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# 'The [Impregnable] Mother of All Battles': War, Reproduction, and Visualisation Technology

Susan Squier

The effect on human psychology and social life of the separation of sexual love and reproduction which was begun in the 19th century and completed in the 20th is by no means wholly satisfactory.<sup>1</sup>

Much of the national American attitude toward the Gulf War . . . expressed a concern about family. . . The unity of the nation was kept through the use of the family, first as a notion embodying everything good and American . . . and then the family as a real unit watching the war together on television in contrast with the Iraqis being watched on TV.<sup>2</sup>

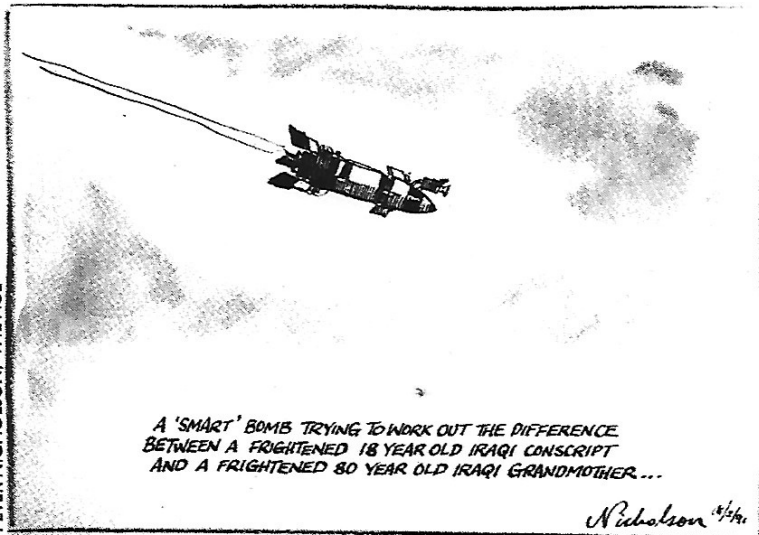
ON 18 FEBRUARY, 1991, two cartoons appeared in the *Melbourne Age*, one of Australia's major newspapers. The first figured a father and son hunched up to the television set watching the video image of a convoluted, cumulus-like mass. Its caption read, "Television viewers marvelled at the view from the tiny bullet camera as it entered an Iraqi stomach!"<sup>3</sup> The cartoon's force lay in its incongruous juxtaposition of family life — the gathering around the TV screen — and the brutality of war. Yet this cartoon also presents a haunting image of the American family during the Gulf War as dominated by the television: father and son are viewers, while the [absent] mother may return as the TV screen itself, object of the male gaze.

While the first cartoon depicts the dominance of video technology over wartime family life, the second cartoon treats the implications of such technology for wartime gender relations. We see a high technology bomb zooming across the page, a camera mounted on its nose cone. The caption reads, "A "smart" bomb trying to work out the difference between a frightened 18 year old Iraqi conscript and a frightened 80 year old Iraqi grandmother. . ."<sup>4</sup>

Together, these two cartoons reflect a fact driven home to any American family watching TV during the year of the Gulf War: sophisticated imaging technologies (video cameras, laser guided missiles, night vision) more and more dominate the American way of waging war, just as



MICHAEL BEAN, THE AGE



these cartoons link visual to military violence, the scopically-penetrated body to the visually-marked human target, the body in war to the body in the family.

My interest in this paper is not with the family itself, but with the reproductive relations that are its precursor. Warmaking has long been connected to baby-making in literary and cultural representation, as evidenced by the Gnostic conundrum 'How long will men make war? — As long as women have children.'<sup>5</sup> From its roots in an 'epic tradition [which] figures arms as being engendered through the mother by linking making babies and making arms', this representational tradition leaves its trace in the complexly ambiguous word 'impregnable': 'not capable of being captured or entered by force', 'unshakable; unyielding; firm' or 'that can be made pregnant.'<sup>6</sup> This tradition extends to the Gulf War era, where it appeared both in Saddam Hussein's use of the maternal trope, 'the mother of all battles', to figure his military potency, and in the American media's construction of the war as a threat to the sanctity of White American mothers, wives and babies.<sup>7</sup> As Abouali Farmanfarmanian has shown, the age-old military obsession with racialised virility (newly cloaked in family values), reappeared during the Gulf War in imperialist fantasies of protecting the White mother/wife from rape by the racial Other and ensuring the safety of white babies. (Farmanfarmanian, 1992) Farmanfarmanian's analysis illuminates the relationship between war and sexuality, but like the work of Theweleit, Huston, Enloe, and other scholars, it overlooks the impact of the twentieth-century innovations in reproductive medicine (the new contraceptive and conceptive technologies) that have — at least for the consumers of Western medicine — effectively split off sexuality from reproduction.<sup>8</sup>

This essay will address the question those earlier analyses overlook: what is the relation between war and reproduction, now that reproduction is no longer inevitably linked to sexuality? In a study of war, gender and literary representation, which I edited with Helen Cooper and Adrienne Munich, we suggested that the scientifically-enforced split had severed any connection between warmaking and

sophisticated medical imaging technologies (fiber-optics, electric video endoscopes, ultrasonography) play an increasingly important role in reproduction. Invoking family relations problematically subjected to video technologies (living-room gatherings around the TV; the grandmother at risk of missile attack),

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In its structural linkage of continuity, expresses Enlightenment philosophy, shown. Crucial role stressed the basic to the subject.<sup>11</sup> E subject con through the control, Ke

babymaking, and rendered obsolete the old term for pregnancy: 'Travailler pour l'armée.' Study of the twentieth-century developmental history of reproductive technology has modified my views somewhat. In what follows I will argue, based on a survey of a variety of texts — from the Gulf War cartoons, to a scientist's memoir, magazine articles, and a popular science essay — that the age-old cultural connection between warmaking and babymaking [reproduction/the family] is still with us. However, it is now mediated by visualisation technologies, with important implications not only for what is seen, but for those who do the seeing.

