically to describe the range of subject types which are offered by departments and not just the teaching of the classical languages.

The idea for the piece came out of a meeting of the Advisory Panel for Classics in the Learning and Teaching Support Network (LTSN) which discussed various aspects of concern to the subject. Two members of the Panel agreed to contribute and several others were subsequently approached. The contributors are, in the order their contribution appears hereafter, Trevor Dean and Charlotte Behr (University of Surrey Roehampton), Bob Lister (Faculty of Education, University of Cambridge), Noreen Humble (University College Cork), and Vanda Zajko

(University of Bristol).¹ It must be noted at the outset that the opinions expressed in each section are those of its author alone. The article has not been conceived as a tightly choreographed piece to push a particular agenda or theme. Its aim is to promote debate on key issues. It hardly needs restating, but the teaching environment of Classics at universities has changed. While Classical Studies and Civilisation courses were introduced with great success to counteract the effects of ever decreasing numbers studying classical languages at school and in Classics departments, the position of the language teaching still remains precarious as ever. Its position and its relationship with other aspects of classical study opens a plethora of questions, problems and dilemmas. The subsequent article merely touches on some of the issues involved. Nevertheless, questions about the future development of the curriculum of Classics teaching at university and the interaction between its various elements are very pressing.

1. Student Demand: Increasing Classical Provision in HE²

The new programme in Classical Civilisation at University of Surrey Roehampton took its first intake of students in September 2001 (Combined Hons only, as yet). Though not a 'new' university in the sense of being an ex-polytechnic, Roehampton has only recently received its university title. In terms of its subject mix and its good reputation for research in the humanities, Roehampton does not quite fit the stereotype of a 'new' university. Our reasons for setting up a Classical Civilisation degree were threefold. First, we knew from our experience of teaching some classical history within the History BA that interest in the classical world could be aroused – beyond our resources to satisfy it – among History students, who usually have little or no previous experience of it. Secondly, we could also see, looking across other programmes in the University and at University of Surrey at Guildford, that there were a number of staff with teaching interests that included some aspect of the ancient world. Thirdly, we noticed that there were few possibilities of studying Classics at any of the new universities in UK. We assume that this fact narrows participation in terms of the students' school origins, parental background and ethnic identity. So widening participation was certainly one of the intentions with which we approached the creation of a Classical Civilisation degree, and this is reflected in our entry requirements: A-Level in Classical Studies, Ancient History, Latin or Greek preferable but not essential.

It is probably too early to report on how successful we have been in widening participation. Our first cohort of students was recruited through clearing: so, by definition, they were already intending to study something somewhere. Nevertheless, we would like to feel that the first cohort has widened participation in Classics, if not in HE: it contains several mature students and some from ethnic minorities. And we are confident that Classical Civilisation can be a good vehicle for including groups in society that were previously not considering HE as an option. It offers good opportunities to explore issues of current concern in contemporary Britain: issues of integration and confrontation of different cultures in society, changing notions of identity, changing values in many areas of social life. The relation between past and present forms an important part of the curriculum design and will be explored in a variety of ways, such as political philosophy and film studies.

What we can say is that, at the end of the first year, nearly all of our first intake would like to transfer to Single Honours in Classical Civilisation – something that we currently cannot deliver! How do we explain this? We believe the design of our curriculum might offer an answer. From the outset, the curriculum was made up of multi- and interdisciplinary elements. The multidisciplinary comes from existing modules in History, Philosophy, Anthropology, Archaeology, English, Drama and Religious Studies. The interdisciplinarity comes from specific, new modules or attachments to existing ones. We believe that this structure allows students from a variety of backgrounds – often not having been exposed to the classical world before – to use their previous experiences in modern literature, drama or history to find an entry into that world.

