

The language of medicine

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There is no recognized discipline called medical linguistics, but perhaps there ought to be one. The language of medicine offers intriguing challenges both to medical historians and to linguists. Classical scholars have analysed the contents and language of the most ancient medical records in great detail, but the later development of medical terminology has received much less attention. Here I present a brief overview of the history and characteristics of the language used by medical doctors when they communicate with one another.

THE GREEK ERA

The oldest written sources of western medicine are the Hippocratic writings from the 5th and 4th centuries BC, which cover all aspects of medicine at that time and contain numerous medical terms. This was the beginning of the Greek era of the language of medicine, which lasted even after the Roman conquest, since the Romans, who had no similar medical tradition, imported Greek medicine. Most of the doctors practising in the Roman Empire were Greek, and the works by Galen of Pergamum, from the 2nd century AD, were for centuries valued as highly as the Hippocratic ones. Our Greek legacy comprises numerous names of diseases and symptoms, such as catarrh (down-flow), diarrhoea (throughflow), dyspnoea (bad breathing), melancholic (pertaining to black bile) and podagra (a foot trap).

At the beginning of the first century AD, when Greek was still the language of medicine in the Roman world, an important development took place. At that time a Roman aristocrat from Narbonensis (now Narbonne in the South of France) by the name of Aulus Cornelius Celsus wrote *De Medicina*, which was an encyclopaedic overview of medical knowledge based on Greek sources. He is sometimes called *Cicero medicorum* (the Cicero of doctors) on account of his elegant Latin. Celsus faced the difficulty that most Greek medical terms had no Latin equivalents, and the manner in which he solved this problem is of considerable interest from a linguistic point of view. First, he imported a few Greek terms directly, even preserving their Greek grammatical endings. He included, for instance, the Greek

words *pyloros* (now pylorus) and *eileos* (now ileus), written with Greek letters in his Latin text. Secondly, he latinized Greek words, writing them with Latin letters and replacing Greek endings by Latin ones—e.g. *stomachus* and *brachium*. Thirdly, and most importantly, he retained the vivid imagery of the Greek anatomical terminology by translating Greek terms into Latin, such as *dentes canini* from Greek *kynodontes* (dog teeth) and *caecum* from Greek to *typhlon* (the blind [gut]). Thus, we can still enjoy the old Greek tradition of likening the shape of anatomical structures to, for instance, musical instruments (e.g. *tuba*=trumpet, *tibia*=flute), armour (thorax=breastplate, *galea*=helmet), tools (fibula=needle, *falx*=sickle), plants (*uvea*=grape, *glans*=acorn) and animals (*helix*=snail, *concha*=mussel, *musculus*=mouse, *tragus*=goat so named because that part of the external ear may be covered with hair, resembling the tuft on a goat's chin). Some of these words are the original Greek ones, while others are Latin equivalents introduced by Celsus and his successors.

MEDICAL LATIN

During the Middle Ages a third language gained importance as many of the classical Greek medical texts were translated into Arabic. Scholars from the Arab world also made original contributions to medical literature, and a few Arabic terms (e.g. *nucha*) found their way into western medicine. However, at the time of the renaissance, when Greek was no longer widely understood, both Greek and Arabic works were translated into Latin, and the era of medical Latin began. Celsus' *De Medicina* appeared in print as early as 1478, only a couple of decades after the introduction of the printing press, and it was followed by Latin editions of Galen. During the subsequent centuries almost all important medical works were published in Latin (e.g. those by Vesalius, Harvey and Sydenham); the medical vocabulary expanded but basically did not change. Medical Latin continued to be ordinary Latin with the admixture of numerous Greek and Latin medical terms. Gradually, however, the national languages gained ground at the expense of Latin, and in Britain William Heberden's *Commentarii* was probably the last notable medical work to be written in Latin. It appeared in 1802 and Dr Johnson referred to the author as *ultimus Romanorum* (the last of the Romans). In other countries medical Latin survived a little

longer: in Denmark, hospital doctors wrote patients' notes in Latin until 1853.

