17 Seppalainen AM, Husman K, Martenson C. Neurophysiological effects of long-term exposure to a mixture of organic solvents. *Scand J Work Environ Health* 1978; **4:** 304–14.
18 Juntunen J, Matikainen E, Anti-Poika M, Suoranta H, Valle M. Nervous system effects of long-term exposure to toluene. *Acta Neurol Scand* 1985; **66:** 89–102.
19 Rosenberg NL, Spitz M, Folley C, Davis K, Schaumberg H. Central nervous system effects of chronic toluene abuse-clinical, brainstem evoked response and magnetic resonance imaging studies. *Neurotoxicol Teratol* 1988; **10:** 489–95.
20 White RF, Feldman RG, Moss MB, Proctor SP. Magnetic resonance imaging (MRI), neurobheavioral testing, and toxic encephalopathy: two cases. *Environ Res* 1993; **61:** 117–23.
21 Seppalainen AM, Savolainen K, Kovala T. Changes incuded by xylene and alcohol in human evoked potentials. *Electroencephalop Clin Neurophysiol* 1981; **51:** 148–55.
22 Chang YC. Neurotoxic effects of n-hexane on the human central nervous system: evoled potential abnormalities in n-hexane polyneuropathy. *J Neurol Neurosurg Psychiatry* 1987; **50:** 269–74.
23 Altman L, Bottger A, Wiegard H. Neurophysiological and psychophysical measurements reveal effects of acute low-level organic solvent exposure in humans. *Int Arch Occup Environ Health* 1990; **62:** 493–99.
24 Urban P, Lukas E. Visual evoked potentials in rotogravure printers exposed to toluene. *Br J Ind Med* 1990; **47:** 819–23.
25 Callender TJ, Morrow L, Subramanian K, Duhon D, Ristovv M. Three-dimensional brain metabolic imaging in patients with toxic encephalopathy. *Environ Res* 1993; **60:** 295–319.
26 Hanninen H, Eskelinen L, Husman K, Nurminen M. Behavioral effects of long-term exposure to a mixture of organic solvents. *Scand J Work Environ Health* 1976; **4:** 240–55.
27 Peters HA, Levine LL, Matthews CG, Chapman LJ. Extrapyrimidal and other neurologic manifestations associated with carbon disulfide fumigant exposure. *Arch Neurol* 1988; **45:** 537–40.
28 White RF, Robins TG, Proctor SP, Echeverria D, Rocskay AZ. Neuropsychological effects of exposure to naphtha among automotive workers. *Occup Environ Med* 1994; **51:** 102–12.
29 White RF, Proctor SP, Echeverria D, Schweikert J, Feldman RG. Neurobehavioral effects of acute and chronic mixed-solvent exposure in the screen printing industry. *Am J Ind Med* 1995; **28:** 221–31.
30 White RF. Differential diagnosis of probable Alzheimer's disease and solvent encephalopathy in older workers. *Clin Neuropsychol* 1987; **1:** 153–60.
31 White RF, Proctor SP. Research and clinical criteria for the development of neurobehavioral test batteries. *J Occup Med* 1992; **23:** 140–48.
32 Lauwerys RR. Occupational toxicology. In: Klaassen CD, ed. Casarett and Doull's toxicology: the basic science of poisons. 5th edn. New York: McGraw-Hill, 1996: 987–1010.
33 1994–1995 threshold limit values and biological exposure indices. Cincinnati: American Conference of Governmental Industrial Hygienists 1994.
34 NIOSH/USDHHS. NIOSH pocket guide to chemical hazards. US Department of Health and Human Services. Washington, DC: US Government Printing Office, 1994.
35 Hanninen H. The psychological performance profile in occupational intoxications. *Neurotoxicol Teratol* 1988; **10:** 485–88.
36 Holmes GP, Kaplan JE, Grantz NM, et al. Chronic fatigue syndrome: a working case definition. *Ann Intern Med* 1988; **108:** 387–89.
37 Fakuda K, Straus SE, Hickie I, Sharpe MC, Dobbins JG, Komaroff A, and the International Chronic Fatigue Syndrome Study Group. The chronic fatigue syndrome: a comprehensive approach to its definition and study. *Ann Intern Med* 1994; **121:** 953–59.
38 Cullen MR. The worker with multiple sensitivities: an overview. In: Cullen M, ed. Workers with multiple chemical sensitivities. Philadelphia: Hanley and Belfus, 1987: 655–62.
39 Katz GV. Chemical and biological interactions affecting neurotoxicity. In: O'Donaghue, ed. Neutoxicity of industrial and commercial chemicals, vol 1. Boca Raton, FL: CRC Press, 1985: 149–58.

