Medical Instruments in Museums

Immediate Impressions and Historical Meanings

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ABSTRACT

This essay proposes that our understanding of medical instruments might benefit from adding a more forthright concern with their immediate presence to the current historical focus on simply decoding their meanings and context. This approach is applied to the intriguingly tricky question of what actually is meant by a "medical instrument." It is suggested that a pragmatic part of the answer might lie simply in reconsidering the holdings of medical museums, where the significance of the physical actuality of instruments comes readily to hand.

"THE DOCTOR WILL SAW YOU NOW! And you thought the modern NHS was scary. A new exhibition lifts the lid on medicine's gory past." This was the *Daily Mail*'s punning attempt to draw its readers' attention to the London Science Museum's on-line exhibition Brought to Life, launched in 2009. Spilling across a double-page spread, the article prominently featured images of a ferocious-looking German amputation knife, an iron lung, a French bullet extractor, and a domestic enema machine—all illustrating the point that "the diseases were bad enough, but the treatments were often far worse." Rather more soberly, the *Independent* (a higher-brow U.K. newspaper) borrowed the words of one of the museum's curators to conclude instead that this material captured the inspirational insight of Henry Wellcome, its original collector, that "in the development of medicine [lay] the development of all human civilization. He had a real faith in medicine as a pillar of culture."[1]

Historians of medicine and science are habitually inclined to champion the culturally informed interpretative stance taken by the *Independent* and simultaneously to shun the vulgar impulses expressed by the *Daily Mail*. But our contention here is that a full-fledged

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[1] *Daily Mail*, 26 Mar. 2009, pp. 22–23; and Jeremy Laurance, "The History of Medicine: From Cures to Curiosities," *Independent*, 24 Mar. 2009, Life and Style Section, pp. 10–11.

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understanding of medical instruments needs to bear both in mind. We are definitely not inclined to diminish the value of decoding these tools, reading the dynamic meanings embedded in their changing historical affordances; but we do suggest that the myopic temptation to ignore our more immediate impressions and reactions to them—the various sensations invoked in us by just looking at (maybe even touching) them—is a serious loss for the way we experience parts of the history of medicine. To say this of artifacts in art and its history (paintings, sculptures, installations, etc.) would require no justification. Reverence for objects in their own right, even if in art galleries they have been removed from an original religious or other social context, is expected there. Our contention is that in the history of medicine, too, it is imperative that we attend to the immediate presence as well as explore the meaning of material things. Our point, then, is to argue for more consideration of the aesthetic, subjective, sensuous, and emotional approaches to instruments and to suggest that science, technology, and medical museums and their collections provide privileged spaces where the aesthetic immediacy and historical meaning of artifacts can coexist and mutually enrich our appropriation of medicine's past.

Aesthetic responses to instruments do not themselves, of course, stay fixed; they too are prone to historical development. Our reactions to a seventeenth-century scalpel or a nineteenth-century forceps do not necessarily provide a privileged understanding of how historic actors who actually used them reacted. Further historical clues can be found to provide an insight into how they specifically responded. Sam Alberti's work on nineteenth-century audiences' responses to objects in anatomy and natural history museums, for example, has shown how the same items could elicit delight and wonder in some and confusion and disgust in others. What Alberti specifically suggests is that attempts to make museum experiences silent and odorless, and therefore more acceptable to "polite" audiences, introduced a much more exclusive focus on the visual. What is also clear from Alberti's work is that even in one historical period sensory reactions to objects varied from person to person and, even more distinctly, between different social and demographic groups. We need to be careful, then, that we do not automatically project our reactions of wonder or disgust onto another period, or at least not onto everyone at that time. But our central point in this essay is that these types of reaction (ones charged with emotions, whether uplifting or demoralizing) are an important part of our potential understanding of these things and that ignoring them altogether has often left our broad comprehension distinctly impoverished.[2]

