

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer  
Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

Part I

Problem: the illness

Chapter

1

Introduction

Every intellectual has a very special responsibility . . . he owes it to his fellow men (or 'to society') to represent the results of his study as simply, clearly and modestly as he can. . . . Anyone who cannot speak simply and clearly should say nothing and continue to work until he can do so.

*(Karl Popper, 1902–1994, philosopher of science, originally in a personal letter.)*

This book is about words. It is about the ways in which words are used, about the ways in which those words are put together, by doctors, medical scientists and others who write on medical matters. These ways are mostly no different from the ways that words are used and misused in many other subjects. But, in our opinion, too many of the producers and consumers of academic medical English are tolerant of writing that is clumsy, inaccurate, obscure or just downright bad; writing that is not, as Karl Popper demanded, simple, clear and modest. [We must note that Karl Popper's entreaty dates from 1961, when his 'fellow men' probably were mostly men, and when sexism in language was barely recognized. The *OED* records the first use of *sexist* as 1965.]

The first section of this book examines briefly the roots of that tolerance; the remainder and larger part deals with the nuts and bolts of writing, taking its numerous examples from the field of medicine.

Our approach is to encourage good writing by examining bad writing, because it is often easier to say what is bad about a piece of writing than what is good. This sentiment is shared by Bernard Dixon, who compiled a collection of unarguably well-written scientific articles from past and present.<sup>1</sup> In his preface, he says of bad writing, 'We can learn important lessons by inspecting such specimens, just as pathologists learn from even the most unattractive objects and tissues that arrive in their laboratories.' This book contains collections of these specimens and a record of their dissections.

What constitutes good or bad writing is not easy to define. How to distinguish between good and bad without sounding didactic or arrogant is a challenge. In applying judgemental words – 'good', 'bad', 'clumsy', 'pompous' and others – to examples of writing, we accept that we are making value judgements. But we are actually more concerned with

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer  
Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

*valid* judgements and we leave it to readers to test the validity of our criticisms against their own values. Certainly no plea is made here that words have inviolable meanings and that we should all go back pedantically to their etymological roots to define meanings for evermore. For example, the original meaning of the word *decimate* was *to put to death one in ten*, but *decimate* has now come to mean *to destroy a large proportion* and the original meaning has been lost.

If any plea is entered it is on behalf of clear, simple, unambiguous writing. That whatever word is used should be, as far as possible, the correct word, chosen for its precise meaning that everyone understands. Words that are changing their meanings may mean different things to different people and it is for this reason – not because they appreciate the finer points of etymology – that good writers will avoid them.

If there is a simple maxim for good medical writing it is that almost always the better word is shorter and the better construction has fewer words.

The intent of this book, then, is largely practical. At the simplest level, the aim of the prescriptive lists in the book is to help writers to realize that it is easy to make a start at improvement. The lists are of suggested better words and better constructions, where better means clearer and more precise. If writers used the lists in this simple way, their writing would surely improve but there is a more important reason for the book: to show that there is no difference between clear, precise thinking and clear, precise writing.

That much of medical writing is bad does not mean that the writers, particularly those with little experience, should bear all the blame. Bad writing is contagious if the reader has not received an adequately immunizing dose of good. The practical exercises in this book are intended to begin the process of acquiring resistance. Readers queuing for their first shot of vaccine but at this stage less concerned with the immunopathology of writing may choose to move directly to Chapter 5 – with both sleeves rolled up. Later, sustained by high titres of anti-jargon, they may like to return to the more philosophical considerations of Chapter 2.

But the most important reason for clear writing must not be forgotten. We are not embarking on a sterile exercise in vocabulary and grammar. *Forget the journals, forget the editors, forget other researchers. If you write clearly and think clearly, you will express yourself clearly. The people to whom that really matters are the patients: ill people who want explanation in clear language. If you forget the conventions of medical writing and just write English, patients will benefit.*

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

Chapter

## 2

## The malaise of medical manuscripts

There is probably more bad writing in medical journals than in any other kind of periodical.