Let us begin with the autobiographical narrative of Dr. Robert Edwards, the 'father' of *in vitro* fertilisation. Here is how Edwards narrates the origins of his invention of IVF:

I had long been interested in the scientific processes of reproduction. While a schoolboy, because of gunfire, the bombs falling and the searchlights fumbling the night skies of Manchester, I had been evacuated. I had spent one year on an isolated hill farm behind the Yorkshire Dales; there, in the natural laboratory behind hedgerows . . . I had watched with wonder the birth of calves, sheep, pigs, foals, as the aeroplanes of war droned on a long way overhead. During those wartime days I asked myself schoolboy questions about fertilisation and birth. [Later] in the Department of Zoology, I asked more complicated questions as I attended tutorials or lectures on fertilisation and . . . embryology. On one occasion in the Zoology lab I looked up from a microscope thinking.

*Why does only one spermatozoon enter an egg?*

'A million million spermatozoa,' wrote Aldous Huxley, 'all of them alive,' and he continued amusingly:

Out of this cataclysm but one poor Noah  
Dare hope to survive.  
And among that billion minus one  
Might have chanced to be  
Shakespeare, another Newton, a new Donne  
But that One was Me.<sup>10</sup>

In its structure, Edwards's disarming autobiographical narrative exemplifies the linkage of warmaking and babymaking that attests to reproductive technology's continuity, rather the discontinuity, with previous cultural practices. It also expresses a time-honored valorisation of the visual that has, since the Enlightenment, characterised the projects of Baconian science and Cartesian philosophy, as Martin Jay (1989) and Evelyn Fox Keller (1986) among others have shown. Centrally important in the production of knowledge, sight has played a crucial role in mediating between human beings and the world. Martin Jay has stressed the oppressive results of that privileging of visual representation, seeing it as basic to the construction of the autonomous, rational, Enlightenment human subject.<sup>11</sup> Evelyn Fox Keller views modern science as complicit in this oppressive subject construction, arguing that a gendered objectification of the natural world through the scientific gaze is its methodology and goal. To make visual is to control, Keller holds; science since Francis Bacon has aimed to make nature visible

as a way of uncovering, and so controlling, her secrets.<sup>12</sup> By this reading, contemporary biomedical practice shares with contemporary techniques of warfare the Baconian project of achieving control through 'making visible'.

Edwards's narrative exhibits this attempt to achieve control in a passage whose temporal discontinuities are undermined by its thematic continuity with earlier linkages between war and reproduction. The narrative's opening is suffused with Romanticism — the Yorkshire Dales; hedgerows; the natural births of farmyard animals — albeit a romanticism under threat of erasure by the modern bombers overhead. Following a rupture with the pre-war natural agrarian context, the story concludes in the modern scientific laboratory where Edwards experiences his definitively anti-Romantic vision of artificial reproduction, a vision linked in the narrative to modernist Aldous Huxley's 'Fifth Philosopher's Song,' and via Huxley to the Western philosophical, literary and religious tradition. Warmaking sequesters into a preoccupation with babymaking: from his schoolboy experience of terror under the bombing, amidst gunfire and searchlights, Edwards's memoir sweeps to his adult experience at a microscope, so fascinated by the process of fertilisation that he identifies with the sperm. Paraphrasing this narrative, we might characterise its unconscious dynamics of displacement as follows: How can I survive the cataclysm of World War II, the gunfire, the bombing, the perpetual air raids with their searchlights scouring the sky? Amidst all this death I cannot control, amidst this cataclysm, perhaps through scientific research I can save 'one poor Noah' (the male principle, perhaps even me) by the work I do peering down the microscope, discovering and controlling the secrets of life.

This narrative of the intellectual conception of *in vitro* fertilisation reaches its climax when Edwards attends the screening of a film made by Alan Beatty, 'an expert on fertilisation', which 'showed how a fertilised mouse egg had been taken from the uterus (womb) of one mouse and injected into the uterus of another mouse'. (Edwards, pp. 11-12) The effect of this image sequence is decisive: 'Then and there I knew what I wanted to do. . . ' At that moment, Edwards recalls, he dedicated himself to following 'the tenuous, exciting leads of my predecessors . . . They too had been interested in fathoming the secrets of fertilisation and in delving into the mysteries of the newly formed and developing embryo'. (Edwards and Steptoe, pp. 11-12)

Edwards gives us a scientific genesis narrative here, one that incorporates the familiar linkage of warmaking, sexuality, and reproduction. The research program that would culminate in the discovery of *in vitro* fertilisation, and so achieve for Edwards his childhood wish to control the 'scientific processes of reproduction', is catalyzed by the fear of death he felt under wartime bombardment. The sexually-charged fantasies accompanying his research recall the metaphoric structure of Baconian science: he dreams of delving into concealed and secret spaces and thus besting the Creator at his work, by improving upon the reproductive practices he saw in the 'natural laboratory behind the hedgerows'.

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Yet there is one aspect of Edwards's narrative that is genuinely discontinuous with earlier cultural and representational practices: the central role played by the new medium of film. At the narrative's conclusion, Edwards's discovery of *in vitro* fertilisation is catalyzed by a film, *Inovulation*, that 'shows how a fertilised mouse egg had been taken from the uterus (womb) of one mouse and injected into the uterus of another mouse'. In this scene, the moment of scientific intervention is echoed by the very technology that renders it. As a viewer, Edwards participates vicariously in one of the first demonstrations (in mice) of a technique that, when developed fully for human application, would be known as *IVF surrogacy*: the transfer from one uterus to another of an embryo produced outside the body by the combination *in vitro* of an egg and a sperm. (Edwards, pp. 11-12) In this culminating moment of Edwards's process of scientific conception, the relationship between the filmic and scientific technologies is *metonymic*: the film figures, and then transfers to its viewers, a moment when life itself is made transferable.