To achieve this goal of encouraging historians and others to pause with the objects themselves, we have been inspired by the analytical distinction between "presence culture" and "meaning culture" suggested by the literary theorist Hans Ulrich Gumbrecht. The concept of "presence" refers to an immediate and spatial relationship between the world and the body and its senses, rather than a relation between the world and the interpretative mind: "What is 'present' to us (very much in the sense of the Latin form *prae-esse*) is in front of us, in reach of and tangible for our bodies."[3] Accordingly, we are urging a counterbalance to the predominant focus of historians and museum curators on

[2] See Samuel J. M. M. Alberti, "The Museum Affect: Visiting Collections of Anatomy and Natural History," in *Science in the Marketplace: Nineteenth-Century Sites and Experiences*, ed. Aileen Fyfe and Bernard Lightman (Chicago: Univ. Chicago Press, 2007), pp. 371–403. We are grateful to Bernard Lightman for drawing this work to our attention and challenging us to recognize the historical dimension of the contemporary "aesthetic reactions" we are highlighting.

[3] Hans Ulrich Gumbrecht, *Production of Presence: What Meaning Cannot Convey* (Stanford, Calif.: Stanford Univ. Press, 2004), p. 17.

an overacademicized quest to unravel the cultural, social, and historical "meaning" of historical artifacts and instruments. Drawing on Gumbrecht's distinction, we see the power of these objects lying just as much in their "presence" as in what they can tell us about the culture and context of their production and use. We are too often tempted to dismiss as superficial anything that does not swiftly move beyond the impressions of our senses. Too quickly, we want to go further and deeper in order to arrive at complex cultural interpretations. But historical artifacts, Gumbrecht reminds us, are just as important in the sensuous and tangible impacts they have on our bodies and emotionally colored imaginations as in the dimension of meaning and interpretation. Therefore, we advocate pausing and dwelling on the immediacy and appearance of historical medical instruments. And where better to do this than with collections of instruments kept in and presented in museums?[4] Surgical instruments are a case in point.

SURGICAL INSTRUMENTS AND A MATERIAL HISTORY OF MEDICINE

Thomas Carlyle was in no doubt about the importance of instruments: "Man is [he asserted] a tool-using animal . . . without tools he is nothing, with tools he is all."[5] We do not have completely to sign up to his bold thesis nevertheless to concede that much of the history of medicine, especially its social history in the last decades, has largely ignored the importance of tools and instruments both for diagnostics and for therapeutic interventions in the clinic, as well as in laboratory-based biomedical research. This lack of engagement with material objects has sometimes peculiar consequences, as in a recent seminar series, "Explorations in the History of Surgery," held at the Wellcome Trust Centre for the History of Medicine in 2011, which aimed to open up discussion on "an area of medicine that has a relatively limited historiography," getting beyond "the polarisation between 'social' and 'technical' discourses of surgery." What is striking from our point of view is the seeming lack of reference to the material culture of surgery and the physical presence of the instruments used, as if such objects have been of peripheral importance in the history of surgery.[6]

In our view, presentations of the history of surgery hardly make any sense without a strong focus on the material instruments at hand; the social history of surgery is always secondary to its material history. Pursuing the deliberately naive question of what exactly counts as a medical instrument gives us a chance to contemplate their significance and value. According to John Kirkup, whose *Evolution of Surgical Instruments* (1994) is the weightiest tome on the subject so far, the oldest and most basic medical tools are nothing more elaborate than the surgeon's unaided hands. The medieval Anglo-French word

[4] Thomas Söderqvist and Adam Bencard, "Making Sense or Sensing the Made? Research into Presence Production in Museums of Science, Technology, and Medicine," in *Research and Museums*, ed. Görel Cavalli-Björkman and Svante Lindqvist (Stockholm: Nationalmuseum, 2008), pp. 161–173; and Söderqvist, Bencard, and Camilla Mordhorst, "Between Meaning Culture and Presence Effects: Contemporary Biomedical Objects as a Challenge to Museums," *Studies in History and Philosophy of Science*, 2009, *40*:431–438. Susan Sontag's essay "Against Interpretation" (first published in 1966) already argued in a similar vein that an overemphasis on the intellect needed redressing with greater concern for the spiritual importance of art: "In place of hermeneutics [she famously stated], we need an erotics of art." Susan Sontag, *Against Interpretation and Other Essays* (New York: Penguin, 2009), pp. 3–15.