*(Sir Andrew Macphail, 1864–1938, Professor of the History of Medicine, McGill University, Montréal; quoted by C. Gray. CMAJ's century reflects a profession and a country. CMAJ 2011; 183: 17–21.)*

Do we think in words? It doesn't matter. It doesn't matter even if we do not initially form our ideas in words. We have only words to express those ideas to others. If medical researchers write descriptions of experimental work, whether in basic research or applied clinical trials, that confuse readers assumed to be of equal knowledge and understanding, then that is the responsibility of the writers not the readers, who might justifiably wonder whether the conduct of the research had been similarly confused. (The difference between 'responsibility' and 'fault' serves a purpose here: writers should not necessarily be blamed for their bad habits.)

Medicine is a practical subject so here is an example of confused writing, taken from a clinical report. The investigators were relating the rate of infusion of a drug to its concentration in the blood. They wrote,

The infusion rate was then increased and blood was taken 4, 8, 12 and 20 minutes after the new target concentration *had been achieved* [our italics].

The meaning of this sentence is clear: blood was taken to ascertain what happened after the new, desired concentration had been reached. This is a reasonable thing to want to know; after all, if the concentration varied, then the effect could be unpredictable.

The meaning is absolutely clear; but the trouble is that it is not what the investigators meant. They were interested in how quickly the concentration reached its new steady-state after *the rate of infusion* had been increased; they took blood 4, 8, 12 and 20 minutes after taking the action that *sought to produce* a new target concentration, that is, after altering the rate of infusion. The investigators could not know the concentration of the drug in the blood until *after analysis* some days later. What they should have written is, *The infusion*

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

rate was then increased and blood was taken 4, 8, 12 and 20 minutes later, or (although it is implicit and not strictly necessary) . . . after the new target concentration had been set.

Science depends on clear thinking and accurate reporting. These investigators described the defining of a future event as the achievement of that event – they described aiming at the target as hitting the target. Is it unfair to wonder if their scientific method might have been similarly imprecise?

Sadly, an editorialist at the *BMJ* (formerly the *British Medical Journal*) was not being ironic when, commenting on a doctor struck off the medical register for faking ethics committee approval for a research project, he wrote, ‘The forgeries were described as “hopelessly inept,” containing grammatical errors and couched in language that was difficult to understand’. If the doctor had managed to do the research, such a skill would have made the forged research pretty well undetectable.

There are five defences that are commonly made of the style of writing that we are seeking to alter: that everyday language is inappropriate and not precise enough to describe the results of a medical study; that long words are more scientific; that there is a convention for writing medical papers; that editors alter the writing to suit themselves; and that everyone has their own style, which is better than conforming to a supposedly correct set of rules. All are poor defences.

There is some justification in the defence that everyday language is inappropriate, because sometimes it is. Colloquial expressions such as *mum* for *mother*, *kid* for *child* and *swig* for *drink* would be out of place, but that is no good reason for choosing *maternal parent*, *paediatric patient* and *liquid imbibition*; or for claiming that these longer substitutions are more precise. There is no more precise way of expressing the idea of a female parent than the word *mother*. The *paediatric patient* is now a common visitor to medical texts, but the two words are less precise than writing the single words *infant*, *child* or *adolescent*.

*Precise* does not always mean *short*, although the more precise word of a synonymous pair is commonly the shorter one. *Precise* means *accurately expressed*. Something that is precise will be clear and unambiguous, which is what is needed in scientific or medical writing. We tend to avoid long words and complicated constructions in everyday speech with colleagues and patients, largely because these words and constructions are imprecise, inefficient and difficult to understand, and we should do the same in our writing. There is also the general principle that articles are easier to understand if they contain a greater proportion of common words, e.g., *drink* rather than *imbibition*. This principle need not interfere with the need of medical writers to use technical terms: it is the inaccurate replacement of non-technical words that is the problem.