Of course, film technology has its own antecedents, here as in history writ large. In the childhood memory that begins Edwards's personal history, military and scientific visualisation technologies are intertwined, as searchlights segue into microscopes. And like those microscopes and other bio-medical technologies for small or distant seeing — historically represented as the unveiling of a female nature, as Fox Keller has shown — film is gendered. Teresa de Lauretis has compellingly demonstrated that gender produces different positionings of the male and female subject of the filmic (like the scientific) gaze.<sup>13</sup> But questions of gendered positionings aside, is the filmic transfer of life in representation the same as the physical transfer of life in conception and implantation? We can tease out the difference between these two modes of transfer, if we look at another, later instance when visualisation technology played a crucial role — not merely in the development, but in the representation of reproductive technology: Lennart Nilsson's 1966 publication, *A Child is Born*.<sup>14</sup>

Nilsson, who acknowledges holding a 'special interest' in the field of human reproduction, also seems to have a special ability to notice and profit from cultural trends. (Nilsson, 1977, p. 41) He has for several decades worked at the intersection of science and industry, turning a profit from the increasing popular fascination with the biomedical uses of visualisation technology. 'In cooperation with optical instrument manufacturers, he has developed special devices making possible . . . the reproduction of objects in very small cavities with previously unattainable depths of field'. (Nilsson, 1977, p. 41)

Nilsson's work exemplifies a genre of vicarious exploration, appearing increasingly in both film and journalism, that uses visualisation technology to plumb both inner and outer space, alternately provoking and satisfying the desire for control most memorably articulated by the geneticist Hermann Muller:

To gain adequate control over the world of things of our own size . . . we must first seek knowledge and control of the very small world. [. . .] The precept therefore follows that, for man, the road to the macrocosm lies through the microcosm. (Hermann Muller, 1936)<sup>15</sup>

Sixty years after Muller's classic formulation, it still seems to require bravery to take that road into the microcosm. The August 1990 issue of *Life* explains that Nilsson has 'embraced complex high-tech tools such as scanning electron microscopes . . . and tiny endoscopes that can peer into a woman's womb' with a 'devotion to the task [that] is heroic'. (*Life*, 27) If the *Life* description stresses Nilsson's epic endeavour, the undertones of religious/sexual taboo suggest that the hero may be as much Miltonic as Ulyssean, for the story's cover photo of an embryo *in utero* (captioned 'The First Pictures Ever of HOW LIFE BEGINS') heralds Nilsson for having produced 'impossible, almost sacred images'.<sup>16</sup>

Yet the magazine's bold claims notwithstanding, there is a crucial difference between the moment when life begins and a photograph or video of that moment. Following Joseph Needham, historians and cultural critics of science have argued that the course of science is shaped not merely by the objective use of the experimental method, but also by the development of new technologies.<sup>17</sup> The object of scientific observation and experimentation is shaped by the theoretical context within which the science takes place, and it is also shaped (and distorted) by the technology that becomes the medium of encounter.<sup>18</sup> Reproductive technology is no exception; advances in visualisation technology were crucial to the scientific *context* within which this new medical technology would develop. As a U.S. Government report, *Infertility: Medical and Social Choices*, explains: 'manufacture of microscope lenses free from chromatic and spherical aberration in the late 1800s, and the refinement of fixing, staining, and sectioning techniques led to extensive investigations into cell and nuclear division'.<sup>19</sup> And Dr. Robert Edwards's memoir attests to the crucial role that technologies of visual representation played in the actual conception of *in vitro* fertilisation. As practiced today, *IVF* relies heavily on the use of such diverse medical imaging technologies as the microscope, ultrasonography, and laparoscopy by electronic video endoscope.

Such new visualisation technologies do more than serve as a clearer window into nature, as the traditional Baconian formula would have it. Instead, consumers of such medical imaging technologies as electronic video endoscopes or even ultrasonography are treated to a series of technologically-produced *simulacra*, simulations of reality.<sup>20</sup> The image of a human ovum, seen through an endoscope during laparoscopic egg retrieval in *IVF*, stands in for the [not humanly visible] 'real' ovum.

Its role in *IVF* exemplifies the way video technology has shifted the grounds of knowledge, as well as the knower. As Vasseleu points out, 'The simulacrum includes within the lure of its implied depth a differential point of view — an angle which *incorporates the spectator as part of its dissimulation*'.<sup>21</sup> Distorting and distancing the subject in the act of representing it (as it is configured for the video screen or the computer monitor), these simulations also *remake us* into consumers of technoscientific knowledge. Rather than perceiving the body as locus of empirical knowledge, we now tend to see it as object, as possession. We may feel alienated from our physical experience, and look for authenticity in the technologically-

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produced image. Such an experience of alienation results from the process of interpellation that, while functioning broadly within contemporary medicine, is particularly important to the new *IVF* technologies. When a patient is 'accepted' onto the *IVF* programme, spatial and temporal organisation of the medical procedures function to reposition the patient, paradoxically, as both a producer and a consumer of biomedical knowledge. Her status as a producer is fairly easy to grasp by analogy with industrial production. As *IVF* clinics proliferate, and in some cases are franchised, the patient's position is rationalised — controlled spatially and temporally to maximise efficiency. One string of *IVF*-clinics, Pacific Fertility, has even borrowed a strategy from McDonalds, and standardised the layout of its chain of clinics. As the *New York Times* explains in the caption to its schematic illustration of the innovative architectural strategy, 'Each [clinic] breaks down in-vitro fertilisation into seven stages, each of which is assigned its own room painted in pastel colors'.<sup>22</sup> In its pastel-coded assembly line, the resulting clinic floorplan brings to the surface the usually submerged interconnection of gender and labor ideologies at work in contemporary medical practices.