[5] Thomas Carlyle, *Sartor Resartus* (London: Chapman Hall, 1896), p. 32.

[6] Regarding the seminar series see http://www.ucl.ac.uk/histmed/events/Explorations-Surgery2011 (accessed 20 Apr. 2011). Cf. Roger Cooter and Claudia Stein, "The New Poverty of Theory: Patrick Joyce and the Politics of 'The Material Turn'" (2011).

"*surgien*" was derived from the Latin "*chirurgia*" and ultimately from the Greek "*kheirourgos*," meaning "working or done by hand." And it is not difficult, as Kirkup urges, to envisage how more sophisticated instruments grew out of the original application of human digits: diagnostic probes taking over from index fingers; hooks from curved fingers; hemostats, tourniquets, tweezers, and pincers from the combination of thumbs and index fingers; and scalpels, lancets, curettes, and raspatories from nails. In many cases ordinary domestic tools seem to have served as intermediary implements, with household or artisanal knives, scissors, tweezers, clamps, and drill braces being modified for surgical application. And indeed, to the uninitiated at least, there is still an aspect of modern surgery that appears surprisingly reminiscent of plumbing or gardening. This is what J. E. A. Wickham is driving at when he comments that we are "presently operating on patients with instruments . . . as crude as agricultural machinery compared with the technology of advanced avionics."[7]

This naturalistic account of medical instruments asks us to imagine common tasks undertaken with bare hands gradually being replaced by technically refined material forms. Elements of this idea are captured in the *Oxford English Dictionary*'s definition of an instrument as "a material thing designed or used for the accomplishment of some mechanical or other physical effect." The term is also applied, it goes on,

> to devices whose primary function is to respond to a physical quantity or phenomenon, esp. by registering or measuring it, rather than to accomplish an effect. . . . Now usually distinguished from a *tool*, as being used for more delicate work or for artistic or scientific purposes: a workman or artisan has his *tools*, a draughtsman, surgeon, dentist, astronomical observer, his *instruments*. Distinguished from a machine, as being simpler, having less mechanism, and doing less work of itself; but the terms overlap.[8]

Taking up this notion of instruments as material things formed to accomplish specific effects, Kirkup classifies his historical encyclopedia according to variations in material, design, and use. His concern is basically with instruments used in the attempt to heal or at least alleviate patient suffering—that is, therapeutic instruments—of which he identifies eight fundamental structural forms applied to basic surgical procedures.[9] What becomes clear in his chronological account is how the levels of complexity and ingenuity embedded in these tools have been defined, at least in part, by the context in which they were used: the original battlefields or workplaces where cruder tools were applied; the practitioners' surgeries where increasingly standardized implements were developed and refined; and, from the late nineteenth century on, higher- and higher-tech theaters where specialists' instruments were imagined and designed as well as used.

The distinction between tools and instruments has frequently been determined, as the *OED* indicates, not just by where they were used, but also by the status and identity of

[7] John Kirkup, *The Evolution of Surgical Instruments: An Illustrated History from Ancient Times to the Twentieth Century* (San Francisco: Norman, 2005), pp. 1, 42–59; and J. E. A. Wickham, "Minimally Invasive Surgery: Future Developments," *British Medical Journal*, 1994, *307*:193–196. The other work of major significance on the subject of surgical instruments is James M. Edmonson, *American Surgical Instruments: The History of Their Manufacture and a Directory of Instrument Makers to 1900* (San Francisco: Norman, 1997). Also worth consulting is Elisabeth Bennion, *Antique Medical Instruments* (London: Sotheby Parke Bernet; Berkeley: Univ. California Press, 1980).

[8] See the definition for "instrument, n.," *OED Online* (Oxford Univ. Press, Mar. 2011), http://www.oed.com/view/Entry/97158?rskey=ryAw0q (accessed 18 Apr. 2011). This definition was pointed out by Simon Chaplin, who also provided useful insights early on in the writing of this essay.

