Editors' view

Write on

J. K. Aronson, Chairman of the Editorial Board, British Journal of Clinical Pharmacology

University Department of Clinical Pharmacology, Radcliffe Infirmary, Woodstock Road, Oxford OX2 6HE, UK

Writing began at least 30 000 years ago, when palaeolithic hunters carved pictographic representations on the walls and floors of caves. Pictograms then turned into ideograms, like the Chinese characters used in Chinese, Japanese (kanji), and Korean (idu) scripts, in which a stylized picture represents a word. An ideogram is better than a pictogram – it can be used to depict an abstract concept as well as a concrete object. Examples of ideographic scripts include Egyptian hieroglyphics (attributed to the god Thoth), Hittite, Babylonian, Assyrian, and Persian cuneiform, and Minoan Linear B, discovered on tablets in Knossos at the start of the twentieth century by Arthur Evans and famously deciphered in the 1950s by Michael Ventris.

Ventris's decipherment was revolutionary; it showed that Minoan was in fact a variety of Mycenaean Greek, not Etruscan, as many scholars, including Ventris himself initially, had thought. Linear B dated from about 1450 BC and its forerunner, Linear A, from about 1750 BC. But Linear B was not purely ideographic; some of the signs represented not whole words but syllables. This evolutionary process is logical: a pictorial representation of an object acquires a sound that represents that object. At first it represents the sound of the whole name of the object, but with increasing stylization and abstraction, the sound becomes the sound of a fragment of the name (a syllable) and then the sound of a smaller fragment (a letter). The sign at first suggests the thing, then the name of the thing, and then the sound of the name of the thing.

Concurrent with the hybrid writing of the Minoans, an alphabetic form of writing developed in what we now call the Middle East, North Semitic, which formed the basis for the Phoenician alphabet, from which the Hebrew, Arabic, and Greek alphabets were derived.

According to Greek legend, when Cadmus founded Thebes he taught the Phoenician alphabet to the Boeotians. The Roman alphabet was derived from Greek via Etruscan, and many Indo-European languages, including English, are written in the Roman script. The strength of the alphabetic approach compared with the ideographic is clear from the number of characters they need. Our alphabet consists of only 26 characters, while the Chinese require about 40 000, and even 2000 in the simplified form. However, we still sometimes use ideograms as shorthand, like &, %, \$, and @. Gents and ladies toilets are labelled in many ways, often by ideograms of men and women, but sometimes by other symbols, such as men's ties and women's underwear. Visitors to Scotland may be embarrassed if they act on information that the gents' is marked by an ideogram of a man in a kilt.

Now Marshall McLuhan's theory of technological determinism states that we shape our tools and in turn they shape us. But having shaped the alphabet we repeatedly find that it fails to shape us as we would like. We might expect, for example, that the ability to write down a case history would lead to insights into the processes that determine that history. But two papers in this month's issue illustrate that the mere ability to record is not enough.

Waller et al. [1] analysed 54 million hospital diagnoses in England using the Hospital Episode Statistics database. Only 0.35% of admissions were attributed to adverse drug reactions ('drug-induced'). But this is an order of magnitude less than the true rate, 3–6%. In the USA a systematic review of 39 studies showed that the overall incidence of serious adverse drug reactions (those that required hospitalization, were permanently disabling, or resulted in death) was 6.7% [2]. And in a

recent prospective study in the UK 6.5% of admissions to hospital were attributed to an adverse drug reaction [3].

Why the discrepancy? Well, Waller et al. excluded conditions that are likely to be due to drugs but can occur otherwise, such as Stevens-Johnson syndrome; including such diagnoses would have increased the figure, but would have over-inflated it. On the other hand, 3–6% may be an overestimate, since causality can be hard to attribute: most patients admitted to hospital are taking several drugs, to which adverse events can readily be ascribed. However, these factors are unlikely to have made a ten-fold difference. Furthermore, the ratio of all drug-induced admissions to fatal ones in Waller et al. was 43, similar to the ratios in the other studies, suggesting that another explanation should be sought. The likeliest explanation is that doctors do not readily diagnose drug-induced disorders and do not register them when they diagnose them. This may be because of uncertainty or because the affected patients are mainly elderly and likely to have multiple pathology. Or maybe drugs do not feature high on doctors' lists of differential diagnoses.

Elsewhere in this issue, Cockayne et al. show that doctors, pharmacists, and nurses often fail to record the complementary and alternative medicaments that patients are taking [4]. Education improved the rate of recording, but only to 44% at best.

None of this is surprising. Doctors in the UK grossly under-report suspected adverse drug reactions on yellow cards, to the tune of only about 10% [5], anecdotes of harms are poorly reported [6], and clinical trialists are not good at recording adverse events in published reports of randomized controlled trials. The CONSORT group has therefore recently proposed a sensible set of recommendations for reporting harms in randomized trials [7].

As a medical student I was taught to ask patients about prescription medicines and over-the-counter medicines. Now I also ask about pills and potions, herbs and homoeopathic remedies, witches brews, and even grape-fruit juice. But not everybody remembers to do that. Perhaps we should resort to primitive script and use an ideogram as an *aide mémoire* in case notes; the Eye of Horus might do [8]. Certainly, prescribers need to be more aware about drugs and their effects and to record them in case notes.

References

- 1 Waller P, Shaw M, Ho D, Shakir S, Ebrahim S. Hospital admissions for "drug-induced" disorders in England: a study using the Hospital Episodes Statistics (HES) database. *Br J Clin Pharmacol* 2005; 59: 213–19.
- 2 Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients: a meta-analysis of prospective studies. *J Am Med Assoc* 1998; 279: 1200–5.
- 3 Pirmohamed M, James S, Meakin S, Green C, Scott AK, Walley TJ, Farrar K, Park BK, Breckenridge AM. Adverse drug reactions as cause of admission to hospital: prospective analysis of 18 820 patients. *Br Med J* 2004; 329: 15–19.
- 4 Cockayne NL, Duguid M, Shenfield GM. Health professionals rarely record history of complementary and alternative medicines. *Br J Clin Pharmacol* 2005; 59: 254–8.
- 5 Smith CC, Bennett PM, Pearce HM, Harrison PI, Reynolds DJ, Aronson JK, Grahame-Smith DG. Adverse drug reactions in a hospital general medical unit meriting notification to the Committee on Safety of Medicines. *Br J Clin Pharmacol* 1996; 42: 423–9.
- 6 Aronson JK. Anecdotes as evidence. *Br Med J* 2003; 326: 1346.
- 7 Ioannidis JP, Evans SJ, Gotzsche PC, O'Neill RT, Altman DG, Schulz K, Moher D, for the CONSORT Group. Better reporting of harms in randomized trials: an extension of the CONSORT statement. *Ann Intern Med* 2004; 141: 781–8.
- 8 Aronson JK. X marks the spot. *Br Med J* 1999; 318: 1543.