Editorials

century. In other words, the art of medicine is not about appearance at the expense of substance, but rather the way in which knowledge is related to advice and treatment. It was in this sense that art was used in book titles of the 17th and 18th centuries; for example, The Art of Curing Diseases (Gidean Harvey, 1689) and A Plain Introduction to the Art of Physick (John Peacock, 1697).

Such titles indicate that when dealing with patients doctors do not simply apply knowledge but also engage the art of medicine.

The problem might be reformulated in this way: medicine requires knowledge of universals and of the application of them to particular instances, as embodied in individual patients. Or as it was put a millennium ago by the famed Avicenna, "When we say that practice proceeds from theory, we do not mean that there is one division of medicine by which we know, and another, distinct there from, by which we act—as many, examining this problem suppose. We mean instead that these two aspects are both sciences—but one dealing with the basic problems of knowledge, the other with the mode of operation of these principles." The first aspect was called science proper, the second art.

Medical art may be a form of knowledge that is more probabilistic than the demonstrative certainty of science, but it is crucially important knowledge nevertheless. Moreover, all commentators on this art emphasise that its exercise requires not only knowledge of content, but something called "judgment." Philosophically speaking, the importance of judgment is today highlighted in phenomenology, aesthetics, "virtue ethics," and "emotional intelligence." Judgment is downplayed in instrumentalist and functionalist reasoning, where pride of place is given to the rationality of calculation, impartiality, and disinterestedness. On their own, attributes of disinterestedness can lead to coldly experimenting with cases; clinical judgment, on the other hand, requires attending to a patient.

While the science of medicine continues to be advanced by laboratory research and the statistical investigations of evidence based medicine, the parts of it termed "the art" are developing too, and remain a source of resistance to bureaucratic assessment and benchmarking. For thousands of years, the question of how best to associate the universal and the particular has always been the real doctor's dilemma. No formulae, however good, can ever obscure the second part of medical knowledge, which comes from the exercise of clinical judgment.

Harold J Cook professor and director
(h.j.cook@ucl.ac.uk)
Wellcome Trust Centre for the History of Medicine at UCL, London
NW1 2BE

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Mistletoe as a treatment for cancer

Has no proved benefit, and can cause harm

Most doctors in the United Kingdom will be surprised to learn from a case reported in this week's BMJ of a use for mistletoe (Viscum album) that has nothing to do with Christmas. Some patients with cancer inject themselves with extract of mistletoe in the hope of improving their condition. In continental Europe, at least 30 different mistletoe preparations are available. In Europe, most cancer patients use such extracts, at a total expense of about £30m (£45m; $59m) each year, and in Germany the insurance system pays for this treatment.

A Google search (20 November 2006) showed that 145 000 websites promote or mention mistletoe as a treatment for cancer. This much publicity may mean that many cancer patients in the UK will try mistletoe in the future or ask their doctor about it. It is therefore timely to discuss the value of mistletoe as an anticancer drug.

A century ago, Rudolf Steiner developed anthroposophy, a school of thought that led to innovations such as the Waldorf schools, biodynamic farming, and anthroposophic medicine. This approach to healthcare is based on intuitive thinking about assumed associations between four postulated dimensions of the human body (physical body, etheric body, astral body, and ego), plants, minerals, and the cosmos.

Anthroposophic medicine includes drugs, art therapy, rhythmic massages, special exercises, external applications, counselling, and anthroposophic nursing. These treatments are used "partly as adjuncts to and partly as substitutes for conventional medicine." Anthroposophic drugs are based on ancient alchemistic and homeopathic notions, far removed from the concepts of pharmacology. Many of these drugs are produced in unusual ways—some mistletoe preparations are fermented while other anthroposophic drugs are highly diluted according to homeopathic principles.

Steiner's intuition that mistletoe might help treat cancer is based on the fact that, like cancer, mistletoe is a parasitic growth that eventually kills its host. Inspired by Hahnemann's "like cures like" principle, he believed that an extract of mistletoe would cure cancer. Despite the implausibility of this idea, about 1000 in vitro studies have shown that mistletoe or its main constituents (alkaloids, lecithin, and viscotoxins) do have anticancer activity. However, many plants have some sort of anticancer activity. Occasionally, this is useful therapeutically—vinblastine and vincristine are derived from the common periwinkle, and Taxol comes from the yew tree. In most cases though, toxicity or lack of bioavailability prohibit the use of these compounds.