[9] Kirkup, *Evolution of Surgical Instruments* (cit. n. 7), p. 13.

those who used them. Increasingly, the names of their inventors became adopted in eponymous nomenclature: Smellie and Kocher forceps and the Jacobsen lithoclast are some examples. The notion of "tool" is more applicable in therapeutic and diagnostic contexts and "instrument" to broader research purposes; but the distinction is by no means hard and fast. As scientific medicine became increasingly defined by laboratory, clinical, and hospital settings, another genre of diagnostic and therapeutic instruments was introduced—a sort of middle category. The increasing focus on symptomatic determinations of patients' ailments (with doctors learning to resist judging "what was wrong" until information was recorded) elevated such devices as stethoscopes, thermometers, and syringes for blood sampling to an emblematic status in their relationship with patients—a technical marker through which data could be transferred, which came to overshadow more subjective ideas picked up through conversation and physical touch. Further, the development of anesthesia, antisepsis, bacteriology, X-rays, and antibiotics went hand in hand with instruments whose form and function were increasingly based on technical practices and theoretical ideology mastered by exquisitely defined specialists, with highly trained command over implements such as endoscopes and laryngoscopes, oxygen masks and suction catheters.[10]

It is tempting to imagine that, along the notional spectrum from "simple tool" to "scientific instrument," a clear philosophical shift of opinion among trained users (with the understanding of patients lagging a little behind) occurred at an identifiable moment of increasing complexity. This, one might imagine, is where implements used for pragmatic reasons whose function is readily understood just by looking at them are replaced by ones that require an earlier understanding of some nonintuitive theoretical underpinnings: without tuition and explanation it would be difficult to make head or tail (handle or sharp end) of them. Arguably, however, the notion of using any formed materials (whether tool or instrument) to act in specific ways on the body requires a commitment to understanding what an instrument is—that practitioners need to believe and be committed to the effectiveness of instruments before they pick them up and use them.

Anthropology, one might think, would provide an evidence-based arena in which to investigate these issues. It seems, however, that relatively little investigation of scientific or medical instruments has been undertaken. Marie Pauline Kusia's examination of the adoption of X-ray technology in colonial and postcolonial Senegal is a rare exception. Her investigation of the postwar introduction of radioscopy and radiography as meaningful diagnostic procedures into Africa (particularly Senegal) makes clear just how crucial the educational work of helping the Senegalese to "learn to read" the visual information produced by these machines was in giving them a context in which to understand the

[10] S. J. Reiser, *Medicine and the Reign of Technology* (New York: Cambridge Univ. Press, 1978), pp. xi, 9. Reiser's survey looks in turn at the "detection of pathology by sound" through the stethoscope, the "anatomization of the living" through visual technology, the "revelation of a cellular universe" through the microscope, the "translation of physiological actions into the languages of machines," and the evolution of "chemical signposts of disease and the birth of the diagnostic laboratory." Kirkup, *Evolution of Surgical Instruments*, also analyzes the proliferation of "two-dimensional techniques and computerization [which may, he speculates], alter the armamentarium radically and lead to the eventual demise of conventional scalpels, forceps, and other familiar objects" (p. vii). The intractable question of whether the instrument or the theory comes first is also tackled by Felipe Cid, "Medical Instruments: A New Element in the Study of the History of Medicine," in *Proceedings of the Second Symposium of the European Association of Museums of History of Medical Sciences*, ed. Brian Bracegirdle (London: Collection Fondation Marcel Merieux, 1984), pp. 83–89. Cid himself is in no doubt as to the answer: instruments have, he declares, "never been the product or result of a scientific theory" (p. 84).

instruments' efficacy. Here is real evidence for the frequently assumed notion that *a priori* forms of "visual" and "conceptual" literacy are prerequisites to grasping not only what instruments do, but also what an instrument might be in the first place.[11]