Literature and medicine

Literature and medicine: narrative ethics

Anne Hudson Jones

> "We often derive from observation strong intimations of truth, without being able to specify what were the circumstances we had observed which had conveyed those intimations".[1]

The primary focus of literature's first decade as part of the formal curriculum of some American medical schools (1972–81) was on teaching literary works to help develop students' capacity for empathy, to enhance their skills in interpretation, and to complement the teaching of traditional medical ethics.[2–6] These early concerns of literature and medicine have been discussed in the eight previous essays in this series.[6–13] In the next decade (1982–91), scholars in literature and medicine, like their counterparts in many other disciplines, were increasingly drawn to the study of narrative.[14–17] Defined most simply, a narrative is a story. Examples of narratives include not only well-crafted works of literature, such as short stories and novels, but also histories, professional stories such as medical case histories, and unpublished personal or family stories. The second decade of literature-and-medicine scholarship was thus marked by an interest in the centrality of narrative to the work of medicine.[13,18–21] Scholars used tools and insights from literary theory to explore the acquisition and transmission of medical knowledge,[20] to study the narrative nature of the physician-patient encounter,[20,22–27] to analyse the conventions of various medical genres,[20,28] and to consider the relationship between a physician's narrative skill and a patient's willingness to accept the diagnosis and comply with recommended treatment.[19,20,26] During this second decade, scholars also began to explore more intensely the relation between narrative and medical ethics.[29–32] These two directions of literature-and-medicine scholarship are now coming together: because of the inherently narrative structure of medical knowledge and practice, doctors' intellectual skills and habits better prepare them for a kind of narrative ethics than for the analytic, principle-based ethics that has dominated medical ethics for the past 25 years.

This principle-based ethics is perhaps best represented by Tom L Beauchamp and James F Childress in their textbook *Principles of Biomedical Ethics*, now in its fourth edition.[33] In this form of analytic ethics, one begins by establishing certain principles—autonomy, beneficence/

Lancet 1997; **349:** 1243–46

Institute for the Medical Humanities, The University of Texas Medical Branch, Galveston, Texas, USA (Anne Hudson Jones PhD)

Correspondence to: Dr Anne Hudson Jones, Institute for the Medical Humanities, Ashbel Smith Building, Suite 2.210, The University of Texas Medical Branch, 301 University Boulevard, Galveston, Texas 77555-1311, USA
(e-mail ahjones@marlin.utmb.edu)

Panel 1: **The detective and the diagnostician: a comparison of methods**

Immersed in the clues, with his theories grounded in the phenomena, he [Sherlock Holmes] works diagnostically, interpretively. His hypothesis in this first case, as in all those that follow, is an imagined story. His method requires the retrospective construction of a hypothetical narrative in order to work out the relation of the clues to one another within an acceptable chronology. Within the published story written by Arthur Conan Doyle and told by Watson, the action ends with Holmes telling the story he has constructed. Holmes's story is diagnostic, a narrative reconstruction that aims to recapture lost time and unobserved deeds, and it closes Conan Doyle's story (and the mystery within his narrative) with a restoration of clarity to the events that occasioned its opening. Besides us—Conan Doyle's readers to whom Watson tells the story—Holmes's conclusive story typically has for its audience not only Dr. Watson but the guilty party or the victim, and the details of the crime are unfolded in triumph with the story's plot. The discovery is, as Peter Brooks has unriddled it, the plot of both crime and story.