Are longer words more scientific? Science can be very complicated, but there is nothing that requires descriptions of science to be written in any sort of special language that only scientists understand. There will be few clinicians who grasp the intricacies of string theory, which attempts to explain time, mass, gravity and other phenomena in the same physical terms and requires an understanding of a number of dimensions beyond the familiar three. Yet, when an editorial appeared about it in the *Lancet* the writing was a model of clarity:<sup>2</sup>

Since 1984, there has been an explosion of enthusiasm for superstring theory, motivated by indications that this theory will not only lead to a consistent understanding of quantum gravity but also necessarily unify all the fundamental particles and the physical forces.

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

The basic principle is that the fundamental particles (e.g., the electron, the quarks, and other particles) are extended, string-like, objects rather than the structureless point-like objects that appear in all previous quantum theories (e.g., those based on Maxwell's electromagnetism or Einstein's gravity). . . .

. . . For general reasons, in a complete quantum theory that includes gravity along with the other forces, [the] familiar notion of space-time must be altered . . . [and] . . . can no longer be considered as a smooth collection of points but is continuously fluctuating in a manner that depends on the forces exerted by the particles that move through it.

The theory is mind-boggling; the idea of space–time fluctuation is certainly beyond easy comprehension. But the expression of these ideas could not be more clear and can be grasped readily at first reading. The clarity gives the subject immediacy and makes it interesting. It leaves the reader curious to know more. Compare that passage with this next extract, which is about the control of breathing, a subject for which all workers in medicine are at least likely to have a grasp of the terminology (which we may lack in subatomic physics).

A speculative proposal that the physiological explication of the control of pulmonary ventilation in the mammal is made coherent and consistent with most physiological observation if the control conceptualization is formulated around the notion that air flow is the real part of an analytic time varying signal. The instantaneous amplitude and phase of the signal correspond to depth and rate of breathing.

The writer has used the word 'coherent' (which means, among other things, *easily followed*), which makes it ironic that the expression of these ideas, compared with the nominally more difficult ones from particle physics, could not be more opaque. The ideas are impossible to grasp at first reading. The opacity makes the reader eager to skip the rest of the article. In fact, the extraordinarily contorted first sentence can be summed up quite simply:

All observations relating to the control of breathing in the mammal can be explained in terms of the instantaneous air flow.

The original, though nearly impossible to understand, would probably be said by many to be more scientific. If this is part of a convention for writing medical articles, then it is a poor convention that should be abandoned.

As we wrote in Chapter 1, bad writing is contagious. Part of the protection against this is to widen our reading. Max Perutz, Peter Medawar and Richard Feynman (see **BOOKS TO READ OR DIP INTO**) all won Nobel prizes for scientific discoveries. They did not write a special kind of scientific prose; they wrote clear, simple English. They wrote clear, simple English to express clear, simple thoughts, even though the subjects they researched were at times complex and perplexing. They did not think of 'speculative proposals' and 'physiological explications'. (Examples of their writing can be found in *The Oxford book of modern science writing*, see **BOOKS TO READ OR DIP INTO**, edited by another fine – though controversial – writer of science, Richard Dawkins.)

Perutz quotes Medawar in saying that good writing is almost always shorter than bad. Feynman tells a story in his autobiography of a conversation he had with a stenotypist at a conference of social scientists.<sup>3</sup> The stenotypist asked Feynman about his profession and was surprised when Feynman told him he was a professor.

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer  
Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

‘Of what?’

‘Of physics – science.’

‘Oh, that must be the reason,’ he said.

‘Reason for what?’

He said, ‘You see, I’m a stenotypist, and I type everything that is said here. Now, when the other fellas talk, I type what they say, but I don’t understand what they’re saying. But every time you get up to ask a question or to say something, I understand exactly what you mean – what the question is, and what you’re saying – so I thought you *can’t* be a professor!’

Better to emulate the professor of physics than these particular social scientists.

Certain conventions in scientific writing endure for good reasons. For example, there is little place for style that imparts mood and emotion to the words; we are reporting facts and stating opinions based on them and their relation to other facts. We may need to remember too that the internet gives the so-called lay public far greater access than before to science.