But the *IVF* patient (like other patients subject to the high-technology medicine) also becomes a consumer of 'othered' knowledge about her own body. She enacts a crucial shift from perceiving it as site of empirical knowledge, to understanding it as distant locus of information that must be obtained with the mediation of high technology: fiberoptic endoscopy, ultrasonography, amniocentesis, and so on. Video-technology is central to this process by which the patient is reconstructed as consumer of video-mediated knowledge about the body (rather than possessor of internal experiences of that same body).

This [re]shaping role of visualisation technologies returns us to the cartoon from *The Age* with which I began, figuring the view from the 'tiny bullet camera' as it weaves its way through the Iraqi's intestines.<sup>23</sup> In its militarised journey into the human interior, this cartoon recalls a 1966 science fiction film, *Fantastic Voyage*, in which miniaturised human scientists travel the intestinal tract of a fellow scientist on a medical search-and-destroy mission for the disease that is killing him.<sup>24</sup> And it anticipates a contemporary medical innovation: intravascular ultrasound. As described in the *New York Times*, this new visualisation technology resembles:

something out of the film, *Fantastic Voyage*, [for] the test involves threading through the blood vessels a catheter with the equivalent of a tiny movie camera at the tip. [Cardiologists] say it shows the inside of a patient's blood vessels with detail so fine, and images so pure, that the only thing comparable is to split open the blood vessels at autopsy and look at them.<sup>25</sup>

Replacing tactile by scopic penetration, this technique has a visual violence that recalls not just the postmortem invoked by the cardiologists, but the battlefield as well. Indeed, it uncannily echoes the 'tiny bullet camera' from the Gulf War cartoon. Although the sex of the Iraqi whose stomach is being scopophilically penetrated is not mentioned, the tenor of the relationship between the 'smart weapon' and its ungendered victim suggests that there is a deep gendering to this penetration of the body's internal recesses. The body penetrated is feminised; the



act of penetration is sexualised if military, militarised if sexual. The processes of video mediation are parallel: distanced from the blood and pain of a war we watch on our TV screens, we are similarly distanced from the sweat and pleasure of a conception we watch through a microscope, a gestation we capture in ultrasound stills or videotapes.

The Gulf War entered into our living rooms; it was 'the first real-time TV war', according to *Time* magazine.<sup>26</sup> Yet if the chronology was 'real-time', the pictures were ambiguous: both intimate and distant. Similarly, the new reproductive technologies mingle intimacy and distance. Although cloning and germ-line therapy may still be only hypothetical, *IVF* has made possible the first delayed action sex: sex that can be delayed one menstrual cycle, or several, or even a generation, now that embryos can be frozen. And the new technology of *IVF* surrogacy — in which, as in the film that inspired Robert Edwards, an embryo produced *in vitro* with donated gametes is implanted in, and gestated by, another female — gives us the first remote control gestation.

The implications of this new distanced approach to the maternal body are manifold. In the current climate of high-technology reproduction (as well as the anti-abortion feeling cresting in the USA), an ever-increasing prevalence of foetal imagery interpellates a foetal subject, called into being *in order to marginalise* the maternal surround.<sup>27</sup> If the ultrasound foetus is frequently privileged and made central at the expense of the gestating woman, who is marginalised, it is *IVF* surrogacy that, more than any other reproductive technology, most embodies the effacement of the maternal body produced by the medical application of the new imagining technologies. This tendency to occlude the experience of the gestating woman (once simply identified as the mother-to-be) is evident both in the language of surrogacy, and in its developing legal status in the USA.

Not only does the gestating mother get written out in favor of the foetus, but her contribution is also deemed less important than the genetic contribution of the egg donor. The contribution of the microscope and its technological descendants is responsible for this judgement, for now similar genetic material can be identified, whereas the act of mothering leaves no visual trace. Thus in the case of 'Baby Boy Johnson', the United States judge ruled against granting that black surrogate mother visiting rights to the white baby boy that she gestated and delivered, on the grounds that she was not genetically related to him. As Katha Pollitt has observed, the implications for this are massive: Justice Parslow's decision in the Baby Boy Johnson case 'defines, or redefines, maternity . . . [by] equating motherhood with fatherhood — that is, defining it solely as the contribution of genetic material'.<sup>28</sup>

Machines are redefining the people involved not only through what might be called the tyranny of the microscope, but also by functioning as an insidiously self-(re)constructing metaphor. As Mrs Bobbi Resch, would-be 'surrogate mother' told a journalist from the *Melbourne Age*, 'I'm an incubator. I've gone into this knowing it's not my child. . . . I don't want any more kids.'<sup>29</sup> Explaining that she wanted her children 'to see and watch the process of birth', Mrs Resch planned to share that spectacle with the gamete donors as well.

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Mrs. Resch's example further shows how we are coming to rely on visualisation technology to mediate human relations for us. As she prepared to be implanted with three frozen embryos from an Australian couple, this American woman planned to use technology to bridge the distance between the parents-to-be and 'their' foetus, planning 'should she become pregnant . . . to tape-record doctors' appointments and when the heartbeat is first heard. . . [and to] take weekly photos of herself to send [to the gamete donors]'. (*The Age*, 22 August 1990.)

But what can be wrong with the mother and father who have donated gametes participating in the gestation of their baby-to-be, by visual and auditory imaging technologies like photographs and tapes? For that matter, what is even wrong with the 'surrogate mother' describing herself as an 'incubator'? If this particular metaphor of body-as-machine helps another woman achieve her goal — a child 'of her own' — isn't it acceptable, even in feminist terms? Some feminists have made that argument: most notably, Donna Haraway, who has influentially and eloquently described the liberating potential in the cyborg: 'lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints'.<sup>30</sup> The position of the surrogate mother does seem like the essence of Haraway's partial identity and contradictory standpoint: gestating but not genetic mother, mother for nine months yet stranger or at best visitor for the lifetime to follow.