The diagnostic skill that is the focus of a physician's education bears striking similarities. Like Sherlock Holmes's narrative reconstruction of the crime, the physician's medical version of a patient's story is the narrative embodiment of a diagnostic hypothesis, the reconstruction of what has gone wrong. Nowhere is this more evident than in the case presentation. Ordered according to its unstated conclusion and proceeding with a report of "denials" and "unremarkable" details, it leads its audience inexorably past possibilities that have been ruled out to focus on the signs of the logically concluding diagnosis. Experiment is forbidden to both detective and diagnostician, for theirs are observational sciences exercised after the fact. The clues must be dealt with as given. Although more evidence may be sought from tests, the originating situation cannot be experimentally replicated. Only the narrative can be manipulated to account for the evidence and then matched with narrative paradigms conveniently stored in diagnostic manuals or the memories of expert practitioners. Medical diagnosis, much like Sherlock Holmes's detection, is an interlevel activity that combines attention to a range of detail from the molecular to the environmental and cultural. Like the master, the physician uses narrative first as a means of organizing the details that with luck and careful thought will flower into a testable generalization and then to demonstrate the accuracy of that generalization in the chronological chain of its details.

From Kathryn Montgomery Hunter, *Doctors' Stories: The Narrative Structure of Medical Knowledge*. Princeton, NJ: Princeton University Press, 1991: 24–25.

non-maleficence, and justice—that are then applied to ethics cases in an effort to resolve a dilemma. The reasoning is deductive, from general principle down to a particular case. By contrast, the kinds of ethical approaches that are referred to under the rubric narrative ethics begin with a particular case, just as physicians begin their diagnostic work with a particular patient in front of them, rather than with an abstract principle or theory. Principlism remains important, especially in quandary ethics and in public policy. But in the USA in recent years, there has been a growing discontent with principle-based ethics and an active exploration of alternative forms of medical ethics.[34] In this essay, I examine some of the narrative aspects of medical knowledge and clinical work that help prepare physicians to understand and practise narrative ethics; I then explore several of the alternative approaches to medical ethics that are referred to as narrative ethics.

In *Doctors' Stories: The Narrative Structure of Medical Knowledge*,[20] Kathryn Montgomery Hunter argues that medicine is "not a science" but "a rational, science-using, interlevel, interpretive activity undertaken for the care of a sick person" (p 25). The uncertainty inherent in medical practice comes from the unreliability of prediction in the individual case, however reliable prediction may be in the aggregate. As the bridge between these two realms—individual case and general rule—narrative remains, Hunter says, "medicine's principal way of applying its abstract knowledge to the care of the individual patient" (p 47). This narrative bridge makes possible the interpretive method of "clinical casuistry", reasoning that always begins with the individual case. Doctors travel back and forth across this bridge, taking the patient's story of illness to be informed by medicine's abstract knowledge and then to be interpreted and returned to the patient as a presumptive diagnosis retold in the form of a case history. Hunter compares this method with that of the fictional Sherlock Holmes (panel 1). In this regard, it is of more than passing interest that Sir Arthur Conan Doyle was himself a physician and that he based his famous character on another physician, the expert Edinburgh diagnostician Joseph Bell (figure). In the semiotic terminology of C S Peirce, Holmes' method is neither induction nor deduction, but abduction—that is, inferential "reasoning from consequent to antecedent".[35]

Hunter[20] defines clinical casuistry as "the comparative analysis of a particular case with all its special circumstances in an effort to relate that case reliably to a system of received principles" (p 30). The "received principles" are not theoretical, however, but "the tested accumulation of generalizations: practical guidelines, clinical dogma, rules of thumb" (p 30). This method is much the same as that of casuistry in ethics: "practical decisionmaking in particular cases" (ref 33, p 92). In approaching a bioethics case, a casuist "would begin by identifying particular features in the case rather than appealing to universal principles, utilitarian calculations, or rights. The casuist would then attempt to identify the relevant precedents and prior experiences with other cases, attempting to determine how similar and different this case is from experiences with other cases" (ref 33, p 92). This form of analogical reasoning has long been used in theology and law, and Albert R Jonsen and Stephen Toulmin have "rehabilitated"[20,33] casuistry as a method for contemporary bioethics.[36] Because doctors use care-based, analogical reasoning in the daily work of medicine, they might naturally be expected to use the same method in resolving ethical problems that arise in the care of individual patients. To work well in ethics, however, analogical reasoning requires both a repertoire of ethics cases and a knowledge of "maxims grounded in experience and tradition" (ref 33, p 93), like the clinical dogmas and rules of thumb that guide clinical casuistry.[20] Physicians may not have as many ethics cases in their repertoire as they have medical ones, and they may not, therefore, have established the general maxims that guide the casuistical approach to ethics. Thus, physicians' skills in clinical casuistry may not, in and of themselves, be sufficient for expert ethical judgment comparable to their expert clinical judgment. But once physicians have acquired an adequate repertoire of ethics cases and a knowledge of generalised maxims, their already well-developed interpretive skills should allow them to become as expert at ethical casuistry as they are at clinical casuistry.

