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**SOCIETY, EDUCATION AND LANGUAGE:
THE LAST 2,000 (AND THE NEXT 20?) YEARS OF LANGUAGE TEACHING**

Michael Stubbs

FB2 Anglistik, University of Trier, D-54286 Trier, Germany

stubbs@uni-trier.de

ABSTRACT

In *Introducing Applied Linguistics* (1973), Pit Corder emphasizes the "total language teaching operation", which I will discuss here under three headings:

SOCIETY. Language teaching is carried out against different cultural backgrounds, and therefore cannot avoid questions of value. But an understanding of the present may require substantial factual knowledge of the past. This is illustrated with cases from Scotland and Germany.

EDUCATION. A 2,000-year-old problem is the place of language teaching in a general education. The Trivium and the Quadrivium attempted to give educational priority to a thorough training in language study, and, although out-dated, they still influence how academic subjects are organized. Recent attempts to develop school programmes of "language across the curriculum", have been a mixture of educational success and political fiasco.

LANGUAGE. The empiricist-rationalist controversy also has a 2,000-year history. A recent period of mentalism in linguistics has been followed by developments in technology which have led to a renaissance of empiricism. The findings of corpus linguistics have major long-term implications for both linguistic theory and language teaching, though the short-term applications are currently less clear.

The organizers of the BAAL conference in Edinburgh in 1999 asked me to talk about continuity and change in applied linguistics, with particular reference to language teaching. This was a pretty tall order, because the whole topic has a very long history: one influential book is entitled *25 Centuries of Language Teaching* (Kelly 1969). In addition, as Pit Corder (1973) repeatedly emphasizes in his book *Introducing Applied Linguistics*, we have to keep in mind what he calls the "total language teaching operation". This includes:

1. the social and political context of language planning
2. the organization of the curriculum and the syllabus
3. language description (and here Corder provides a detailed discussion of frequency and statistical issues: pp.212-23).

I will not survey a 2,000-year history, but I will refer frequently to questions which go back a very long time, and which will probably never be definitively answered, but which require to be reconsidered by each generation as new research methods become available. I will be arguing throughout for appropriate modes of empirical research. In post-modernist views of academic work, grand theories are out of fashion, but it would be unfortunate if this means abandoning attempts to define the place of language teaching in a general education, and attempts to describe a language as a system.

1. SOCIETY: LOCAL CONDITIONS

My first main topic concerns the historical and cultural background to language teaching. I grew up and lived in Scotland for over twenty years, and I have now been living in Germany for nearly ten years. So I will start from some points about society, education and language in Scotland and Germany, and I will start from a point which has been much cited recently. This is the principle that language teachers must pay attention to local conditions, rather than taking a set of ideas, and then "shooting off to various parts of the world and implementing programmes" (Henry Widdowson quoted in Phillipson 1992: 260).

1.1 THE SCOTTISH CASE

The local conditions principle has often been ignored in the past in teaching English in Scotland. I did the whole of my schooling in Glasgow. In English lessons, it was acceptable to study Robert Burns, occasionally, but it was not acceptable to speak his language in the classroom, or even in the playground. We learned virtually nothing of other Scots literature. We studied William Shakespeare, but not William Dunbar, and very little Scottish history either. Scottish history was not compulsory in the school history curriculum in Scotland until 1990 (Lynch 1992: xv).

It has long been common for Scots to be made ashamed of their own language. My mother was born in Scotland, of Scottish parents, and lived in Glasgow for the whole of her life. When she worked as a secretary in the 1940s, she took elocution lessons in order to try and get rid of her lower-middle-class language habits. There was nothing out of the ordinary about this: it puts her in the same tradition as David Hume (1711-1776), who was so ashamed of his Scotticisms that he had a list of them on his desk, so as to better avoid them in his writing. Indeed, it is said that he died confessing not his sins, but his Scotticisms. (McCrum et al 1986: 151; Kay 1993: 85, 88, 91; Jones 1995: 48.)

I don't think many Scots nowadays would make the mistake of ignoring history and culture in a study of language. It is very clear how the historical shift in the political power base of Gaelic, Scots and English is still visible in the geographical, social and functional distribution of these languages in contemporary Scotland.