Two other aspects of the curriculum design may also offer explanation for good retention of students: ancient languages and work placements. We took seriously the Benchmarking Statement's recommendation that there should be opportunities at each level to start an ancient language. Existing classes in New Testament Greek (for Theology students) were refocused, and new classes in Latin were started and opened up to History students and outsiders. Half the Classical Civilisation students started Greek (though less than half is continuing with it); and the other half intends to start Latin in the second year. In other words, for half of our students, an interest in learning an ancient language is aroused only during the course of the first year. So having an *ab initio* entry point in year 2 is vital. Secondly, the inclusion of a work placement has proved surprisingly popular: it perhaps attracts by allowing students to relate their studies directly to activities outside academe.

Finally, some thoughts on possible future developments. As an institution, Roehampton developed out of the union of four teacher-training colleges. Though most of its students are now outside the Education

Faculty, it retains a strong tradition in teacher-training. A good number of our graduates in the humanities go on to do the PGCE, either here or in other universities. We are aware that there are very few PGCE courses in Classics in the country, and that there are concerns in the Classics community about renewal of the subject and its teachers at the school level. This conjunction would seem to suggest an opening that we might well be able to explore.

2. The decline of Latin in maintained schools: implications for Higher Education³

Over the last 25 years there has been a clear shift in the nature of university Classics courses, with the emphasis less on mastery of the classical languages and more on the history and culture of the ancient world (though *ab initio* language courses are available for students wishing to start Latin and Greek at university). This shift has in part been forced on universities by the sharp decline in numbers taking Latin and Greek A level: between 1965 and 1995 Latin entries fell from 7,901 to 1,625, and Greek entries from 1,322 to 283.

A closer look at Latin entries between 1990 and 2000 reveals a worrying pattern in the statistics. During that period A level Latin entries fell from 1921 to 1540 candidates, a drop of nearly 20 percent.⁴ The drop has been uneven across different school types: 17.3 percent in independent schools, 37.3 percent in grammar schools and 69.5 percent in comprehensive schools (which provided only 90 candidates in 2000). A level Greek entries for the same period are even more stark, with an overall fall of more than 40 percent – even the independent school entry fell by 35 percent – and only 5 entries from comprehensive schools, and 11 from grammar schools, in 2000.

It is not difficult to identify the main reasons for this decline. Since the introduction of the National Curriculum under the 1988 Education Reform Act the compulsory curriculum has filled almost all of the timetable at Key Stage 3 (pupils aged 11-14). As a result it is now the norm for Latin to be offered as a three year course to GCSE, often limited to one lesson a week in year 9 (and that is likely to be off timetable). That in turn makes it hard to recruit sufficient pupils to run a GCSE class. When they do have sufficient numbers, because of shortage of time and because Latin is substantially more difficult than any modern language GCSE, it is very hard for pupils to achieve the A or A* grades that they, their parents and the school expect, and this then puts them off choosing the subject for AS level. Furthermore many schools are unable to fund small groups at AS level (10 is not an uncommon minimum class size), making Latin no longer viable in almost all maintained schools (how many independent schools regularly have more than 10 pupils taking A level Latin?).

The A level entry figures confirm what every Classics lecturer involved in admissions knows, that there is a diminishing pool of UK students eligible to take undergraduate courses which assume significant knowledge of the classical languages. Secondly, this pool is becoming increasingly unrepresentative of the school population: in simple terms, access to courses dependent on prior knowledge of the classical languages is becoming restricted almost entirely to pupils attending fee-paying schools and selective state schools.

No classicist can be comfortable with such a situation, particularly at a time when the government is pressing for much greater participation in higher education by students from disadvantaged communities. In a recent interview with the Guardian newspaper,⁵ Margaret Hodge, the minister for higher education, said that she had never come across a part of the public sector that was "so strongly influenced by class", and she made it clear that universities needed to be much more proactive in redressing the balance: "they've got to be rather more innovative about who they recruit; it's a matter of really hunting out the brightest kids."