Casuistry is only one of several approaches that can fall under the rubric of narrative ethics, however. Another

well-received approach is that outlined by Rita Charon,[31] who rejects the term narrative ethics, preferring instead to talk about "narrative contributions to the trustworthiness of medical ethics" (p 261). Charon argues that narrative competence and a narrative framework for medical ethics can improve ethics deliberations at four crucial stages: "the recognition of the ethical problem, the written or oral formulation of the problem, the interpretation of the ethical case, and the validation of the chosen interpretation as the most reasonable and helpful among the many alternative interpretations available" (p 261). For Charon, the narrative approach does not constitute an independent method but makes "existing methods work more accurately and effectively" (p 277). Ideally, narrative competence would prevent ethical quandaries by increasing early recognition and resolution of ethical issues. If, however, narrative competence fails to prevent ethical quandaries, Charon endorses the traditional form of principle-based medical ethics. Her hope is that narratively enriched analytic ethics will be more attentive to "the meanings of singular human situations" (p 260).

Wellcome Institute Library, London.

Joseph Bell (1837–1911)

Charon discusses at some length the choices and potential problems that are inherent in formulating a case—that is, in presenting a case orally or in writing. In his rhetorical analyses of bioethics cases, Tod S Chambers shows how the narrative formulation of a case helps shape the interpretation that ensues. Examining five cases formulated by bioethicist-authors who then analyse and interpret the cases they have written, Chambers[32] shows that the "literary style of these case presentations covertly supports the philosophical orientation of their tellers" (p 60). His conclusion—that "ethicists persuade through narrative style" (p 61)—may be startling to those who believed that a case could be formulated in an objective, morally neutral style. Presumably, as Charon argues, ethicists and physicians who are narratively competent would be aware of the narrative and ethical choices that inevitably arise in formulating a case. They would also be better able to discern and analyse the unconscious biases that may be reflected in the narrative style of someone else's case formulation.

Problems with what Charon calls validation point towards a third and more radical approach to narrative ethics. If the retold medical or ethics case that is returned to the patient does not make sense to her, the medical or ethics intervention is likely to fail. The patient who does not recognise her own story of illness and suffering in the medical recasting of it may not accept the physician's diagnosis or follow the recommended treatment. Howard Brody gives an example of a case in which the crucial step of restorying the patient could easily fail: a patient with persistent cough who fears she has pneumonia, because her aunt has almost died of pneumonia recently, may reject a diagnosis of postnasal drip unless the physician is aware of her fear and can reassure her that she does not have pneumonia.[26] Similarly, if the person who must carry out the action called for by the decision in an ethics case is not persuaded that the decision represents the best interpretation and resolution of the case, he may resist carrying out the act. Charon offers as an example a resident who demonstrates his disagreement with the resolution of a case by choosing to walk instead of run to initiate resuscitation of a patient who has had a cardiac arrest.[31] When diagnoses or ethics decisions are merely delivered to patients or others without their having been involved in validating those diagnoses or decisions, medicine and ethics fall far short of their fullest potential.

This third approach to narrative ethics recognises the patient as the author of his or her own life-story, acknowledges the primacy of the patient's story over abstract theories or principles, and shifts power from professionals—physicians or ethicists—back to patients and their families.[19,26,37–41] In the final chapters of his book *Stories of Sickness*, Brody discusses what it might mean to reconceptualise medical ethics according to a narrative paradigm. It would require, among other things, a shift from a decisional ethic to a relational ethic.[19] In a later article,[26] as he continues to explore the "ethical implications of a narrative conception of the physician-patient relationship" (panel 2), Brody argues that "when narratives are jointly constructed, power is shared between physician and patient, and the sharing of power constitutes an important ethical safeguard within the relationship" (p 79). In writing about narratives of chronic illness, Arthur Kleinman[38] focuses on the key distinction between "the patient's experience of illness and the doctor's attention to disease" (p xii). Kleinman emphasises that