- Up until the 1200s, there was a Celtic line of kings in Scotland. The last of the Celtic line died in 1286, but even before this date, members of the royal family were Anglo-Norman educated.
- In 1306, after an interregnum, the power passed to the Bruce family. Robert the Bruce was a Gaelic-speaking Celtic king, but was also descended from an Anglo-Norman family (Lynch 1992: xiv, 96). He is still one of the major icons of Scottish nationalism: he won a battle against the English at Bannockburn in 1314 and sent a despatch to the Pope declaring Scotland's independence in 1320.
- In 1406, the throne passed to the Stewart family, with a line of succession from James I to James V, and via Mary Queen of Scots to James VI. James IV (reigned 1488-1513) was Scotland's last Gaelic-speaking king, though he learned Gaelic as a second language (MacKinnon 1991: 35). Now came the high point of Scots, as one of the languages of the court and of a spectacular period of literature, including writing by William Dunbar (1460?-1520?), the court poet to James IV. (Kinsley ed. 1979.)
- In 1603, there was the Union of the Crowns, James VI moved to England, the power base moved again, this time to London, and Scots lost prestige in the face of English. The tragic events after the Jacobite Rebellion of 1745 led to the destruction of highland society and the further decline of Gaelic.

What is still visible is the synchronic variation which is the result of these diachronic changes: this 1,000-year historical shift from Gaelic to Scots to English. Gaelic became the language of the rural working class in the extreme north-west highlands, and Scots became the language of the urban and rural working class in the lowlands. The death of Scots has been frequently announced, and has not yet happened, but by the twentieth century it had sadly fallen in prestige. By the early 1900s, as far as the dominant English-speaking class was concerned, it was little more than a source of comic characters and music hall jokes: from William Wallace in the 1200s to Oor Wullie in the 1900s.

Amongst the major challenges for Scottish education, as devolution starts to have an effect, will be to develop appropriate self-images - versions of Scots history, literature and language - which are more interesting than the junk which is sold to tourists. There are images of Scotland which are fit for shortbread tins, but not for the nation's education system (McCrone et al 1995). Part of this challenge will be whether Scotland - and also England - can develop forms of regionalism, which do not turn into the nastier forms of nationalism. Of central importance will be the attitude taken to the Scots language in schools. Here is a statement from the Head of English in a school in Ayrshire (from *The (Glasgow) Herald*, cited by Kay 1993: 21-22.)

"Scots ... still has a gey ruch road tae travel, for it's a road fu o the dubs an mires o neglect an abuse, as well as bein paved wi prejudice. We hae tae begin wi the varieties o demotic speech weans bring tae the schuil that are vital expressions o their ain an their community's identity, but if the schuil disnae respect an value the speech o aa oor weans, we will continue tae discriminate against weans that stey close tae their roots. If

oor uniquely Scottish educational system cannae learn hou tae cope wi educatin oor weans in the native languages o Scotland, sae that Scots an Scots English complement ane anither, Scottish teachers will continue tae fail Scottish culture as they hae duin owre lang." [Weans = "wee ones" = bairns = children.]

The linguistic status of this text is unclear: it has been constructed to make a point, and in any case there is no single variety of Scottish English, no fully accepted standardized spelling system, and no codified linguistic norm. But there is no doubt about the function of the text in signalling Scottish identity. Its language is also quite close to Anglo-English. If I was to cite a variety of Scots which is further from English, most readers would require a translation: see the texts in MacCallum & Purves eds (1995). For other examples of texts in Scots and different views on the Scots language, see McClure et al (1980), McClure (1988), Kay (1993), Macafee (1994, 1997), Jones (1995) and Skelton (1999). A very readable sociolinguistic introduction to the place of Gaelic in Scottish identity is MacKinnon (1991).

1.2. A GERMAN CASE

Here is a different case of local conditions. In a secondary school near where I live in Germany, around half the pupils are native speakers of Russian. They are children of *Aussiedler*, people who moved out of Germany at some time over the last 200 years or so, but whose families have maintained to some extent German language and culture, and who have right of residence in Germany. The children usually have grandparents who speak German, the parents may or may not speak German, and German has only sometimes been passed on to children of the current generation. Where it has been passed on, it may be an archaic variety from the 18th or 19th century.