GRASPING MEDICAL INSTRUMENTS

Considerable understanding can be gained from pursuing the fundamental question of what exactly medical instruments mean, from probing the philosophical issue of whether they can only really be used if a concept of "instrument" is already accepted; and further illumination is provided by an analysis of the historical and material evidence for a contextually determined evolution of hands into tools and then into instruments. Whether or not one wants to follow the medical historian Chris Lawrence fully in his assertion that the patient's body is "something whose anatomical structure is recurrently made by instruments . . . in the surgeon's mind's eye," it would be foolish to resist the significance of a contextual social and cultural understanding of medical instruments. James Edmonson's contention about American instruments can surely be applied much more widely: that in the "prevailing understanding of disease in each period, the doctors' propensity to intervene surgically . . . and the professional and institutional milieu in which surgery was practiced all had direct bearing upon" the nature of that period's instruments.[12] More broadly still, these influences stretch from medical theories and technological innovations, through commercial, economic, political, and social trends, all the way to aspects of pure taste and fashion.

But—and this is our major concern in this essay—an exclusive pursuit of the meaning and cultural context of surgical instruments misses out on further engagements with the past that can be made by concentrating on the immediate presence of the material things themselves as they are appropriated by the senses and the imagination. A more pragmatic and literally empirical (from the Greek "*empeiria*," "experience") approach therefore suggests itself: inspect, and if possible handle, smell, and taste (the basic procedures of curatorial practice), and, most of all, make available instruments, especially those now kept in museum collections. Though they are harmless, redundant, and seemingly now mute—thermometers that can no longer tolerate being heated or chilled, air balloons or pressure gauges that should not be inflated, scalpels and saws that must not be bloodied—we suggest that, while recognizing that such objects affect us differently from the way they affected people in the past, and in other cultures, at least some of their past significance can still be resurrected from their immediate presence.

A survey of medical collections in 2008 estimated that there were well in excess of 3 million items in U.K. museums alone.[13] It is not clear how many times that figure needs to be multiplied to estimate the scale of the collections kept across the whole world. The collections of the Medical Museion in Copenhagen alone, for example, contain a

[11] Marie Pauline Kusia, "The Machine That 'Makes the Inside Visible': Medical Instruments, Mentalities-Talk, and the Politics of Technology in Colonial and Postcolonial Senegal" (Ph.D. diss., Cornell Univ., 2005).

[12] Chris Lawrence, rev. of John Kirkup, *The Evolution of Surgical Instruments: An Illustrated History from Ancient Times to the Twentieth Century, Bulletin of the History of Medicine*, 2007, *81*:661–662, on p. 662; and Edmonson, *American Surgical Instruments* (cit. n. 7), pp. 7–8.

[13] The figure comes from a "report describing UKMCG's 2008 collections mapping exercise that involved 100 institutions. Researchers mapped the nature, content and significance of collections as well as access, learning opportunities and expertise available": http://www.collectionslink.org.uk/index.cfm?ct=assets.assetDisplay/title/Medical%20Collections%20Mapping%20Report/assetId/536 (accessed 20 Apr. 2011).

further 150,000–200,000 historical objects. The British examples are distributed widely across many smaller institutions as well as some very significant ones. One such is that gathered in the Royal College of Surgeons, a selection of specimens that have over the centuries captured the interests and activities of its fellows, eager to shape a material record of their calling's history. Numerically, the other significant collection is that gathered in the first third of the twentieth century by the U.S.-born and U.K.-based pharmaceutical entrepreneur Henry Wellcome. It contains about 25,000 items designed for or used in surgical practice, including 700 lancet cases, nearly 2,000 individual lancets, 800 pairs of stainless steel artery forceps, and so on.[14] Among such a vast quantity of examples that differ from each other rather little—negligibly so in nonexpert hands—Wellcome believed that something of an "evolutionary" progression would emerge within the core concepts that lay behind each instrument type. It did prove possible for Wellcome—inspired by the work of the anthropologist and collector Lieutenant-General Augustus Henry Lane Fox Pitt Rivers—to arrange, for example, rows of amputation saws and plot how surgeons and instrument makers had routinely experimented together with the shape, width, and periodicity of gaps between saw teeth, with the metals used in the blade, and with the materials and textures of the handles. (See Figure 1.) Rich collections of surgical instruments can also be found in many medical museums in continental Europe; for example, the Medical Museion has approximately 10,000 registered surgical items, corresponding to around 20,000 physical objects, including peangs, scissors, tweezers, forceps, staplers, drills, retractors, scalpels, trocars, amputation and trepanation instrument sets, instruments for bloodletting, scarification, and phlebotomy, and so forth.