Panel 2: **The joint construction of narrative**

Patients have always emerged from an encounter with a physician bearing a new story about the nature and significance of their illnesses. Sensitive physicians have generally seen to it that the new story bears the stamp of a particular patient's unique individuality and that the patient himself has been involved in constructing the story. Scientific medicine has made great strides by ignoring this level of storytelling and by focusing instead on quite different stories, at the organic, cellular, and molecular levels, to explain how medicine works. For a complete understanding of medical activity, the question of how physicians and patients can best construct stories about illness must be returned to the center stage of medical inquiry. This is an inquiry to which both scientific investigators and humanities scholars can contribute significantly, with the outcome being an enhanced healing ability for modern medical practice.

From Howard Brody, "'My Story Is Broken; Can you Help Me Fix It?' Medical Ethics and the Joint Construction of Narrative". *Lit Med* 1994; **13:** 91.

truly listening to the patient's experience of illness, which he calls empathic witnessing, is a moral and therapeutic clinical act: "That is the existential commitment to be with the sick person and to facilitate his or her building of an illness narrative that will make sense of and give value to the experience" (p 54). As physicians, Brody and Kleinman call for a narrative ethics that is based in the moral relationship of the physician to the patient.

Arthur W Frank, who has written about his own experiences of illness,[42] goes further than Brody or Kleinman claiming that narrative ethics belongs to "the realm *beyond* clinical medical encounters" and that "this sphere is illness outside patienthood" (ref 39, p 156). If physicians wish to take part in this sphere, they must do so not in their professional role but as individuals willing to make a moral commitment to another person. Frank's concern is "with ill people's self-stories as moral acts, and with care as the moral action of responding to those self-stories" (ref 39, p 157). In the approach that Frank lays out, narrative ethics has to do not with resolving conflicts of medical decision making but with living the examined life and with personal becoming. It is a kind of moral inquiry that requires "thinking with stories" (ref 39, p 159).

Thus we come full circle, back to the kind of medical ethics Robert Coles called for in 1979, as he explained why he taught literature to medical students.[3] He wanted to engage his students in moral inquiry of a far-ranging kind that would have them reflect about what it means to be a doctor and live a good life. In the intervening years, as Coles has continued his work,[43] he has found reason to believe that reading and thinking about literature can help prepare medical students to become the kind of physicians who can practise not only clinical and ethical casuistry but also that more demanding kind of narrative ethics for which Kleinman calls:[38]

> "Against the commercialized self-images of our age, which corrode altruism and convert decency into merely a professional gesture, the experience of the healer can be a quest for a kind of human wisdom, a model of forbearance and courage, a form of goodness, a lesson in the essentials of humanity" (p 267).