Many universities already have flourishing programmes to help forge links with local schools. In Leeds, for instance, Classics students go out into primary schools and teach Latin using *Minimus*; in Cambridge, PGCE students can act as e-tutors on the Cambridge Online Latin Project,⁶ which enables schools with no classics specialist to offer Latin using the *Cambridge Latin Course* and a supporting web site.

But effective recruitment depends not only on reaching out to new learners in communities with little or no exposure to Latin in school, but also on providing stimulating and rewarding introductory Latin courses to attract, and retain, healthy numbers through to degree level. Although David Raeburn did a great deal in the mid 1990s to stimulate discussion about *ab initio* language teaching, little has been done to build on the questionnaire carried out by CUCD in 1995, whose findings highlighted the wide variation in courses currently available.⁷ While there was some consensus on course aims – when respondents were invited to rank a number of possible aims for an elementary introduction to a classical language (with five suggested aims printed on the questionnaire), introducing students to literary texts and/or other documents in the original was ranked a clear first – every sort of text book, from *Kennedy's Latin Primer* to *Reading Latin*, was being used (though Kennedy hardly counts as a text book). The evidence suggested that too many *ab initio* courses were being taught to classes too large for effective language learning, using text books likely to overwhelm the students with grammatical terminology rather than enable them to read Latin in the original.⁸

It is not in the interests of the Classics community to have a diminishing pool of students, from a narrow social background, from which to draw its future researchers.⁹ With the position of Classics in maintained schools now so critical, university Classics departments need to make a concerted effort to increase the number of *ab initio* language students who complete their undergraduate studies with sufficient competence in Latin (and/or Greek) to be confident independent readers of texts in the original. A sensible first step would be to establish an accredited training programme for all *ab initio* language teachers: this could provide both an overview of available resources and an opportunity to explore the wide range of teaching styles needed to meet the diverse needs of the wide range of students one would hope to attract.¹⁰

3. Fast Track Language Learning in Latin and Greek¹¹

It is well acknowledged that Classics departments are faced with decreasing numbers of students entering University with knowledge of Latin and/or Ancient Greek. The task of trying to bring students up to scratch in one or both of the languages in a three-year undergraduate degree is problematic enough, but there is the additional and more troublesome issue of what to do with students who wish to do graduate work in Classics, Ancient History or Archaeology but whose knowledge of the languages is minimal or non-existent.¹² There are no easy solutions and certainly no short cuts but intensive language courses have been shown to be remarkably effective.

Intensive Latin and Greek courses were first developed in the USA and were based on techniques pioneered at the Monterey Language School by the US army for teaching its soldiers the languages of countries in which they were going to be based. Research done by the military showed that five hours a day for ten weeks was the optimal set up which provided the greatest retention levels.¹³ The University of Berkeley, California was the first to apply the principle to Greek and Latin and a number of similar courses now exist in North America. Total and intense immersion has proved very successful. At Cork we have set up the first European version of this model. At present the constraints of our own university system and the pressure on teaching resources mean that we can run the course for only eight weeks and with fewer classroom hours (though we are increasing these to four hours a day next year).¹⁴ Six weeks are spent completing *Reading Latin* and *Reading Greek* and a further two weeks in reading a text and learning about all the tools available for use in this activity. We have found that under these conditions the grammatical foundation of the languages is well retained but, as might be expected, vocabulary retention is not as high unless the students are able to follow up the course with more formal training.