But much more powerful than any simple description and account of these collections, there is in them a very different potential for engagement with the historical past waiting to be released. By its nature, any attempt to translate the tricky and reluctant potency of material objects into linguistic description and analysis is doomed at best to a muffled impact. No matter how eager and astute they are, writers who seek to evoke the "thingness" of a historical artifact—to convey how objects have been used and whose hands have held them—quickly lose any sense of the palpable latent engagement and keys to the past locked up in them. If we are genuinely to feel the significance of individual narratives (a wonderful moment of recovery, maybe—or, alternatively, a case of professional malpractice), as well as big topics such as blood, danger, conception, or well-being, we are better off leaving behind the written or spoken word and instead contemplating objects inspected, pointed at, held, and sniffed out through curated displays.[15]

Medical—and especially surgical—instruments, after all, have an especially "visceral" presence. They are used to probe and indeed attack the body: they transgress commonly held codes of etiquette around touching the body, as well as thresholds of how much pain one person might acceptably inflict on another, albeit in the hope of some help or even a cure. There is no denying that instruments are things that can hurt; and, consequently,

[14] Ghislaine Skinner, "The Surgical Instrument Collection of the Wellcome Museum," in *Proceedings of the Second Symposium of the European Association of Museums of History of Medical Sciences*, ed. Bracegirdle (cit. n. 10), pp. 39–43.

[15] See Robert Bud, ed., *Manifesting Medicine* (London: NMSI Trading, 2004), pp. xv–xvi. On the significance of "active" history, in which historians reenact old experiments with facsimile instruments, see Cid, "Medical Instruments" (cit. n. 10), p. 84: "Beyond its museographic setting, the instrument allows the historian to transform himself into a laboratory scientist of the past."

Figure 1. *Selection of amputation saws and obstetrical forceps on display in the Medicine Man exhibition at the British Museum in 2003. (Wellcome Images, London.)*

there is an inherent tension between the perspectives gained at the opposite ends of many of them—the perspectives of the people doing the hurting and those being hurt. This impact on the body we can sense "in our stomachs" as much as understand in our heads.

The mixture of knowledge and feeling was abundantly evident at a "Live Surgery" event held at the Wellcome Collection (a relatively new public venue in London dedicated to exploring the cultural context of medicine and health), in which audiences were able,

via a two-way live video link, to enter into dialogue with the medical practitioners and witness the application of a plethora of medical instruments used in an open-heart operation taking place at the Papworth Hospital near Cambridge. A contemporary event, it nonetheless resonated strongly with aspects of medicine that used regularly to be conducted within the public domain—for example, the centuries-old business of buying and selling medicines through various forms of entertainment and the not-infrequent execution of surgical operations within view of lay audiences. It was these sorts of traditions, involving shared and emotionally charged acts of witnessing well-being (or its lack), that were invoked at the "Live Surgery" event: a recent chapter in the long history of putting medicine on show.