In one case recently, four young men arrived in the school from Kazakhstan. (They were cousins: two pairs of brothers.) They had native competence in Russian, which had been their language of formal education, and was what they spoke with the other pupils; and they had learned some Kazakhi, which had been an obligatory foreign language in their school in Kazakhstan. When they arrived in the school in Germany, they scored zero in a German-language entrance test, were placed in the beginners' group, and it was assumed for several weeks that they spoke no German. Then one of the teachers realised that they knew vocabulary which had not been taught in class. The teacher, who comes from south Germany, also realised that they were using archaic forms of Swabian, a southern German dialect. It turned out that this was their mother tongue, in the sense of the language they used at home, on the farm, back in Kazakhstan.

Probably, before they arrived in the school, they had never had to write standard German, which was the language of the entrance test, and they would have had to read only archaic forms used in the Lutheran bible. Or perhaps it had just been made clear to them that their variety of German was not worth speaking. When their competence in Swabian was pointed out to other teachers, who spoke only High German, the teachers argued that it wasn't "proper" German anyway. Luckily, the head teacher comes from Swabia, and he took some objection to this line of argument.

In this German case, "local conditions" means that German is taught to a group of young people who may not feel at home in any country, and against a background of rapidly changing use of German across the generations, and a set of complex attitudes to language,

ethnicity and nationality. Language teaching in Europe may increasingly have to take into account the role of international politics, as Tony Howatt (1997: 263) has recently pointed out. Within the European Union, there is now large-scale immigration from the east and south, and a new consciousness of regional and national identity.

1.3. CONCLUSIONS: SOCIETY

The concept of "local conditions" is probably too vague to support much theoretical weight, but it usefully emphasizes that even major facts of history and culture can sometimes be ignored. These Scottish and German cases show several things about the relation between language teaching and the politics of regionalism. Language learners always have their own ideas about their history and culture, which may not be at all evident to outsiders, and this means that no single set of language teaching prescriptions can be mechanically applied in all circumstances.

My comments on these Scottish and German cases have been partly personal, and in such areas, it is impossible to separate fact and value. But this does not mean that questions of empirical validity can be ignored, and my comments depend on bodies of historical knowledge. I did not receive such historical knowledge at school. Nor did my mother: like David Hume, she had been told that good Scots was bad English (though she was never entirely convinced). So, there are implications here for both teacher training and school curricula. Tolerance of language diversity and bidialectalism are not new concepts, but they are still valid.

2. EDUCATION: LANGUAGE ACROSS THE CURRICULUM

These Scottish and German cases also strongly imply that language education should be a unified enterprise. Some TESOL traditions distinguish sharply between mother tongue and second or foreign language teaching, but the British tradition of applied linguistics from the 1960s onwards (eg Halliday, McIntosh & Strevens 1964) has usually regarded mother tongue teaching and foreign language teaching as part of a general language education. This leads to my second main topic, which is the relation between language teaching, language education and a broader curriculum.

Views on how modern foreign languages or mother tongues should be taught are not separate from changing views on the curriculum in general. The major curriculum models listed below are ideal types, but recognisable in concrete forms. They variously emphasize cultural heritage (this is classical humanism), student-centred discovery learning, critical cultural analysis, and measurable practical skills:

- | | | |
|----------------------|-------------------|-------------|
| • classical humanist | knowledge-centred | elitist? |
| • progressivist | student-centred | romantic? |
| • reconstructionist | society-centred | democratic? |
| • technocratic | skills-centred | measurable? |

Schools cannot teach everything: as Raymond Williams (1961) puts it, they have to make a "selection from the culture", and different decisions are made at different historical periods as to how language study fits in with other subjects on the curriculum. Again, I will not attempt

to survey different views of language teaching. I will just note that, in the last 30 years, two communicative aims have been particularly influential: practical language skills, communicative competence in that sense; and inter-cultural competence, learning about other societies with tolerance of their cultural values. In practice, neither of these aims is likely to be found in a pure form. Since the 1960s, a general consensus has grown up around a broadly communicative philosophy, and this general shift away from humanistic views of language teaching, to practical communicative aims, has made it more difficult to locate language teaching in a broader curriculum (Davies 1991: 55).

The point I will concentrate on is one made by Eric Hawkins (1984) in his rationale for the language awareness movement. He points out that even when different languages are taught within a single school - classical languages, English as a mother tongue, French as a foreign language, ethnic minority languages - the languages are typically taught in isolation from each other and fragmented into different traditions. This fragmentation may be an unavoidable consequence of the local conditions principle.