For courses of this type to work most effectively, the support of those who can benefit from it is essential. While our course itself is successful, it is being used to advantage more by students outside Classics than inside. Yet the lack of acquisition of Latin and Greek is a recognisable problem

in UK Classics departments. There is a need for various provisions to be put in place to help students who must acquire extra language training to reach the graduate level. First, there must be a positive and open attitude to the method of teaching the languages – it has been proven to work; and active encouragement must be given to students who wish to avail themselves of it. Secondly, intensive courses do not come cheaply and if a student has to devote a summer to them they are not only paying for the course but also giving up the opportunity to make money at the same time. Some provision must be made at some level to provide sources of funding to ease the financial burden on students who are in need of an intensive course.¹⁵ Thirdly, the pressure now put on students to finish graduate work in three years if they are receiving funding from the Arts and Humanities Research Board (AHRB), for example, is unacceptable if they are already under pressure to learn one of the languages first. Nor should they be denied funding from such bodies if their need to learn a language would inhibit finishing within three years. Fourthly, there should be some provision made by Classics departments to encourage and provide opportunities for students returning from intensive courses to continue some sort of formal or guided training. Graduate reading classes would benefit not only students coming from an intensive course but also students who start languages only at the BA level.¹⁶ And it is important to remember that the problem of students lacking training in the languages is not one exclusive to Classics. Such classes could be made available also to students in other disciplines looking for a way to keep up formal training after an intensive course.¹⁷ Finally, the Summer School is an ideal training ground for graduate students with an aptitude and enthusiasm for languages. Teaching to get formal and valuable experience teaching Latin and Greek (and indeed thus improving their own understanding of the languages)

There is no reason why students starting the languages late cannot attain mastery of them but they need encouragement and real support at all levels.

4. The Rhetoric of Symbiosis: Teaching and Research in the Contemporary Academy¹⁸

We are all familiar with the rhetoric of symbiosis that assures subject review teams, university quality assurance committees and potential students of the intimate relationship between our teaching and research. It has become a commonplace that each area of our practice is enhanced by involvement with the other and we assert this with confidence in our public documents. We also use it as an argument for continuing to employ people in universities who are skilled in the two areas and for promoting people on the basis of their excellence in both. Within our institutions however, it is often the case that far from existing in a state of creative inter-dependency, teaching and research compete in a way that enforces the development of a hierarchy between them. People become categorised as either good teachers or prolific researchers and the latter grouping, in practice, is valued more highly. This can cause demoralisation among those who feel that genuine pre-eminence in teaching is not rewarded sufficiently and it can lead to a culture of complaint wherein anything which distracts attention from an individual's own work is regarded as a nuisance. It may have a particularly pernicious effect on those entering the profession who are likely to be encouraged to prioritise publication at the expense of all else and who will have known nothing other than an academy driven by output.

The hierarchy that has developed can be demonstrated by the differing attitudes within the academy to the Research Assessment Exercise (RAE) and the Teaching Quality Assessments (TQA or 'Subject Review'). The former is for the most part tolerated as a necessary evil that does its job adequately in an imperfect world, whereas the latter is almost without exception viewed as ideology-driven and coercive to an unacceptable degree. At a time when the future of both of these institutions is unclear it is worth challenging our complacency in attitude to both of them. There are certainly huge problems with the Subject Review, not least the lack of an appeals procedure once a judgement has been made. But we can also criticise the RAE for its homogenising impact upon our intellectual life

and for its imposition of the criteria by means of which our work is valued. My point here is not simply that there are significant flaws in both the RAE and the Subject Review nor is it that each process cannot help but enforce a particular ideological agenda. It is rather that our higher degree of tolerance towards the RAE reflects a collective attitude that research is what we as academics do and research is what we should be judged by. Our teaching practices, in comparison, are lower down on our list of priorities and we resent to a much greater degree the time we have to spend preparing for their evaluation.

There are practical ways in which teaching and research operate in competition with one another rather than in harmony. Everyone now is encouraged to apply for research grants in order that their department can buy in teaching to replace them whilst they complete their projects. It increases a department's prestige if it receives a number of AHRB or Leverhulme grants in any given period and receipt of these awards contributes towards its rating in the RAE. The process of completing the paperwork involved in such applications is intensely time-consuming but practice is making perfect and many institutions now employ professionals to help academics in this area. But if a grant application is successful it has an obvious effect on the teaching in the department.