Yet there are frightening psychological implications to the cybernetic tendencies of our culture, whether expressed by *IVF* surrogacy or the uses of video in warfare: a narcissistic flight from true encounter with otherness in favor of a simulacrum of otherness; a tendency to replace individual experience (intellectual, emotional, sexual) with collective experience (rationalised, managed, fundamentally alienated.)<sup>31</sup> These tendencies are apparent even in the narrative of the would-be surrogate mother I have just discussed. Mrs Resch's internalised discipline, objectification, and self-alienation is evident in her description of herself as an incubator; in her preference for watching the process of pregnancy and birth [of a baby she views as 'not my child'] to nurturing the child that results; and in her preference for photos and tape recordings rather than a genuine relationship with the baby-to-be. The tape-recorded heartbeat and up-dated photos with which Mrs Resch provided the gamete-donor mother, the simulacrum of a pregnancy followed from afar, recall the 'Special Pullout Battle Map' with which the readers of *Time* magazine were provided, on 25 February 1990, so that they could follow the developments in the Gulf War.<sup>32</sup>

Indeed, we might extrapolate from an understanding of the function of the scopic embryo or foetus in *IVF* and surrogacy an understanding of the role of the video-image (be it of an Iraqi's stomach, a tank tower, or a bunker) in war. Just as the medical privileging of the image of the embryo or foetus functions to render the woman marginal, both as gestating body and as one who is pregnable, so the wartime emphasis on the video-image renders the targeted human body marginal: it is either too small or too far away to see, or (in the cartoon of the 'tiny bullet camera' in the Iraqi's intestine) it is too large, too close-up.

The alienating, objectifying results of such cybernetic mediation (in warmaking and babymaking) can perhaps be grasped most vividly in the hottest new reproductive technology: zona drilling. Following in the tradition established by Robert Edwards and Aldous Huxley, reproductive endocrinologists have questioned why it is that among 'a million million spermatozoa, all of them alive', only certain sperm are successful at fertilising an ovum. Or, to invoke the militarily/sexually ambiguous term with which I began, they have been wondering what makes some ova *impregnable*. Constructing the problem, significantly, as an incapacity of the sperm to penetrate the egg, Dr Alan Trounson and his associates at Monash University in Melbourne take over the role of the sperm, via micromanipulations and high-power microscopy.<sup>33</sup> In the new technique known as 'zona drilling', they drill into the fluid-filled area around the human egg known as the zona pellucida and inject into it a single sperm.

The result of some remarkable technological developments, zona drilling is even more remarkable for the way it has been represented, in words and images, in the mass media and in popular science writing. Consider the following 'dramatic micro-scenario', appearing in *Science News*, a self-styled 'Weekly Newsmagazine of Science':

The microscopic human egg floats in its fluid-filled shell. Suddenly, thousands of tiny sperm bombard it. Lashing their tails to power their entry, they bore into the shell. . . One particularly vigorous sperm pierces the zona barrier, setting off a chemical reaction that shuts the others out. Then, if all goes well, the winning sperm fertilises the egg and the miracle of human life ensues. (*Science News*, 15 December 1990, p. 379)

The journalistic cliché of casting the moment of conception as the culmination of a competition is unremarkable; such competitive language has characterised media representations of impregnation since well before Nilsson's pioneering photographic quest into the reproductive tract. But the narrative of this 'micro-scenario' of zona drilling figures an aggressive, violent, military language: the ovum is represented as an impregnable fortress under attack from battalions of sperm. The reproductive endocrinologists are labeled 'zona blasters', and they are variously described as 'zapping sperm with an electric shock', 'grinding' an opening in the zona to create a 'breach', 'trying to spear a microscopic egg', 'creating a gaping slash in the zona', 'punching a discrete hole in the zona with a tiny laser beam', and 'cracking the zona'. (*Science News*, pp. 377-8, 379)

Compare an excerpt from another weekly newsmagazine, this time the 25 February 1991 issue of the Australian edition of *Time*:

The Stealth fighter-bombers located their target in the 4 a.m. darkness over Baghdad. Their laser-guided, 900-kg bombs hit their mark with pinpoint accuracy. They cut through 3.5 m of reinforced concrete and exploded, peeling away the protective cover and destroying the bunker. [ . . . ] 'From the military point of view, nothing went wrong', said Brigadier General Richard Neil, the briefing officer in Saudi Arabia. 'The target was hit as designated.'<sup>34</sup>

The similarity between these passages suggests how we might revise another Gnostic conundrum, 'War imitates war narrative imitates war', to reflect our postmodern

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moment: 'War technology imitates sex technology imitates war technology'.<sup>35</sup> For one response to these parallel passages would be to say that they both participate in that ancient metaphoric tradition linking sex to warmaking: penetration, particularly but not exclusively visual penetration, has not been sexualised, but *militarised*. Yet another issue is crucial here, which we understand when we remember that the target alluded to in the second passage was not the military bunker the Allied fighter-bombers 'read' it to be, but a civilian bomb shelter. The smart bomb blundered; so too, zona drilling, IVF and the corollary reproductive technologies are far from 100% effectiveness. These ironic facts — that the smart bomb failed, that would-be surrogate mother Bobbie Resch did not in fact become pregnant, that Mary Beth Whitehead, another surrogate mother, could not reduce herself to 'an incubator' and readily surrender her child — suggest one possible response to the objectifying reconstruction of the human we have been considering. We could reject the notion of reconstructing the human being as a machine; instead, we could assert the need to confront our common bodily *imperfection*, to acknowledge that technology can not protect us from the primitive truths of birth, death, and physical vulnerability that we, like Robert Edwards, use it to avoid and deny.

Arguably, the acknowledgement that human fallibility prevails even over the most sophisticated visualisation technologies is the theme of the two Gulf War era cartoons with which I began. That is the point of the cartoon in which the 'tiny bullet camera' enters an Iraqi's stomach. While father and son watch in distanced fascination, we recoil from the notion the cartoon problematises: that human vulnerability in war could ever be the subject of family TV viewing. Similarly, the cartoon showing the 'smart bomb' choosing between an octogenarian woman and a teen-age soldier boy mocks the very notion that technology can protect us from the hard decisions and pain of warmaking through what is called, with ironical aptness, 'surgical' targeting.