Another source of fragmentation is the unresolved relation between knowledge about language and use of language. Attempts to integrate language system and language use have also long been central to British linguistics, and at the beginning of his *Language as Social Semiotic*, Halliday (1978: 4) makes this link via the 2,000-year-old distinction between grammar, logic and rhetoric. The reference is to a model of language developed by the ancient Greeks.

2.2 THE TRIVIUM AND THE QUADRIVIUM

This is also the model of language which underlies the classical humanist curriculum which has come down to us, over 2,000 years, from Plato, via the medieval universities. For all kinds of reasons, this model of education is no longer acceptable. But it is worth while looking briefly at the ideal form of a curriculum which has its origins in Greek training in what would nowadays be called "critical language awareness", and which has been the most influential curriculum in the western world. In the version which was used in the design of the first European universities from around 1200, there was a clear view of the place of language education in the seven liberal arts: a view which put the WORD first, and the WORLD second. This view is outlined below:

First the WORD, the inner

TRIVIUM: linguistically oriented studies
 grammar: grammatical competence
 logic, rhetoric: communicative competence.

Then the WORLD, the outer

QUADRIVIUM: mathematically oriented studies
 arithmetic, astronomy, geometry, music.

Whatever one thinks of how the Trivium later became trivialized, it certainly embodied a powerful theory of the relation between language and the mental and material world, and it had a clear view of the place of language in an ambitious programme of education. The Trivium consisted of grammar, logic and rhetoric: not only the language system independent of context (grammar), but also language use, persuasion and style (logic and rhetoric).

These forms of knowledge, concerned with the Word, were distinguished from other forms of knowledge, concerned with the World. This was the division and specialization between the Trivium and the Quadrivium. The Trivium, which was taught first, consisted of the disciplines of the Word and its principles: grammar, logic and rhetoric. The Quadrivium, which was taught second, consisted of the disciplines of the World and its principles: arithmetic, astronomy, geometry and music. The Trivium came first: students first had to learn the principles of language and logic, and only then did they apply these principles to an understanding of the material world. First, the principles of consciousness, then their applications. First the inner, then the outer. I am here quoting a brilliant analysis of this curriculum by Basil Bernstein (1996).

Now, this all embodies a simple and elegant view of the content and sequencing of education, with a particularly coherent theory of the place of languages in the curriculum. However, I am not going to argue that we should re-introduce the Trivium. First, I have no desire to become a monk: this was traditionally regarded as a prerequisite for its teachers. Second, the sequencing - theory before practice - would not find much favour nowadays. And third, there has to be room for new subjects and new subject combinations. In any case, the problem is rather that we still have the Trivium - or are still trying to get rid of it. The division between Trivium and Quadrivium still underlies the way in which faculties and subjects are organized in universities. Indeed the division between language-oriented studies and mathematics-oriented studies has been causing trouble ever since. I return to this language-mathematics split below.

We clearly cannot re-introduce the seven liberal arts (which involved their own fragmentation). But they do embody a serious, elegant and ambitious programme which integrates linguistic education into a general education, and it is important not to lose sight of this purpose. "Language across the curriculum" is a slightly dated phrase, but a valuable aim. From the 1970s to the 1990s, particularly in the UK and Australia, substantial attempts were made to introduce programmes variously referred to as "language across the curriculum", "knowledge about language", and "teaching about genre". These programmes had initial educational success, sometimes quite spectacular, which was followed by political defeat and fiasco. The programmes were attacked from the progressive left for being reactionary: by this was meant that they demanded explicit knowledge about language. And they were attacked from the conservative right for being too political: by this was meant that they addressed questions of language and social class.

When I was involved in this debate, as a member of the Cox Committee (DES 1989, Stubbs 1989) exactly ten years ago, I found it unnerving to be told, at the same time, by the right wing that I was too far left, and by the left wing that I was too far right. It was only much later that I began to realise what was going on. Deborah Cameron (1995) and Jim Martin (1997) have now provided very good analyses of this dilemma: unfortunately too late to save the Cox Committee from committing various blunders due to political naivety. However, it is important to learn from such mistakes.

2.3. CONCLUSIONS: EDUCATION

My main point here is that people have been trying for 2,000 years to find a way of integrating language teaching into a general education. Very impressive curricular proposals

have been made, but recent educational and political muddles show that the problem is far from solved.