Anyone who has been involved in the planning of a teaching programme will be familiar with the difficulties involved in replacing members of staff at very short notice and in ensuring coverage and coherence for the year ahead. Here, as so often, the demands of the two areas are in conflict: in terms of quality assurance it is important that our curricula are designed with a combination of core and optional units whose rationale can be clearly explained and that students are provided with any information they need in plenty of time to make their choices; in practice too often these days, because of a research strategy that depends upon individuals soliciting funding from external bodies, departments are unsure who will be doing their teaching until the very last minute and the units which are offered have more to do with who is available to teach them than with the requirements of the curriculum. This may be a source of resentment in departments both amongst students and amongst the staff who must continue to ensure delivery of the programme whilst their colleagues are on leave. But it is a lack of a consistent strategy at the highest level that is to blame here. We cannot criticise those who have been encouraged to apply for research grants for being successful at obtaining them.

It is not only traditional research projects that take people out of the mainstream of departmental life. There is more money in the system than ever before to free people up to take on teaching-related projects and many universities and the LTSN are actively promoting the use of their funds for this purpose. The fact remains, however, that the competition for teaching and learning grants is conspicuously less than for research grants and that young academics are much less likely to apply for them if they are thinking in terms of advancing their careers. There is only a limited amount of time available and it is clear that at the moment research publication is the route that leads to the quickest success. But it is not clear quite where the profession thinks it is heading if its investment in the future consists solely in training researchers. There are very few research-only posts and we are all highly aware that our survival in the institutions of the academy depends on our ability to communicate the fascination and significance of classics to a wider world. We must continue to inspire people with our teaching or our subject will die. In this regard the opposition between teaching and research can only damage our interests as a community. At national level in terms of funding strategy, at institutional level in terms of planning and promotion policies, and in the classroom in terms of the way we devise and deliver our units, symbiosis must not be allowed to remain an otiose trope. In order to resist effectively the lazy formulae of the QAA's 'best practice' and to ensure that our thinking is continually challenged and renewed we must rediscover its vitality: teaching and research can and should mutually enhance each other. We should be thinking about how we can re-organise in order to manage this relationship more creatively.

Concluding Note

As the preparation of this article was entering its final stages, it was announced that The Queen's University of Belfast had voted to close its Classics Department. This perverse decision, which leaves an entire region without any teaching provision in Classics and its languages at university, appears to be irreversible. It is an unfortunate reminder that position of Classics cannot be taken for granted. Nonetheless, as the contribution by Dean and Behr highlights, interest in the Classical world still remains strong among students. But there is a need to debate how best to create teaching provision for Classics at university which is both diverse and coherent. There is a need for a frank discussion about the reality of the different types of student taking Classics courses and their objectives and ambitions.

Most contributions in the piece bear on the issue of language teaching. Two sections in particular have shown that the provision of language teaching at university is not merely an 'academic' topic. It has profound implications for two reasons. First, there is a need to provide adequately qualified graduates who could go on to teach the languages at school. This may ultimately lead to a more positive profile for Classical subjects at school. Second, there are many able Classical Civilisation/Studies and Ancient History students who wish to proceed to postgraduate work. As they are the potential researchers and academics of the future, it is important that they have the opportunity to grapple with the language at as an early stage as possible. Their research potential will be severely challenged if they must spend significant time improving their language ability. In many respects, it seems that language teaching and Classical Studies/Civilisation have been considered mutually exclusive subjects. However, there are currently a number of important teaching initiatives which bring together language teaching and Ancient History/Classical Civilisation so that they enhance one another.¹⁹ There is, perhaps, a great need to organise a coherent debate on how best to organise language provision to meet the needs of the students. It may no longer be 'best practice' to coerce students to take one or both of the languages for a specified period, no matter how much one thinks that every student 'ought' to work on the languages. But equally it is surely not 'best practice' to exclude promising students from the possibility of a teaching career in school or university by restricting their language learning opportunities. In this connection, it would be worth trying to put pressure on the AHRB to follow the practice of the ESRC (Economic & Social Research Council), which allows funded research students both extra time and financial resource if they have to learn a 'difficult' language. Furthermore, it is necessary to build on the growing evidence that students without previous experience of classical subjects respond positively when they meet classical material in other university courses. How can these opportunities be increased and can they be developed to include exposure to classical languages?