These cartoons can be read as illustrating the emancipatory possibility of resistance, situating it precisely in the *failure to respond as intended* when (re)constructed by the visualisation technologies. In the realm of reproduction, such a failure consists in the surrogate mother's inability to act as merely an incubator or transparent uterus: her decision to re-embodiment the self as gestating woman in relationship with a foetus *in utero*, and to keep the baby that results from that relationship. In the realm of warmaking, the failure consists in the inability of a so-called 'smart bomb' to mimic human sight and decision-making, despite its onboard video monitor and computer. Failing to target accurately, such a dumb bomb produces unacceptable casualties (as in the February 1991 mistaken Allied bombing of an Iraqi bomb shelter), and so renders war less, rather than more, sanitary and distanced. Such fallibility can ultimately produce popular resistance to the entire warmaking project. Whether we are talking about the 'mother of all battles' or the surrogate mother, such an argument would hold, it is in such moments of vulnerability that hope may dwell. It may ironically be not in *human perfection*, but in our *imperfection* that we can find a site of resistance to this oppressive reconstruction of the human.

Yet in making that argument, we are also positing a set of fundamentally Romantic oppositions that may produce more problems for us than they do solutions: between the (perfect) machine and the (implicitly organic, imperfect) human being; between technology as inherently bad and human beings as inherently good.<sup>36</sup> As I write this essay on my computer, profiting from the technology that enables me to read — and revise — my words on its video screen, I find such an argument too simple. To recoil from technology because some of those who use it aim at perfecting (and thus perfectly controlling) humanity fails to take into account the complex relations others of us forge with technology in the course of our work against control-as-domination, and objectification, whether gender-based or global (or, as is usually the case, both together).<sup>37</sup> Moreover, to posit the human being (whether wartime civilian or female patient) as good *because* organic is not necessarily a liberating move. It participates in a mechanistic/organic split dating back to the Romantic period and implicated in the gendered oppressions integral, as Carole Pateman has shown, to the foundation of the liberal civil state.<sup>38</sup> In so (re)constructing the human being we may limit rather than extend his/her freedom: may close off the possibility of resisting a state that conceptualises itself as an organically related Leader-Father to citizen-children; may restrict a woman to the 'organic' realm of procreation rather than enabling her to explore other avenues for creation. (And that is not even to touch on the complicated politics of constructions of the body-as-machine put in circulation by organ-transplant programs.)

What possibilities exist for resisting that oppressive reconstruction of the human being — whether as embryo, soldier, civilian, mother, or physician? Perhaps resistance might exist in the exertion of power *from below*, to redefine the uses of technologies of reproduction. Instead of locating the possibilities for resistance in a recoil from technology (and a counter-affirmation of implicitly organic human imperfection) we might instead explore the possibilities for resistance inherent in the reallocation of visualisation technologies from multi-national institutions to local groups and individuals. The use of the speculum by women's self-help health groups in the 1960s is an early, and more technologically primitive, example of just such a reallocation of a visualisation technology from institutionalised medicine to local women's organisations. Without question, to reconstruct medical institutions so that the most advanced visualisation technologies would be amenable to the direction not of the doctors but the patients would call on a great deal of ingenuity. The object is local involvement with, and direction of, the bio-medical and more broadly social applications of technology, not some impossible simultaneous positioning as patient scrutinised by video-endoscope and doctor doing the looking. Yet in another sense, the simultaneous positioning as both object and subject of the technologised gaze would be precisely the salutary result of such a redistribution of technological power.<sup>39</sup>

Two examples will illustrate such a potentially liberating use of visualisation technology: the hand-held video camera filming of the Los Angeles police beatings of 1991, that raised public awareness of the racism of the LAPD, and the project

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carried on in Melbourne, Australia, in which non-English speaking working-class individuals and groups were given hand-held video cameras to record sites in their community in need of local council attention and repair.<sup>40</sup> To be sure, the course of the last year has revealed the imperfections in both of these attempts at video democracy.<sup>41</sup> While the Melbourne project did give a video voice to Australian citizens unable to speak English, it seems a voice without political clout can do only so much: the Melbourne City Council has still to make some of those indicated neighborhood repairs. More dramatically, the outcome of the Rodney King beating, and the LA riots that followed the verdict, suggest that any attempts to broaden access to visualisation technologies must also take into account the system within which those technologies operate, on both a local and a global scale. Yet such attempts to broaden access at least offer an alternative — and less oppressive — position in relation to the new visualisation technologies. We needn't sit, like the boy and his father, transfixed before the TV screen, watching the pain of a body that might be our own.

## Notes

- 1 J.B.S. Haldane, *Daedalus, or Science & the Future*, London, Kegan Paul, 1923, p. 65.
- 2 Abouali Farmanfarmaian, 'Sexuality in the Gulf War: Did You Measure Up?' *Genders*, 13, Spring 1992, p. 1-29, p. 2.
- 3 18 February 1991, *The Age*, Melbourne, Australia, p. 12.
- 4 *The Age*, 18 February 1991, p. 13.
- 5 Nancy Huston, 'The Matrix of War: Mothers and Heroes', *The Female Body in Western Culture: Contemporary Perspectives*, ed. Susan Rubin Suleiman, Cambridge, Mass, Harvard University Press, 1986, pp. 119-136, 119.
- 6 Helen M. Cooper, Adrienne Auslander Munich, and Susan Merrill Squier, eds, *Arms and the Woman: War, Gender and Literary Representation*, Chapel Hill, The University of North Carolina Press, 1989, p. 9. *Webster's New World Dictionary of the American Language*, Cleveland, The World Publishing Co., 1966, p. 731.
- 7 As Farmanfarmaian observes, an Amnesty International document on Iraqi infanticide in Kuwait that fuelled war fervor used an 'evocation of "infanticide"' to dramatise the threat that the Iraqis posed. . . to the notion of family since it [infanticide] represents the discontinuation of family'. (p.3)
- 8 Klaus Theweleit, *Male Fantasies*, Minneapolis, University of Minnesota Press, 1987; Nancy Huston, 1986, and 'Tales of War and Tears of Women', *Women's Studies International Forum*, 5, No. 3/4, 1982, pp. 271-82; Cynthia Enloe, *Does Khaki Become You? The Militarisation of Women's Lives*, Boston, South End Press, 1983.
- 9 Helen M. Cooper, Adrienne Auslander Munich, and Susan Merrill Squier, eds, *Arms and the Woman: War, Gender and Literary Representation*, Chapel Hill, The University of North Carolina Press, 1989, p. 20.
- 10 Robert Edwards and Patrick Steptoe, *A Matter of Life: The Story of a Medical Breakthrough*, London, Hutchinson & Co., 1980; rpt. Sphere Books, 1981, p. 7-8)