Less controversially, there is more room for personal style in reviews and books. For reviewing, the style used for bare scientific reporting removes the whole purpose, which is to be critical. As Sam Shuster wrote in a book review,<sup>4</sup> ‘In each of the three books mediocrity of approach showed itself in the fear of personal involvement and commitment and in the curious and almost reverential equality accorded to all published work.’

What about editors’ demands? Here we must distinguish between the title of editor and the function of editing. Editors of journals have ultimate power in accepting or rejecting submitted articles. They do not necessarily edit them in the sense of rewriting the text, which some may claim is to follow the ‘conventions’ of scientific prose, but in our experience almost always is to make articles clearer and shorter. This, the province of editorial assistants, copy-editors and the like, usually includes correcting serious grammatical errors and altering particular phrases to conform to the ‘house style’ of the journal (which will include the representation of numbers and units, illustrations and tables and references).

Editors may be too busy to do the copy-editing themselves, but there is a strong argument that they should be capable of it, and should have an appreciation of language. Gregory believed that editors should be writers not scientists and that badly written work should be rejected, whatever its scientific standard.<sup>5</sup> We have to say that the writing in some of the specialized journals is particularly bad, and it is difficult to avoid thinking that the editors are concerned only with filling the pages. As O’Donnell put it, ‘Some journals propagate language that not only obstructs understanding but allows authors to indulge in sloppy thinking.’<sup>6</sup>

The referees to whom editors send manuscripts for assessment must also bear some responsibility for poor writing. Referees should criticize bad writing and editors should send papers back to authors for rewriting, even papers that have been judged scientifically sound. They should also be able to recognize when language difficulties reflect that English is not the writer’s first language. Copy-editing second-language texts for clarity is demanding work, but important if the international project in medical communication is to flourish. Of course, active editing is time-consuming and expensive but that is not an argument for producing more and worse; rather it is asking for better but possibly less. Open access

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer

Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

journals, with articles paid for by the authors and sometimes barely peer-reviewed, are unlikely to improve matters.

What of the last defence: that everyone has their own style, which is better than conforming to a supposedly correct set of rules? We find that writers who make this claim almost always have no idea of what these rules might be but, more importantly, often no one will have given them any advice. The writing is the only representation of the science that the readers will see; writing and science cannot be separated. Investigators design protocols for studies and have to be able to reply to criticism of the design. They can be criticized for inaccurate measurements; they must be able to justify their statistical methods. Criticisms and challenges of these things are expected, yet criticisms of the writing are too often seen as distracting from the science. When writers write in a particular way, when they have chosen certain words to describe their studies, the words and the writing are their responsibility as much as the protocol, the measurements and the statistics. Readers have a right to accurate, clear descriptions, without having constantly to look back to previous sentences, or to interpret the meaning of words from their contexts. Excessive fussing about details of wording is commonly dismissed, particularly at medical meetings, as nit picking, yet science depends on meticulous attention to detail.

This need not cramp the writer's style. Good writers of medical English still manage to write with style, but they write on a base of good English. Enthusiastic writers will inevitably instil something personal into their writing, even when what is written is a formal, academic communication. 'There is no one correct way to write, since the way each person puts words together to convey meaning reflects their personality and their feeling for words', wrote Robert Barrass (see REFERENCE BOOKS). He also wrote, 'Some scientists do not write as well as they should because they do not think of writing as part of science.' Sadly, many doctors and medical scientists seem unaware that any advice about writing is available, let alone easy to obtain.

There is another important aspect of medical writing: medical and scientific reporting must be honest, a formidable reason why words should be chosen and used with care. Politicians make meaningless statements such as, 'The Iranian government in all its dimensions is helping with the hostage crisis', and estate agents describe houses as 'deceptively spacious'. The *Independent* newspaper of 15 September 1990 quoted a managing director as saying of a scheme for loans to students, 'This is not lending. This is giving money as part of an educational expansion programme. The fact that the student has to pay the money back is the only resemblance to a loan.' The fact that the student had to pay the money back is what made it a loan.