This article has been organised by the Classics team from The LTSN Subject Centre for History, Classics and Archaeology and facilitated by generous assistance of the editor of JACT Review. The LTSN is an initiative which has been funded by the HE funding bodies in the UK to promote good teaching and learning practices at university and to encourage its dissemination. Recently, the funding councils announced that support for the LTSN would be extended until the end of 2004. The work in Classics in the LTSN is currently hosted by the Department of Classical Studies at The Open University. As this article, together with several references throughout the various pieces, indicates, the Classics team are committed to facilitating the continued discussion on the Classics curriculum. In this spirit, an open seminar on curriculum development in classical subjects will be held in collaboration with the Arts and Humanities Higher Education Research Group in autumn 2002. At the Classical Association A.G.M. in 2003 (University of Warwick, 11-14 April), there will be a specified panel which will provide an opportunity to discuss

these issues. The Classics team always welcomes suggestions and advice from the subject community on how best to further this debate. The contact details for Classics are available on the web-site, <http://hca.ltsn.ac.uk/classics>.

Notes:

¹ The introductory and concluding notes to this multi-authored article have been written by Dr David Fitzpatrick and Dr Lorna Hardwick who are the Project Officer and Subject Director respectively for Classics in The LTSN Subject Centre for History, Classics and Archaeology.

² The piece has been written jointly by Professor Trevor Dean and Dr Charlotte Behr from The School of Humanities and Cultural Studies at the University of Surrey Roehampton.

³ The piece was contributed by Mr Bob Lister who is based at the Education Faculty at the University of Cambridge.

⁴ Figures from the AQA Research and Statistics Group, Guildford.

⁵ Interview with Jackie Ashley and Patrick Wintour, *The Guardian*, 24 June 2002.

⁶ Information about the Cambridge Online Latin Project can be found at www.CambridgeSCP.com.

⁷ See *CUCD Bulletin* 24 (1995). This Bulletin is also available online at www.sun.rhbnc.ac.uk/Classics/CUCD/bulletin.html

⁸ Some of the issues in this area are addressed in the proceedings of the LTSN HCA – Classics conference “Teaching and Learning with Texts, Commentaries and Translations” which was held at De Montfort University Milton Keynes on 26 January 2002. The proceedings will be made available in hard-copy and online at <http://ltsn.hca.ac.uk/classics> by early autumn 2002. Hard-copies will be distributed to Departments and copyright libraries, and some other copies may be obtained from Dr David Fitzpatrick, The Subject Centre for History, Classics and Archaeology, Department of Classical Studies, The Open University, Milton Keynes, MK7 6AA.

⁹ See G. Shipley, “UCAS Data on Applications in Classical Studies, 1998-2000”, *CUCD Bulletin* 30 (2001) 14-31. Shipley’s analysis shows that applications for Classics are more dominated by those from independent schools and the South-East than are those for Classical Civilisation and, especially, Ancient History. At the time of completing this piece, *CUCD Bulletin* 30 was not yet available online.

¹⁰ Some of the issues involved here were addresses in the first national conference hosted by LTSN HCA – Classics in January 2001. The proceedings of this conference,

Practical Strategies in the Changing Environment of Classical Language Teaching at University, are available online at <http://ltsn.hca.ac.uk/classics>. A limited number of hard-copies remain. Please contact Dr David Fitzpatrick (see n. 8 above) for availability.

¹¹ This piece was written by Dr Noreen Humble from the Department of Ancient Classics at University College Cork.