One relation of all this to the Trivium is fairly straightforward: grammar, rhetoric and logic have been hopelessly fragmented. First, rhetoric has acquired a pejorative meaning, often little different from "propaganda". In Britain, it has often disappeared completely as a school or university subject. In the USA, it has been turned into "Freshman Composition": what Malcolm Bradbury (1976) satirizes as "a course in existential awareness and the accurate use of the comma". Second, grammar has often been detached from its rhetorical functions. In turn, it has also often disappeared, so that many English teachers have not been taught grammar themselves. And third, logic was one of the language-oriented subjects of the Trivium, but in the twentieth century, logic has drifted away from language study, and become more closely aligned to mathematics (Seuren 1998: 300). This has led to a deepening of the split between linguistic subjects and mathematical subjects. One result here is that different approaches to semantics now seem to have very little to do with each other: formal semantics is inspired by logic, but empirical semantics uses ethnographic or corpus data.

3. LANGUAGE: TECHNOLOGY AND DESCRIPTION

I will relate these points about grammar, rhetoric and logic to my third main topic, which concerns the renaissance in empirical linguistics made possible by new technologies.

3.1. LINGUISTICS AND APPLIED LINGUISTICS

Linguistics has its origins in different areas of applied language study. The first attempts to look at language systematically must have been triggered by the development of various writing systems. As John Trim (1988: 3) pointed out in a plenary to BAAL ten years ago, this "extraordinary achievement of applied linguistics is the beginning of history", in the sense that it created the possibility of recording historical events.

Linguistics also has its origins in precisely the set of ideas which led to the Trivium and Quadrivium. Current emphases on language and power seem modern, in a period post-Foucault. But they were also central in work by Plato and Aristotle, who placed an analysis of political speeches at the centre of their training programmes. Language study for the Greeks had political and ethical goals, and in general, perhaps post-modernist views are not as new as they sometimes seem. Critical linguistics argues that language creates and maintains reality, but this poses the oldest question in philosophy, the philosophers' lament that language does not truly represent the world. Around 1500, Erasmus of Rotterdam said that "we know the world only through words".

However, there were different views in Greek thought about the relation of practice and theory. One view was that grammar should be the empirical and observational study of the actual usage of the poets and prose writers. Another view held that the study would have higher esteem if it was based on logical and psychological principles. (Robins 1988: 464-65.) We are still living with this empiricist-rationalist dualism.

3.2. TECHNOLOGY AND LANGUAGE TEACHING

So, these ideas also have a 2,000-year history. In the past 100 years, another major origin of linguistic ideas has been technology. In his *History of English Language Teaching*, Tony Howatt (1984: 177) points to the parallels between two such occasions: in the 1880s, the image of phonetics was "a mixture of advanced technology (the telephone, the phonograph, and so on) and of pure phonological science"; and in the 1960s, a similar situation was brought about by the invention of the tape-recorder: a mixture of language labs and structural linguistics.

On some occasions, innovations in teaching have followed contemporary linguistic theory: for example, semantic units (in a notional syllabus) and pragmatic units (in a communicative syllabus) were certainly helped along by concepts such as speech act and communicative competence. (Though some innovations in ELT came first: see Channell 1998 on the history of pragmatics and ELT.) On other occasions, innovations in language teaching have followed technology, and have received their theoretical justification post hoc. For example, audio-lingual drills seem to have followed from an opportunity provided by language labs, and to have been justified after the event by theories of habit formation.

Tony Howatt published his book in 1984 just a few years before a third such case, where a huge technological advance has affected language description, and where applied linguistic concerns have led to substantial theoretical advances. There are rather striking parallels between new technology, new techniques of linguistic description, and proposals for new syllabus designs in the 1880s, 1950s and 1990s:

1880s

TECHNOLOGY:	telephone, phonograph
TECHNIQUES:	broad and narrow transcription
THEORY:	phoneme theory
SYLLABUS:	Reform Movement

1950s

TECHNOLOGY:	tape recorders, language labs
TECHNIQUES:	immediate constituent analysis
THEORY:	structuralist linguistics
SYLLABUS:	audio-lingual method

1990s

TECHNOLOGY:	computers plus corpora
TECHNIQUES:	collocational analysis
THEORY:	lexico-grammar
SYLLABUS:	lexical syllabus

The obvious contemporary case of the effect of technology is the use of computational techniques in the preparation of major dictionaries and grammars. In 1995, four major English monolingual dictionaries were published (by CUP, OUP, Longman and Cobuild) which were

all based on large corpora. They were made possible by three things which are intimately and productively related:

- the technology which provides the data on language use
- the commercial pressures for new teaching materials
- the associated descriptive progress in linguistics.