We may ascribe particular and not necessarily benign motives to people who say and write these things; there is no place for similar motives in research. Facts must be reported for what they are, which means they must be reported with all their loose ends. Richard Feynman wrote:

It's a kind of scientific integrity, a principle of scientific thought that corresponds to a kind of utter honesty – a kind of leaning over backwards. For example, if you're doing an experiment, you should report everything that you think might make it invalid – not only what you think is right about it . . . . In summary, the idea is to try to give all of the information to help others to judge the value of your contribution; not just the information that leads to judgement in one particular direction or another.<sup>3</sup>



Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer  
Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

It follows from this that not only must all the information be given, but it must be given clearly and simply and without attempts to influence readers. To quote Feynman again, ‘The first principle is that you must not fool yourself – and you are the easiest person to fool.’<sup>3</sup>

There are many ways that scientific and medical writers try to fool themselves. A common one is to present numerical observations in a favourable light, perhaps by reporting the mean of a measured variable without giving its variability. This is omitting ‘information to help others to judge the value of your contribution’. As with statistics, so with language: everything that is written must be chosen precisely and not left to be puzzled over by the readers. Confused thinking and confused writing may produce not just confused readers, but confused medical practice. The implications of clinical research, and the inferences we make from it, alter treatments and affect patients.<sup>7</sup> The clearer the language, the less likely that errors of logic will be made in drawing conclusions from studies. Perhaps this is another good reason for remembering that medical writing now reaches a wider, ‘lay’ audience that is increasingly seeking information to inform and empower its choices as equal participants in prevention and treatment.

Researchers want to discover things, and those who give practical or financial support to research want a return for their support. These are strong forces towards a piece of research having to provide an answer; more than that, an answer that matters. It is these forces that are responsible for some of the errors of logic in the interpretation of medical research. The simplest errors of interpretation come from the misuse of statistics, but there are other errors of logic that are not so simple, that depend on thoughts and words rather than figures, which makes them difficult to analyse. Clear reasoning can be difficult in medicine, where dogma and entrenched attitudes are common, and where most clinical diagnoses are made by intuition. There is plenty of room for intuition in science and medicine, but not when drawing conclusions from clinical trials about treatments. The time for intuition is in the construction of the hypotheses, either as the primary questions asked in trials, or as unanswered and further questions emerging from the results of trials.

## Summary

We choose these keywords to tag this discourse on the writing malaise:

- limitations;
- imitations;
- obfuscations;
- specializations.

*Limitations* on the production of lucid writing include a lack of awareness, a failure of education and training, and the failure of most journals to provide guidance on writing; these can be countered by practical solutions, such as we offer here. Some attitudes to higher education may be widening the limitations. Frank Furedi quotes a professor of education who believes essay writing is elitist and that it is thus unfair to ask university students to write them.<sup>8</sup> There is also the perceived preference of medical schools for ‘privileged’ students, which politicians want to prevent. These influences may make it even more difficult for future doctors to express themselves well on paper.

Limitations of perception are inseparable from *imitations*: would-be medical writers copy the word forms they read. Linguistic analysis can be readily applied to medical writing. Consider the much-imitated ‘hedging devices’ (*these results may . . . , a possible*



Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

*outcome is . . . , this could sometimes . . .*) that are too common in medical texts. A *Lancet* editorial, aptly titled ‘Trimming hedges’, offers its first sentence for ‘deconstruction’:<sup>9</sup>

*It seems [shield] that most [approximator] contributors to medical journals find it extremely difficult [emotionally charged intensifier] to be certain which of their conclusions have been proven and which not [passive voice], or so one must assume [(paradoxical) expression of author’s personal doubt].*

The article goes on to consider how far hedging is merely stylistic vagueness and how much ‘a resource used to express scientific uncertainty’. We worry that such endemic *obfuscations* (*obfuscate* (COD): darken, obscure, confuse) are an intentional watering down of medical prose, almost as if there have been protective legal interventions. Some may consider this verging on the paranoid but, in a book review:<sup>10</sup>

Another *disturbing* [our emphasis] problem . . . is the inability of some of its [the book’s] authors to resist making unreferenced statements that, however innocuous they may seem to anesthesiologists, may prove problematic when used against us by lawyers . . .

and in an ‘Opinion’ article in *Nature*:<sup>11</sup>

. . . there are occasions when a scientific article may seem to readers to be damaging to established interests, perhaps those of medical practitioners or manufacturers.