References

1 Peirce CS. Guessing. *The Hound and Horn* 1929: **2:** 282.
2 Trautmann J. The wonders of literature in medical education. In: Self DJ, ed. The role of the humanities in medical education. Norfolk, VA: Teagle & Little, 1978: 32–44.
3 Coles R. Medical ethics and living a life. *N Engl J Med* 1979; **301:** 444–46.
4 Jones AH. Literature and medicine: traditions and innovations. In: Clarke B, Aycock W, eds. The body and the text: comparative essays in literature and medicine. Lubbock: Texas Tech University Press, 1990: 11–24.
5 Hunter KM, Charon R, Coulehan JL. The study of literature in medical education. *Acad Med* 1995; **70:** 787–94.
6 McLellan MF, Jones AH. Why literature and medicine? *Lancet* 1996; **348:** 109–11.
7 McLellan MF. Images of physicians in literature: from quacks to heroes. *Lancet* 1996; **348:** 458–60.
8 Jones AH. Images of physicians in literature: medical *Bildungsromans*. *Lancet* 1996; **348:** 734–36.
9 McLellan MF. Literature and medicine: some major works. *Lancet* 1996; **348:** 1014–16.
10 Jones AH. Literature and medicine: an evolving canon. *Lancet* 1996; **348:** 1360–62.
11 McLellan MF. Literature and medicine: the patient, the physician, and the poem. *Lancet* 1996; **348:** 1640–41.
12 Jones AH. Literature and medicine: physician-poets. *Lancet* 1997; **349:** 275–78.
13 McLellan MF. Literature and medicine: physician-writers. *Lancet* 1997; **349:** 564–67.
14 Toulmin S. The construal of reality: criticism in modern and postmodern science. In: Mitchell WJT, ed. The politics of interpretation. Chicago: University of Chicago Press, 1983: 99–117.
15 Bruner J. Actual minds, possible worlds. Cambridge: Harvard University Press, 1986.
16 Geertz C. Works and lives: the anthropologist as author. Stanford: Stanford University Press, 1988.
17 Polkinghorne DE. Narrative knowing and the human sciences. Albany: State University of New York Press, 1988.
18 Banks JT, ed. Use and abuse of literary concepts in medicine. *Lit Med* 1986; **5:** 1–183.
19 Brody H. Stories of sickness. New Haven: Yale University Press, 1987.
20 Hunter KM, ed. Doctors' stories: the narrative structure of medical knowledge. Princeton, NJ: Princeton University Press, 1991.
21 Hunter KM, ed. Narrative and medical knowledge. *Lit Med* 1994; **13:** 1–180.
22 Charon R. To render the lives of patients. *Lit Med* 1986; **5:** 58–74.
23 Donnelly WJ. Righting the medical record: transforming chronicle into story. *JAMA* 1988; **260:** 823–25.
24 Charon R. Doctor-patient/reader-writer: learning to find the text. *Soundings* 1989; **72:** 137–52.
25 King NMP, Stanford AF. Patient stories, doctor stories, and true stories: a cautionary reading. *Lit Med* 1992; **11:** 185–99.
26 Brody H. "My story is broken; can you help me fix it?" Medical ethics and the joint construction of narrative. *Lit Med* 1994; **13:** 79–92.
27 Jones AH. Reading patients—cautions and concerns. *Lit Med* 1994; **13:** 190–200.
28 Banks JT, Hawkins AH, eds. The art of the case history. *Lit Med* 1992; **11:** 1–182.
29 Jones AH. Literary value: the lesson of medical ethics. *Neohelicon* 1987; **14:** 383–92.
30 Benner P. The role of experience, narrative, and community in skilled ethical comportment. *Adv Nurs Sci* 1991; **14:** 1–21.
31 Charon R. Narrative contributions to medical ethics: recognition, formulation, interpretation, and validation in the practice of the ethicist. In: DuBose ER, Hamel RP, O'Connell LJ, eds. A matter of principles? Ferment in U.S. bioethics. Valley Forge: Trinity Press International, 1994: 260–83.
32 Chambers TS. The bioethicist as author: the medical ethics case as rhetorical device. *Lit Med* 1994; **13:** 60–78.
33 Beauchamp TL, Childress JF. Principles of biomedical ethics, 4th ed. New York: Oxford University Press, 1994.
34 DuBose ER, Hamel RP, O'Connell LJ, eds. A matter of principles? Ferment in U.S. bioethics. Valley Forge: Trinity Press International, 1994.
35 Eco U, Sebeok TA. The sign of three: Dupin, Holmes, Peirce. Bloomington: Indiana University Press, 1988: 131.
36 Jonsen AR, Toulmin S. The abuse of casuistry: a history of moral reasoning. Berkeley: University of California Press, 1988.
37 Churchill LR. The human experience of dying: the moral primacy of stories over stages. *Soundings* 1979; **62:** 24–37.
38 Kleinman A. The illness narratives: suffering, healing, and the human condition. New York: Basic Books, 1988.
39 Frank AW. The wounded storyteller: body, illness, and ethics. Chicago: University of Chicago Press, 1995.
40 Jones AH. Darren's case: narrative ethics in Perri Klass's *Other Women's Children*. *J Med Philos* 1996; **21:** 267–86.
41 Jones AH. From principles to reflective practice or narrative ethics? In: Carson RA, Burns CR, eds. Philosophy of medicine and bioethics: a twenty-year retrospective and critical appraisal. Dordrecht: Kluwer Academic Publishers, 1997: 193–95.
42 Frank AW. At the will of the body: reflections on illness. Boston: Houghton Mifflin, 1991.
43 Coles R. The call of stories: teaching and the moral imagination. Boston: Houghton Mifflin, 1989.