However, the phenomenal growth in language teaching materials and the extent to which commercial pressures shape the language teaching profession are hotly debated. So, more generally, is the appropriate relation between technology, data, commerce and teaching practice.

3.4. LEXICO-GRAMMAR

A remarkable feature of Pit Corder's book, *Introducing Applied Linguistics*, is that it discusses two topics which were rediscovered by corpus linguists only some fifteen years after the book was published. First, Corder (1973: 212-23) emphasizes the importance of quantitative findings about language use. Second, he discusses (1973: 315-17) what he calls a "lexical syllabus" (cf the title of Willis 1990), in which we select the lexical material which is to be taught, and then find the grammatical framework within which to teach it:

"There is no logical dependency either way between the lexico-semantic system and the syntax. ... [T]he two interpenetrate to such an extent that the distinction between them is beginning to lose its significance." (Corder 1973: 316.)

Corder is here stating the finding which has now been very thoroughly documented by corpus linguistics.

Here is a single example which shows the relation between lexis, grammar and pragmatics. The word *proper* has important cultural meanings, and is used frequently in discussing language in education. Scots has frequently been condemned as "not proper English". In the aftermath of the Cox Report in 1989, Prince Charles made a much quoted statement about education. As *The Daily Telegraph* (28 June 1989) put it, he "launched a scathing attack on standards of English teaching".

"We've got to produce people who can write PROPER English. It's a fundamental problem. All the people I have in my office, they can't speak English PROPERLY, they can't write English PROPERLY."

Such statements can only "strike a chord" or "ring a bell", as we say, if they fit into wider ways of talking and therefore into wider cultural processes.

Lexical patterns often seem obvious once they have been pointed out, but the patterns I am about to illustrate are not explicitly recorded even in recent corpus-based dictionaries (CIDE 1995, COBUILD 1995, LDOCE 1995, OALD 1995). The examples in the dictionaries confirm my data, but the underlying principles are not given. The main pattern is that *proper* typically co-occurs with

- negatives, such as *no, not, never, can't*

- words such as *fail, need, without*
- words which imply warnings and criticisms.

This pattern can be seen in these attested examples:

1. no time yet for a *proper* examination of the map
2. put forward without *proper* consideration of your needs
3. the crying need is for a *proper* international airport
4. two out of five people lack a *proper* job
5. failed to give it a *proper* look
6. hinders *proper* training
7. totally outside *proper* democratic control
8. unless *proper* care be taken to improve it
9. My family tell me that I should stop dreaming and get myself a *proper* job.

Example 8 is taken from the OED: it dates from 1745. Example 9 is taken from Francis et al (1998: 366).

The basic semantic pattern is very simple, and can be shown with a few such examples. It is a common misunderstanding that corpus linguistics is concerned with collocations in the sense of (semi-)fixed phrases. This is not so. The basic finding concerns the frequency of abstract semantic frames with typical but variable lexis. Here I can give only this isolated example, but corpus work has now shown that all of the most frequent words in English are involved in detailed semantic frames of this kind. Such co-occurrence patterns are given in detail in the very substantial descriptive work by Francis et al (1996, 1998).

In summary, such corpus data show that words occur in typical lexical and syntactic patterns, and often with predictable evaluative connotations. It is from descriptions of large corpora, that many radical ideas about the nature of the language system are currently arising. First, it turns out that language is organized much more intricately than previously suspected: not only in well-defined sub-parts, seen as either langue or competence, but also in parole or performance, especially in the co-selection of lexis and grammar. Second, native speakers have only very poor intuitions about many pragmatic aspects of language. If they had better intuitions, then these pragmatic aspects would be recorded in dictionaries, but they often aren't.

Corpus study shows up patterns which are not visible in single examples. (See Channell 1998 for a good statement of this argument and for other examples.) It is this point about repetitions which is crucial. Corpus linguistics is based on methods of observation which make repetitions visible, and the fact of repetition makes quantitative methods essential. The crucial shift is from studying what is possible to studying what is probable.