¹² The problem is not limited to Classics but is of concern in the wider academic community as a recent discussion on the Ficino email list (devoted to all aspects of the Renaissance and Reformation) showed. The problem is apparent even in places where we might not expect it to be, e.g. in Germany.

¹³ I am grateful to Professor John Dillon for enlightenment on the principle behind the North American summer schools.

¹⁴ Details of the set up of the Cork Summer School can be found at www.ucc.ie/acad/classics/summ_sch.html.

¹⁵ In the way that this year the Classical Association has generously provided bursary money for British graduate students to attend the Cork Summer School.

¹⁶ Again the North American system makes provisions for this. Most post-graduate programmes involve some course work and a system of comprehensive exams which help to consolidate knowledge of the languages gained, in most cases, only from a BA degree or an extra year between BA and MA or PhD.

¹⁷ See Elizabeth Irwin’s comments on her experience in this regard as a graduate student in Cambridge (‘Three ways of learning: Student, Postgraduate and Teacher’ in D. G. Fitzpatrick & L. P. Hardwick, (eds.), *Practical Strategies in the Changing Environment of Classical Language Teaching at University* (Milton Keynes, The Open University) 5-11). She notes the positive benefits of reading classes and the lack of provision for more formal consolidation of language skills.

¹⁸ The section has been written by Dr Vanda Zajko from the Department of Classics and Ancient History at the University of Bristol.

¹⁹ Professor Graham Shipley and Dr Eva Parisinou from the School of Archaeology and Ancient History at the University of Leicester have received some funding from LTSN Teaching Development Grants for a project on developing a flexible structure for teaching Greek to archaeologists and ancient historians. The project assesses a flexible structure for effective delivery of language-based teaching in ancient Greek to students taking courses in which classical languages are a secondary component (e.g. ancient history, archaeology, classical archaeology) and where a high level of expertise in language is not required. This structure also serves as a resource to impart transferable linguistic skills to students who will typically have little experience of foreign languages, and who may have been deterred from traditional classics courses by the language requirements.

Review of Royal National Theatre’s *Bacchae*, 2002 Amanda Wrigley

An empty space and all of you, and me.
And who am I? Dionysus son of Zeus;
God of the vine, god of dramatic rites,
God of the transformation from the humdrum
To the wild abandon of the play.
So let us play ...

Thus opens the Royal National Theatre’s production of Euripides’ *Bacchae*, directed by Sir Peter Hall and translated into English verse by the Dublin-born playwright Colin Teevan.¹ The audience cannot fail to notice that this production, whose protagonist is the “god of dramatic rites”, lays considerable emphasis on the metatheatrical aspects of the play, hammering home the concept of theatre as *transformation* so heavily that it seems almost to be an advertisement for the experimental theatre project of the same name running from May to September in the Lyttelton Theatre downstairs. The audience is self-consciously led into and out of the dramatic experience by the actors, and from the moment when Greg Hicks

enters, surveys the audience and smiles, donning the golden bull-horned mask of Dionysus which has been waiting for him on the stage, to the electrifying moment at the play’s close when the chorus remove their masks and ask the stage crew to turn out the lights, there are many nods in the direction of the theatrical experience they are undergoing. Hall, appearing in conversation with Sue MacGregor at a RNT Platform event in May, revealed that it was Teevan’s idea to bring to the fore the notion of Dionysus as stage manager. Indeed, the text throughout uses the language of sight, belief, transformation and ‘playing a part’, and many of the references to the religious rites of Dionysus have consistently been translated as dramatic rites. Interestingly, however, the overtly metatheatrical reference to “the banks of this river, the south banks”, used in rehearsal and the previews – to the great delight of the audience – was amended to “the banks of this broad river” in the run proper.

In Teevan’s translation, the thyrsus becomes “the sacred shaft of Dionysus” which in performance is treated like a phallus whenever, it seems, sex can be brought into the Dionysian equation. The production