- 11 Martin Jay, 'In the Empire of the Gaze: Foucault and the Denigration of Vision in 20th Century French Thought', *Postmodernism: ICA Documents*, edited by Lisa Appignanesi, London, Free Association Books, 1989, pp. 49-74, 50.
- 12 'The invisibility of nature's interiority, like the invisibility of women's interiority, is threatening precisely because it threatens the balance of power between man and nature, and between men and women. . . modern science has sought to expose female interiority, to bring it into the light, and thus to dissolve its threat entirely'. Evelyn Fox Keller, 'Making Gender Visible in the Pursuit of Nature's Secrets', *Feminist Studies/Critical Studies*, Bloomington, Indiana, Indiana University Press, 1986, pp. 67-77, 74.
- 13 Teresa de Lauretis, *Technologies of Gender*, Bloomington, Indiana, Indiana U.P., 1987.
- 14 Nilsson, Lennart, *A Child is Born*, New York, Dell Paperback, 1966, revised ed. 1977.
- 15 H.J. Muller, *Out of the Night: A Biologist's View of the Future*, London, Victor Gollancz Ltd., 1936, pp. 22-23.
- 16 The linkage between these religious images and the project of controlling female reproduction also recalls Edwards's biblical fantasy (expressed by allusion to Huxley's 'Fifth Philosopher's Song') of saving the sperm-Noah-self from a cataclysmic conglomeration of reproductive ungovernability — a combination of Biblical flood and the Second World War. Lennart Nilsson, 'The First Days of Creation', *Life*, August 1990, Vol. 13, No. 10, pp. 26-49.
- 17 In his influential history of embryology, Needham included the development of techniques and scientific technologies among the three 'limiting factors' that shaped scientific advance. The other two limiting factors were the relation of scientific investigators to their environment, and the cooperation of scholars. Joseph Needham, *A History of Embryology*, Cambridge, Cambridge University Press, 1934; second edition, revised with Arthur Hughes, 1959.
- 18 See T.S. Kuhn, *The Structure of Scientific Revolutions*, Chicago, University of Chicago Press, 1970, chapter 10; A.F. Chalmers, *What is this thing called Science?*, St. Lucia, Queensland University Press, 1978, especially chapter 3, 'The Theory-dependence of observation'; and Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts*, 1976, Sage Publications, Inc.; rpt. Princeton, Princeton University Press, 1986. See also E. Ann Kaplan, 'Feminism/Oedipus/Postmodernism', for a discussion of whether such postmodern technologies as film and video are complicit with, or resistant to, the dominant objectifying male gaze. *Postmodernism and its Discontents*, ed. E. Ann Kaplan, London, Verso, 1988, pp. 30-44.
- 19 U.S. Congress, Office of Technology Assessment, *Infertility: Medical and Social Choices*, Washington, D.C., U.S. Government Printing Office, May 1988, p. 294.
- 20 Cathryn Vasseleu, 'Life Itself', *Cartographies: Poststructuralism and the Mapping of Bodies and Spaces*, ed. Rosalyn Diprose & Robyn Ferrell, Sydney, Allen & Unwin, 1991, pp. 55-64.
- 21 Vasseleu, *op. cit.*, p. 61; italics mine.
- 22 'Infertility Chain: The Good and Bad in Medicine', *The New York Times*, 19 June 1992, p. D2.
- 23 *The Age* (Melbourne), 18 February 1991, p. 12.

- 24 *Fantastic Voyages*, Cathryn Vasseleu, *Bodies and Spaces*, ed. Rosalyn Diprose & Robyn Ferrell, Sydney, Allen & Unwin, 1991, pp. 55-64, p. 137.
  - 25 Gina Kolata, 'The Body's Secret', *Newsweek*, 1992, Section 4, p. 30.
  - 26 Michael Kirsh, 'The Body's Secret', *Newsweek*, 1991, No. 8, p. 30.
  - 27 Susan Squier, 'The Body's Secret', *Newsweek*, 1992, Section 4, p. 30.
  - 28 Katha Pollitt, 'The Body's Secret', *Newsweek*, 1992, Section 4, p. 30.
  - 29 'Surrogate mothers', *Newsweek*, 1992, Section 4, p. 30.
  - 30 Donna Haraway, 'The Body's Secret', *Newsweek*, 1992, Section 4, p. 30.
  - 31 Les Levidow, 'The Body's Secret', *Newsweek*, 1992, Section 4, p. 30.
  - 32 As Baudrillard would say, the real is produced by the models — an idea that Baudrillard, in *Symbolic Exchange and Death*, Patton & Phillipe, 1983, p. 137, has argued.
  - 33 Kathy A. Ferguson, 'The Body's Secret', *Newsweek*, 1992, Section 4, p. 30.
- Scientists have been working with the sperm. The research on reproduction is arriving at the door. William Boot, *Age*, 2 April 1991, p. 1.
- 34 Bruce W. Noy, 'The Body's Secret', *Newsweek*, 1992, Section 4, p. 30.