Proponents of anthroposophic medicine make two claims about mistletoe. Firstly, they claim that regular injections of mistletoe extract improve the natural course of cancer by slowing down or stopping tumour growth. The response is that the extract has no valid anti-cancer characteristics and its effects are small compared with conventional treatments. Secondly, they claim that regular injections of mistletoe extract improve the quality of life of patients. The response is that the results of placebo-controlled trials of mistletoe and other homeopathic treatments are consistent with those of placebo alone.
growth. Secondly, they say that such extracts improve the quality of life in patients with cancer.1

Many clinical studies of mistletoe exist, but their findings are inconsistent. Most of them are methodologically weak, and the less rigorous they are the greater the likelihood of a positive result. The conclusions of systematic reviews are therefore contradictory. Anthroposophical doctors, who tend to include unreliable primary studies, arrive at positive conclusions.1 In contrast, independent reviewers tend to focus on the most reliable evidence and regularly find that neither of the above two claims is supported by good evidence.2,3

In this week’s BMJ, Finall and colleagues report a case of subcutaneous inflammation mimicking metastatic malignancy induced by injection of mistletoe.4 So how safe is this treatment? A wide range of serious adverse reactions have been noted, such as local reactions at the site of injection, anaphylaxia, dyspnoea, haemorrhagic colitis, herpes simplex, herpes zoster, joint pain, kidney failure, lymphangitis, paraesthesia, sarcoidosis, ulceration, and vertigo (Saller R. Zu den unerwunschten Nebenwirkungen von Mistelpraepara- raten. Drittens Mistsymposium Otzenhausen, 20-22 November 2003).6

Findings from in vitro studies suggest that mistletoe extract may enhance the proliferation of some cancers.7 In addition, some patients with cancer may use mistletoe as an alternative to conventional treatments for cancer, rather than as just a complementary treatment.

The claim frequently voiced by proponents of anthroposophic medicine—that mistletoe injections have no serious risks8—is therefore misleading.

Mistletoe has been tested extensively as a treatment for cancer, but the most reliable randomised controlled trials fail to show benefit, and some reports show considerable potential for harm. The costs of regular mistletoe injections are high. I therefore recommend mistletoe as a Christmas decoration and for kissing under but not as an anticancer drug. At the risk of upsetting many proponents of alternative medi- cine, I also contend that intuition is no substitute for evidence.

Edzard Ernst
Professor of Complementary Medicine
(Edzard.Ernst@pmm.ac.uk)
Department of Complementary Medicine, Peninsula Medical School, Universities of Exeter and Plymouth, Exeter EX2 8NT

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1 Finall AI, McIntyre SA, Thompson WD. Subcutaneous inflammation mimicking metastatic malignancy induced by injection of mistletoe extract. BMJ 2006; doi: 10.1136/bmj.39044.65952.38E
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How Web 2.0 is changing medicine
Is a medical wikipedia the next step?

Few concepts in information technology create more confusion than Web 2.0. The truth is that Web 2.0 is a difficult term to define, even for web experts.1 Nebulous phrases like “the web as platform” and “architecture of participation” are often used to describe Web 2.0. Medical librarians suggest that rather than intrinsic benefits of the platform itself, it’s the spirit of open sharing and collaboration that is paramount.1 The more we use, share, and exchange information on the web in a continual loop of analysis and refinement, the more open and creative the platform becomes; hence, the more useful it is in our work.

What seems clear is that Web 2.0 brings people together in a more dynamic, interactive space. This new generation of internet services and devices—often referred to as social software—can be leveraged to enrich our web experience, as information is continually requested, consumed, and reinterpreted. The new environment features a highly connected digital network of practitioners (medical or otherwise), where knowledge exchange is not limited or controlled by private interests. For me, the promise of open access in Web 2.0—freed of publishing barriers and multinational interests—is especially compelling.

Web 2.0 is primarily about the benefits of easy to use and free internet software. For example, blogs and wikis facilitate participation and conversations across a vast geographical expanse. Information pushing devices, like RSS feeds, permit continuous instant alerting to the latest ideas in medicine.2 Helpful but lesser known website tagging and organizing tools, such as Connotea and Del.icio.us, are proving useful (table). Multimedia tools like podcasts and videocasts are increasingly popular in medical schools and medi- cal journals.3 (This bird’s eye view of social software can be fully explored with your favourite medical librarian, after the holidays.)

For now, let’s examine the notion of a blog, which was the first of the social software tools. Blogs are interactive websites that consist of regular diary-like entries. Unlike static web pages (a feature of Web 1.0), blogs are