NATIONAL MEDICAL LANGUAGES

Then followed the era of the national medical languages, such as medical English (i.e. ordinary English with the admixture of medical terms), medical French, medical German, medical Italian and many others. A few of these, especially French, German and English, replaced Latin as vehicles for international communication, but most of the others were only used nationally. The national medical languages had much in common since most of the medical terms were derived from medical Latin, but there were systematic differences that still persist. In Germanic languages such as the German, Dutch and Scandinavian ones, anatomical terms and disease names are often imported directly with their correct Latin endings, e.g. *nervus musculocutaneus* and *ulcus ventriculi*, whereas the same terms in Romance languages are usually 'naturalized' according to the norms of each particular language, e.g. *le nerf musculo-cutané* and *ulcère gastrique* in French, and *il nervo musculocutaneo* and *ulcera gastrica* in Italian. English is a Germanic language but half its vocabulary is of Romance origin, and medical English tends to follow the Romance pattern except in placing the adjective before the noun, e.g. the musculocutaneous nerve and gastric ulcer. In Slav languages it is customary to translate the terms, e.g. Russian *kozhno-myzhechny nerv* ('skin-muscle nerve') and *jasva zheludka* ('ulcer of stomach'). Modern Greek is noteworthy in allowing only Greek terms, including many of those that Celsus translated into Latin two millennia ago. The musculocutaneous nerve, for instance, is *to myodermatiko neuro*. However, the distinction described here between a Germanic, a Romance and a Slav pattern is no more than a tendency with numerous exceptions. English-speaking doctors also accept direct loans with Latin endings (e.g. *medulla oblongata* and *diabetes mellitus*), and German doctors may naturalize the Latin terms (e.g. *Coronararterien* for *arteriae coronariae*) or translate them into German (e.g. *Magengeschwür* instead of *ulcus ventriculi*).

The national medical languages did not confine themselves to importing terms already found in medical Latin. Medical scientists continued to develop new concepts that had to be named, and our classically schooled predecessors coined a multitude of new terms, most of which were composed of Greek rather than Latin roots, since Latin does not to the same extent permit the formation of composite words. They introduced, for instance, the terms *nephrectomy*, *ophthalmoscopy* and *erythrocyte*, which in medical Latin would have been the

rather more cumbersome *excisio renis*, *inspectio oculorum* and *cellula rubra*. This huge neoclassical word stock with Greek roots, which is still being used, also presents other characteristics of linguistic interest such as the special meaning attached to certain suffixes of a Greek origin (e.g. *-itis* and *-oma*) and the fact that some prefixes and suffixes are more productive than others. Greek *hyper-*, for instance, is more productive than Latin *super-*, although originally they had exactly the same meaning. Therefore, we say *hypertension*, which is a Greek–Latin hybrid, rather than *supertension*, which would have been the correct Latin term.

Medical English

Today, all the most influential medical journals are written in English, and English has become the language of choice at international conferences. We have entered the era of medical English, which resembles the era of medical Latin in that, once again, medical doctors have chosen a single language for international communication. Whereas in former times new medical terms were derived from classical Greek or Latin roots, now they are often, partly or wholly, composed of words borrowed from ordinary English—e.g. *bypass operation*, *clearance*, *base excess*, *screening*, *scanning*—and doctors from non-English-speaking countries now have the choice between importing these English terms directly and translating them into their own language. The term *bypass*, for instance, is accepted in German, Dutch, Scandinavian, Italian and Romanian, whereas the French, who do not favour anglicisms, translated it to *pontage*. The Poles chose *pomostowanie*, which has the same meaning as *pontage* (*most* being a bridge), and the Russians use *shuntirovanie*, which is just another anglicism, being derived from English *shunt*. Naturalization of the English words is also quite common in some languages: in Danish, we use the verbs *at screene* and *at skanne* (to *screen* and to *scan*). English acronyms such as AIDS, CT, MR and PCR present the difficulty that usually the initials no longer fit when the English term is translated, but as a rule such discrepancies are simply ignored. AIDS, for instance, is widely accepted and has almost become a noun in its own right, though in French and Spanish it is SIDA and in Russian SPID, reflecting the order of the equivalent words in these languages.

For linguists the language of medicine is fascinating for the flow of concepts and words from one tongue to another. For medical doctors, an appreciation of the history and original meaning of words offers a new dimension to their professional language.