

## Plain Text

You just can't win an argument with an English professor.

"Let's at least agree," I said, seeking some common ground from which to stage my next attack, "that the primary function of language is to transmit information?"

"Oh, no, no, no: not at all." He managed to convey a vague sort of surprise at my naïveté, with barely a shrug of the shoulder or a twitch of an eyebrow. "Much, if not in fact most, of the time, the real purpose is to obscure information."

I was about to protest that in science, at least, we are not in the business of obscuring information, but then I realized that this is sadly not true. Sometimes we obscure the facts through incompetent use of our media, and sometimes we do it deliberately. And sometimes the passage of time just makes papers harder to read, as the commonly accepted standards of communication change.

The beginnings of the scientific age occurred in an era when all learned literature (at least in Western Europe) was published in Latin. Presumably this allowed access to those of a certain class while excluding the riffraff. Newton's great work *Philosophiæ Naturalis Principia Mathematica* (*Mathematical Principles of Natural Philosophy*, or familiarly to some, I suppose, just *The Principia*) was published in Latin in 1687. It only became necessary to translate it into English more than 40 years later, in 1729, due to a widespread decline in Latin skills, or an actual need to convey information. His next book, *Opticks*, was published in 1704 in English (of a sort). This is perhaps the 18th-century equivalent of a movie being released, in the first instance, on video instead of having a theatrical opening. No Latin edition? *Quid facit mundi?* (What is the world coming to?) Reading *Opticks* in its original form might be a challenge to the young scientists of today, though. Even the title has an archaic spelling, and it gets no easier after that. Still, it took another few hundred years before the great universities of Oxford and Cambridge ceased to require all of their undergraduate students to be proficient in Latin; and by the mid-20th century the writing was pretty clearly on the wall (and in plain English). As progress always accelerates, it only took a few more years before Oxbridge science students were released from any language requirements at all. English had replaced Latin as the *lingua franca* of science.

Robert Hooke was a contemporary and rival of Newton's, and their battles over the ownership of precedence in a number of discoveries are legendary. As time went

by, Hooke learned from Newton's consistent victories that it was essential to stake your claim unequivocally, so when he conceived the theory of elasticity, he took pains to write it down and established at least one great tradition of scientific prose. *Ut tensio sic vis*—obscure enough in its pristine Latin terseness, but even if you could translate it properly to "as the extension, so the force," it is still one of the earliest examples of statements that are only comprehensible if you already know what they mean. How many of those have you read lately? Just to make things a little harder, since he was not quite ready to release this masterpiece to the world, and he wanted to protect it from being stolen by Newton, he actually wrote it as an anagram: CEIIINOSSSTTUV. According to some accounts, this was penned in the margin of a diary, while others suggest that it was written on a slip of paper and hidden in the chimney of his house. (Hooke was fascinated with the science and technology of chimneys.) Imagine the head-slap moment that anyone reading this little puzzle would have had: "Duh, why didn't I think of that?" Clearly, Hooke was not seeking to convey any information to his potential readers. Touché, English Professor.

Thomas Young, who demystified Hooke's law by translating it into an equation, found that he also had to explain himself in words, but he was not quite such a master of brevity or clarity in the medium of the English language:

"...the modulus of elasticity of any substance is a column of the same substance, capable of producing a pressure on its base which is to the weight causing a certain degree of compression as the length of the substance is to the diminution of its length...."

At least Young was trying to convey something.

Perhaps things have become a little simpler. A distinguished Eastern European mathematician, upon receiving an honor from a university, stiffly and haltingly addressed the convocation: "I shall speak to you in the international language of science..." (inward groans from the audience, anticipating a math lecture) "...which is heavily accented English." With the growth in the numbers of non-native English speakers in the scientific community, it is now important to write technical papers that are aimed at the linguistic least common denominator. Although there are no great linguistic flourishes in modern scientific literature, it is arguably a great deal clearer than the

writings of prior generations. My students complain of impenetrability when I send them to read original works from the pre-historic era of the 1950s, for example. Today, our sentences are shorter. Our formulations are more standardized. You do not have to struggle so much with the language to read the paper, these days. Strunk and White would be proud.

Just as Latin was replaced as the language of scholarship at the turn of the 18th century, displaced by something simpler and more accessible, English is coming under threat at the turn of the 21st century. It is not some other language that is on the rise, but English is descending to levels of simplicity where it may not be sufficient to convey complicated ideas. I would be far from sad to see the disappearance of the pervasive, pernicious, passive voice from technical writing, but simplification beyond that point raises some concerns. We are now faced with a generation whose communication technologies include instant messaging and text messaging via personal computers and mobile phones. The Cockney rhyming slang of my home city was first invented to allow secret communication to occur in the open while concealing information from outsiders, and then it became incorporated in the standard language, allowing all sorts of informal shorthand. The modern equivalent is the text-messaging shorthand that teenagers use. The combination of speed for the thumb-typist, and impenetrability by the parent, makes this an essential argot, but the fate of all such dialects is to be incorporated in the mainstream. I have even had a few technical "conversations" in these formats, and they have some attractions. How long before the medium's shorthand appears in a "learned" paper, to the delight of the young and the bafflement of the mature?

Some writers will always be more concerned with letting you know that they possess a magnificent linguistic ability than they are about providing any information that their extensive vocabulary can convey. (*Mea culpa.*) Some will always just write what they mean to say (despite the English professors.) But some, alas, will be handicapped by the irreducible simplicity of their written language. The result will be more words, in more papers, to convey ideas of greater simplicity than our forebears would have deigned to put into print. Only the publishers win.

BFN. TTYL.

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