In live events like this, and in investigative exhibitions that explore medical subjects, the showcasing of instruments can help both researchers and visitors directly contemplate, question, investigate, and imagine experiencing a sensation like pain, while not actually being hurt. The most significant institutional example of this type of visitor experience can be found in London's Old Operating Theatre, whose exhibits, displays, and, most of all, ambiance are all replete with the potential for this sort of palpable engagement. Of course, we suspect that such direct experiences have also changed over history, varying from age to age and, indeed, from group to group within a single age. While we might be able to imagine what it would be like to be operated on with these instruments today, it is less easy to think how it might have felt in the past. Clues to how it seemed to historical actors are, sometimes, available to diligent historians. But in the meantime, by drawing on this essential tension between contemplating pain and actually feeling it, museums can play a leading role in our self-conscious reflections on what medical and surgical practice actually feels and felt like. This would allow our modern institutions to hang on to an old-fashioned but nevertheless powerful sense of what these places promise—the idea, captured in the tabloid headlines with which we began this essay, of places where we can confront the idea of raw agony, blood and guts. By and large, museums work through tantalizing visitors with the idea that they can get close enough to touch things, while ultimately frustrating any opportunity for them actually to do so—a close encounter where nobody (and nothing) gets damaged. We feel medical history through its artifacts because many of them, after all, manage to reach right inside us in a most discomforting way.

An example from Wellcome's collection that readily illuminates these ideas is some mid-nineteenth-century obstetrical forceps, made to a design inspired by the pioneering William Smellie. (See Figure 2.) They were used to grasp the head of the baby and ease it out during a difficult birth. A softening touch in an object that otherwise alarmingly matches its difficult and disturbing function is their leather covering, an attempt to reduce the chances of physical damage to both mother and child while still ensuring a firm grasp of the baby's head. Smellie in fact recommended regularly changing the leather, but this was infrequently done. So, with the benefit of insights from germ theory, what we see—instead of evidence of an effort to lessen pain and risk—are, frankly, reservoirs of disease—a bitterly ironic case of potentially killing with kindness.[16] From a somewhat different perspective, these instruments can also encourage the viewer to pick apart some of the psychological drama of childbirth. For

[16] Science Museum Brought to Life website: http://www.sciencemuseum.org.uk/broughttolife/objects/display.aspx?id=91716 (accessed 20 Apr. 2011).

Figure 2. *Smellie-type obstetrical forceps, England, 1701–1800. (Wellcome Images, London.)*

some, perhaps with personal memories of difficult or even tragic births, just putting a name to this piece of bent metal can conjure up notions of pain and loss. For others, more removed from direct experiences, the instrument might instead embody a grateful sense of progress—a reminder that the effectiveness of medical intervention has shifted out of all recognition in the last hundred or more years. And finally, for those with a concern for power relations, the asymmetry of these forceps might symbolize how, throughout history, instruments have enabled professional practitio-

Figure 3. *Jacobsen lithoclast, Copenhagen, invented in 1826. (Medical Museion, Copenhagen.)*

ners (most often men) at one end to control patients (in this case always women) at the other.

Another illustrative example is the lithoclast (from the Greek "*lithos*," "stone," and "*klasto*," "I crush"), which was invented in the early nineteenth century as an alternative to the painful and dangerous ancient method for removing bladder stones by cutting through the peritoneum; the new tong-like instrument was inserted through the urinary duct to crush the life-threatening stones. (See Figure 3.) Lithoclasts are made of a familiar material (steel) and look similar to everyday objects (tongs), and their basic function (crushing) is immediately understandable for all museum visitors; the lithoclast is an ideal museum artifact because it stimulates the spectator's imagination about how it feels to have a medical instrument inserted into one's urinary tract. The lithoclast is among the favorite demonstration objects when the Medical Museion docents want to catch the attention of an unruly group of young visitors; occasionally, young men simply faint when told that the tong was inserted "the natural way" and routinely used in the nineteenth century "before anesthesia was invented."

All of this is waiting to be drawn out from a visual and tactile encounter—and most

acutely from some imagined version of the latter that accompanies the former—with just one such exhibit. This is what enables museums and particularly exhibitions to deliver the affective impact that we have been insisting is so central to a fuller engagement with medical instruments in history. At their most powerful, original implements like these, especially when accompanied by real and specific personal details, along with the insight of real experts (patients and designers, perhaps, as well as scientists, technicians, and historians), can contribute to an important and distinctive historiography. This is essentially a felt history of the processes of medical practice and research in the making: its praxis, the process of treatment and discovery, as well as all the failure, frustration, and blind alleys explored along the way.