Some journals have legal departments that review articles before submission for publication. An apparently obfuscatory author may have written more in mind than writing (particularly when so much research is sponsored by commercial concerns).

As to *specializations*, we are sure that the sort of objective lexical analysis described by Hayes would confirm the anecdotal impression that the medical literature, because of the use of specialized language, is becoming increasingly obscure to all but ‘initiates’. In commenting on ‘the drift towards inaccessibility’ in scientific writing, Hayes detects an obvious ‘side-effect’ of unrestrained language specialization:<sup>11</sup>

. . . that ideas flow less freely across and within the sciences, and the public’s access to (and maybe trust in) science is diminished.

We have argued that public access is burgeoning via the internet; it is the diminution of trust that remains an issue.

In a nutshell then, the darkest interpretation of the story so far is that medical writing in English is often bad to the point of dreadful. (Not that this is something peculiar to the twenty-first, or even to the twentieth, century: see pp. 3 & vi.) Its exponents, or certainly the younger ones, have passed through an increasingly restrictive and specialized system of education in which the placental nourishment of English literature is severed at a tender age. They then find themselves required, largely without formal guidance, to furnish evidence of their abilities – though one might ask, abilities of what? – by writing and having published academic articles. The models for these great works are their colleagues’ academic articles, of variable quality, many of which have not been subjected to any real copy-editing. In words that suit the topic: there exists the potentiality for an on-going vicious cycle of unsatisfactory style.

Of course, there are many doctors and medical scientists who write well. We have tended to concentrate on poor writing because in medical science it is stereotyped and therefore easy to recognize, whereas good writing generally has the one quality: clarity. Compare two

Cambridge University Press

978-1-107-62815-1 - Medical Writing: A Prescription for Clarity: A Self-Help Guide to Clearer  
Medical English: Fourth Edition

Dr Neville W. Goodman and the Late Dr Martin B. Edwards

Excerpt

[More information](#)

passages: the first from a specialist monograph published in America, the second from Sir George Pickering's classic textbook *High blood pressure*.<sup>12</sup> (And see Ch. 22.)

The broad indications for invasive measurements can properly be restated – that is; when the availability of hemodynamic descriptors complement the etiologic and functional diagnosis, define the likely temporal progression of the changing pathophysiology, and modify or may modify the therapeutic approach to management.

As my scientific colleagues remark, the idea that a quantity, arterial pressure, has to be treated as a quantity and not arbitrarily divided into two ('normotension' and 'hypertension') is a glimpse into the obvious. Nevertheless, physicians of my generation, and even those of the rising generation, yearn for a definition of 'hypertension'; they clutch hopefully at every straw and even try to persuade themselves that the curve relating arterial pressure to mortality is composed of two linear relationships which cross at 140/90.

No doubt the writer of the first passage would agree with the one who wrote, 'A question is only interesting if there is a meaningful further discourse or procedure. Meaning is a property of statements that empathizes with the internal context of the understanding mind.'

Sir George Pickering, however, wrote further down the same page of his book that 'The function of language is to convey meaning', and we agree with him.

The ability to write clearly is a skill, not an art, and it is learned by practice. If the writing up of research is dismissed as a necessary evil, then researchers lose an excellent chance to improve their writing. When the research is finished, there may never be need to look at another experimental protocol, but there will always be a need to write: to colleagues, to patients, to newspapers, to local magazines.

The ability to write well is always useful.

## The most important reason for clear writing

We make no excuse for repeating this paragraph from the end of Chapter 1.

*Forget the journals, forget the editors, forget other researchers. If you write clearly and think clearly, you will express yourself clearly. The people to whom that really matters are the patients: ill people who want explanation in clear language. If you forget the conventions of medical writing and just write English, patients will benefit.*