3.5. QUANTITATIVE AND EMPIRICAL METHODS

The major tool in corpus linguistics is the concordance, and there is nothing new about using concordances to study meanings. In second-hand bookshops in Edinburgh and St Andrews, I recently bought two concordances published in the 1700s. One is a concordance, from 1790, "to the remarkable words made use of by Shakespeare; calculated to point out the different meanings to which the words are applied" (Ayscough 1790). The other is "A Complete

Concordance to the Holy Scriptures or a Dictionary and Alphabetical Index to the Bible very useful to all Christians who seriously read and study the inspired writings". (Cruden 1833, 10th ed; 1st ed. 1737.) So, one of the basic principles of corpus linguistics has long been common-place: meaning is use, in the sense that words acquire meanings through their repeated collocations. Large corpora allow the frequency and typicality of such collocations to be empirically observed.

At the BAAL conference, I gave my lecture just next to the David Hume Tower in Edinburgh University, and a painting of Hume looked down on us during our coffee breaks in a room in the Tower. So, it seemed appropriate to quote his recommendation of quantitative empirical methods. He recommended that when we read a book, we should ask:

"Does it contain any abstract reasoning concerning quantity or number?" No. "Does it contain any experimental reasoning concerning matter of fact and existence?" No. Commit it then to the flames, for it can contain nothing but sophistry and illusion."
(Hume 1748.)

Chomskyans may consider this a little extreme, but it makes a useful point about quantification and observational methods.

3.6. TECHNOLOGY, OBSERVATION AND QUANTIFICATION

An emphasis on continuity in applied linguistics may seem to imply that there are no new ideas under the sun. But the change brought about by computer technology is a change due to the speed with which very large amounts of data can be processed. What is, logically speaking, a quantitative change is so large that it is experienced as a qualitative change which allows new observations and reveals new patterns.

The computer technology which is now available for language description has two rather different aspects: it involves new observational techniques, and it is quantitative. As John Sinclair (1991: 100) says: "the language looks rather different when you look at a lot of it at once". One thing is very clear: technology increases our powers of observation. And the development of the natural sciences was only possible due to the development of observational instruments, especially the invention of the lens, and hence of the telescope, the microscope and the camera. These instruments have revealed patterns which were not visible to the naked eye. People could observe things that no-one had seen before, because they were too far away, or too small, or moved too quickly (Banfield 1987: 265-67). The ability to freeze images in time also made them publicly accessible to different observers. A large corpus with search software is analogous to devices such as the telescope, the microscope or x-rays. Concordance software can reveal patterns invisible to the naked eye.

It is sometimes objected that corpus methods over-emphasize some aspects of language use, such as collocations. This may be true, but the whole point of an observational tool is to emphasize something. We don't normally complain that microscopes over-emphasize tiny little things, that telescopes only allow us to study far-away things, or that x-rays give too much prominence to the insides of things. (Partington 1998: 144.) And we don't normally criticize a stethoscope because it cannot be used as a periscope.

I am quite well aware that you don't become a scientist just by putting on a white coat and looking down a microscope. (I am also aware that technology is not the same as science.) But it remains true that the development of science would have been impossible without observational technologies.

I am also well aware of the criticism that patterns may be created by the observational technology itself. This criticism was made of Galileo's work (Lakatos 1970: 98, 107). In 1610 Galileo claimed he could observe, with his new telescope, mountains on the moon and satellites round Jupiter, and that these observations refuted the claim that heavenly bodies were perfect crystal spheres. His critics pointed out that his observations depended on an optical theory of the telescope, which he did not have.

What computer-assisted corpus methods make visible is repetitions. We can bring together, in a corpus, utterances which have been produced at different times by different speakers, and we can observe, in concordance lines, the characteristic patterns which recur. The study of recurrent patterns requires the quantification of observations, and it is really rather surprising that approaches to language study could ever have been developed which dismiss out of hand the idea of observing things and of counting how often they occur.

This perspective has not been entirely lost in language teaching. Everybody takes some account of numerical matters in teaching a language: at least in the early stages, language teaching has to concentrate on a core vocabulary, frequent grammatical patterns and so on. Detailed statistical findings have been available here from the 1920s onwards in work by Harold Palmer, Michael West, Edward Thorndike and others. What is particularly odd is the neglect of quantitative work in linguistic theory. Much linguistic description contains no statements of proportions. It is as if chemists knew about the different structure of iron and gold, but had no idea that iron is pretty common and gold is very rare. Or as if geographers knew how to compare countries in all kinds of ways, but had never noticed that Canada is rather bigger than Luxembourg (Kennedy 1992: 339, 341).