- 24 *Fantastic Voyage*, 1966, Producer Saul David, Director Richard Fleischer, referred to in Cathryn Vasseleu, 'Life Itself', *Cartographies: Poststructuralism and the Mapping of Bodies and Spaces*, ed. Rosalyn Diprose & Robyn Ferrell, Sydney, Allen & Unwin, 1991, pp. 55-64, p. 137, n. 2.
- 25 Gina Kolata, 'When Doctors Say Yes and Insurers No', *The New York Times*, 16 August 1992, Section 3, pp. 1, 6, p. 1.
- 26 Michael Kinsley, 'Trusting Ourselves with the News', *Time Australia*, 25 February 1991, No. 8, p. 72.
- 27 Susan Squier, 'Fetal Voices: Speaking for the Margins Within', *Tulsa Studies in Women's Literature*, Vol. 10, No. 1, Spring 1991, pp. 17-30. See also E. Ann Kaplan, 'Look Who's Talking, Indeed: The Meaning of Fetal Images in Recent USA Visual Culture', *Contested Terrains: Constructions of Mothering*, eds Evelyn Nakano Glenn and Linda Rennie Forcey, London and New York, Routledge, 1993.
- 28 Katha Pollitt, 'When is a Mother Not a Mother', *The Nation*, 31 December 1990, p. 842.
- 29 'Surrogate mother likes being pregnant', by Sally Heath, *The Age*, 22 August 1990.
- 30 Donna Haraway, 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', *Socialist Review*, No. 80, 1985; rpt. in *Australian Feminist Studies*, No. 4, Autumn 1987, pp. 1-42, p. 8.
- 31 Les Levidow and Kevin Robins, *Cyborg Worlds: The Military Information Society*, London, Free Association Books, 1989, pp. 172-5.
- 32 As Baudrillard reminds us, 'Genetic miniaturisation is the dimension of simulation. The real is produced from miniaturised units, from matrices, memory banks, and command models — and with these it can be reproduced an indefinite number of times'. Jean Baudrillard, *Simulations*, New York, Semiotext(e), 1983, translated by Paul Foss, Paul Patton & Phillip Beitchman, pp. 2-3.
- 33 Kathy A. Fackelmann, 'Zona Blasters: There's more than one way to crack an egg', *Science News*, Vol. 138, 15 December 1990, pp. 376-7, 379. This procedure was most recently announced on the 9:00 a.m. news, Radio National (Melbourne, Australia), as a 'breakthrough development' that put 'Australia once again in the forefront of reproductive technology'. Manifestly, the metaphor of science as a competition is alive and well. Yet a recent scientific finding suggests that Trounson and his laboratory's construction of the infertility as an inability of the sperm may be in error. Scientists have hypothesised that the ovum secretes a biochemical substance which 'calls' certain sperm, selecting the most vigorous ones to let through the zona pellucida. As reported by William Booth,
- Scientists have found direct evidence that an unfertilised human egg communicates with the sperm, triggering their swim up the fallopian tube to the awaiting egg. . . . The research may help solve one of the big puzzles of human and animal reproduction: Why do males produce and deliver so many sperm, while only a few arrive at the site of fertilisation?
- William Booth, 'Science discovers how many sperm are called but so few chosen', *The Age*, 2 April 1991, p. 2 (rpt. from the *Washington Post*).
- 34 Bruce W. Nelan, 'The Air War: How Targets are Chosen', *Time (Australia)*, 25 February 1991, p. 18. Lest the links between an innovation like zona drilling, depending on the advanced microscopy abilities of contemporary medicine, and



innovations in contemporary military technology, seem too tenuous, I should note the article on 'Zona Blasters' on pages 376, 377 and 379 in *Science News* is literally wrapped around an article headed 'Civilian Gains at Defense's Expense'. This article suggests that there is a link, at least in the need to compete for government funding. While reporting a \$2 billion cut in defense research programs requested by the President of the United States, the article also noted that Congress increased the budget of the Department of Defense's Advanced Research Projects Agency by 12 per cent, targeting 'increases for advanced submarine technology and X-ray lithography', as well as a new program aimed at 'creating new technologies'. The article concludes on the same note of balanced optimism: while reporting a new limitation in 'non-defense discretionary funding', the article concludes by quoting Presidential Science Adviser D. Allen Bromley: 'Congress had done very well by science and technology'. (SN, 379). Ron Cowen, 'Civilian Gains at Defense's Expense', *Science News*, Vol. 138, 15 December 1990, pp. 378-379.

- 35 Nancy Huston, 'Tales of War and Tears of Women', *Women's Studies International Forum*, Vol. 5, No. 3/4, pp. 271-282, p.273. Huston's phrase is 'war imitates war narrative imitates war'.
- 36 I am indebted to Ken Ruthven, of the Department of English, The University of Melbourne, for alerting me to the implicit organicism in my construction of human imperfection.
- 37 Evelyn Fox Keller's distinction between control that leads to power, and control that leads to domination, is essential to an understanding of how we might work to reshape the medical and social uses of visualisation technology. Larry Casalino, 'Decoding the Human Genome Project: An Interview with Evelyn Fox Keller', *Socialist Review*, 91/2, 1992, pp. 111-128.
- 38 Carole Pateman, *The Sexual Contract*, Stanford, Stanford University Press, 1988.
- 39 The ideological impact of such an oscillation resembles the contradictory position advocated by Teresa de Lauretis as an alternative to the oppressive uses of any unitary frame of reference, whether technological or (even) feminist. 'Issues, Terms, and Contexts', *Feminist Studies/Critical Studies*, Bloomington, Indiana, Indiana University Press, 1986, p. 15.
- 40 Reported on the Australian Broadcasting Corporation, *Late Night Live*, by Phillip Adams, 18 May 1991.
- 41 The phrase 'video democracy' is Phillip Adams's, from *Late Night Live*, Australian Broadcasting Corporation.

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