3.7. CONCLUSIONS: LANGUAGE

My main point about language description and technology is as follows. Debates about the appropriate relation of empiricism and rationalism have been going on for 2,000 years. Some questions - even if they are 2,000 years old - will keep recurring, because they concern central intellectual problems. They will never receive a definitive solution, because they are not small technical puzzles, but "great and apparently insoluble riddles". I am now quoting Chris Brumfit (1997: 27) who was quoting Karl Popper. But these questions have to be reformulated in different ways for each generation. They won't be solved by corpus methods. But corpus methods provide a new angle on them.

Corpus findings have also led to a major debate over the appropriate relation between underlying research and teaching practice. Corpora are not teaching materials: they can be used to provide concordances and other quantitative information, and this can help in the design of teaching materials. Bernard Spolsky (1970) distinguishes between implications and applications. I am absolutely sure that recent advances in language description have major long-term implications for linguistic theory. As Pit Corder pointed out, there will have to be a radically revised division of labour between vocabulary and grammar, but it will take time before we know exactly how this will work out. I am also sure that the findings have major

implications for language teaching, in new discoveries about the units of language production and comprehension, and the cultural significance of these units. The shorter-term applications are still being debated.

4. CONCLUSIONS

I have discussed two questions which were formulated very explicitly 2,000 years ago, when language study had its origins in very pragmatic work on persuasion and textual interpretation, and when it had a clear ethical purpose. Both questions concern unavoidable dualisms. The first concerns the relation between words and the world:

Can we state sufficiently clearly how the teaching of individual languages (second or foreign languages or mother tongues) fits into a broader language education and into a general education?

The second concerns the relation between empiricism and rationalism:

What are the appropriate empirical methods, in both broadly social and more narrowly linguistic research, of integrating quantitative and qualitative knowledge?

In applied linguistics journals, the balance between subjectivity and objectivity is currently the subject of very sharp debates, triggered by a post-modernist loss of confidence in long-standing core criteria for academic work. These relativist positions have, in their turn, been sharply criticized (by, for example, Rampton 1995; Widdowson 1995a, b; Davies 1996, 1999; Gregg, Long et al 1997; Brumfit 1997). Post-modernist arguments have certainly shown that truth and objectivity are much more problematic than is often assumed. But doubts have also been cast on whether serious post-modernist argument can be reliably distinguished from parody, and indeed whether a brilliant hoax can be distinguished from a bad joke (Fish 1996). I am referring mainly to the Alan Sokal case (Sokal 1996 and much more), but one recent review of an applied linguistics book has asked whether the book was intended as a "spoof" (Davies 1996 on Phillipson 1992). [NOTE 1.]

There does seem to be a paradox at the centre of Foucault's arguments that all knowledge is a tool of the will to power, and that truth is "produced within discourses which in themselves are neither true nor false" (Foucault 1980: 118). Even if you are intent on demystifying culture, and exposing the conceptual undergrowth of the social sciences, you still need criteria which show that your analysis is better than the unreflecting assumptions which are taken for granted by the rest of us. (Merquior 1985: 147-49.)

Each generation has to consider the new forms of empiricism which arise. I cannot do better here than to quote Alan Davies (1991: 60) from an article in which he assesses Pit Corder's work:

"Renewal of our connection with data is as important as an understanding of what count as data."

New forms of data have to be carefully assessed and interpreted, but it would be absurd to ignore them. I have come down clearly on the side of empirical methods, and I have given

examples of the need for bodies of historical knowledge, new methods of observation, and new kinds of publicly accessible data.

A last comment. There is no neutral technology of observation. As Robert Young (1971) put it:

all facts are theory-laden
and all theories are value-laden
therefore all facts are value-laden.

That's logic ... Nevertheless, some facts are based on publicly-accessible empirical evidence. The post-modernists among you may argue that I don't realise the implications of my own text. But I can reply that, in order to study intertextuality, we need both historical knowledge and corpus methods. That's rhetoric ...

NOTE

1. Davies (1999) also expresses severe reservations of post-modernist positions in applied linguistics. It is well beyond my remit here, but it would be a fascinating exercise to compare two books, with very similar titles, by the first two professors of Applied Linguistics at the University of Edinburgh: Corder (1973) and Davies (1999).

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