`Hard Science': Gendered Constructions of Sexual Dysfunction in the `Viagra Age'

Barbara L. Marshall

Sexualities 2002; 5; 131
DOI: 10.1177/1363460702005002001

SEXUALITIES

Abstract This article locates Viagra, as both a biotechnology and a cultural event, in relation to shifting and specifically gendered interpretations of sexual function and dysfunction. While the clinical and market success of Viagra has prompted biomedicine and its popularizers to speak of a 'new age' in human sexual relations, and accord it causal agency in effecting social change, I suggest that we might profit by attending to the social claims that underlie such hyperbole. The story behind Viagra is a complex history of the manner in which sexual function has been constructed and reconstructed in relation to a range of distinctly modern phenomena, including the rationalization and medicalization of sexuality, the increased importance of expert systems and knowledges in managing everyday life, and the expansion of consumer culture. Conclusions suggest some ways that we might think about the 'sexually dysfunctional' as yet another 'strategic unity' consolidating various operations of knowledge and power.

Keywords sexual dysfunction, sexual medicine, sexual science, sexual technology

Barbara L. Marshall
Trent University, Canada

'Hard Science': Gendered Constructions of Sexual Dysfunction in the 'Viagra Age'

Introduction: welcome to the 'Viagra age'

> Viagra's role as a social catalyst . . . and its influence transcends the drug itself. In the future, its appearance may well be remembered as the cutting-edge force that created a whole new public attitude about the sexual problems that are so prevalent in modern society and about the entire subject of sex in general . . . . We may one day come to designate everything that has happened prior to April 1998 as 'before Viagra' and everything since 'after Viagra'. (Melchiode and Sloan, 1999: 228)

Sexualities Copyright © 2002 SAGE Publications (London, Thousand Oaks, CA and New Delhi)
Vol 5(2): 131–158[1363-4607(200205)5:2; 131–158; 022943]

When Viagra was introduced to the US market in 1998, both the popular media and the medical therapeutic community heralded it as revolutionary. Far more than a pharmaceutical product, the little blue diamond-shaped pill has become a cultural signifier of virility, bio-perfection, potentially unlimited sexual performance and a new era in sexuality. Consider for example some of the claims made in a few of the mass-market paperbacks on Viagra:

> Viagra is more than just a drug. Its widespread use and effectiveness will have vast consequences for our entire society. (Whitehead and Malloy, 1999: 6)
>
> Now you can have sex when, where, and how you want it, dependably and reliably, even if you're 100 and your partner's 102. (Vaughn, 1998: 14)
>
> Simply stated, a revolution has begun. . . . For the first time, it is possible to restore optimal sexual function to nearly every man who desires it. (Lamm and Couzens, 1998: 11)

For some, the little blue pill is being granted even more far-reaching powers:

> Feminism has emasculated the American male, and that emasculation has led to physical problems. This pill will take the pressure off men. It will lead to new relationships and undercut the feminist agenda. (Bob Guccione, publisher of *Penthouse*, cited in Handy, 1998: 44)

It is not just the hyperbole of the pop-market that has declared the 'age of Viagra' – scientists too have readily adopted the demarcation of a new era (Hatzichristou, 1998; Kim, 2000; Krane, 2001; Weiske, 1999). All of these assertions reflect a naïve technological determinism, mistakenly granting Viagra some sort of causal agency in bringing about social change. In contrast, I want to suggest that as a cultural 'event', it provides a useful point of departure for re-examining the relationships between gender, the body, sexuality, science / technology and consumption. The story behind Viagra is a complex history of the manner in which sexual dysfunction has been constructed and reconstructed in relation to a range of distinctly 'modern' phenomena – including the rationalization and medicalization of sexuality (Jackson and Scott, 1997; Tiefer, 1995, 1996), the increased importance of expert systems and knowledges in managing everyday life (Giddens, 1991; Rose, 1996) and the expansion of consumer culture (Slater, 1997). Drugs are social products and '. . . much capital, both economic and cultural, is vested to move the products on to the market and to construct robust beliefs that these products are needed for the good life' (Palmlund, 1997: 159). That this has been done so successfully in the case of Viagra provides a unique context for analysis.

Viagra is one of the most commercially successful prescription drugs on record. Within months of its approval, millions of prescriptions had been written, a number of mass-market paperbacks hit the stands, stories were frequent in mainstream media outlets, it was the subject of countless comedy monologues, cartoons and jokes, and hundreds of internet sites emerged which offered online prescriptions and home delivery. What is Viagra? Sildenafil citrate is a pharmacological compound that suppresses an enzyme that allows blood to flow out of the penis. Taking effect approximately 45–60 minutes after ingestion, it acts to increase and maintain blood flow to the penis. The stuff of modern legend, the story is widely told of how this effect was discovered accidentally while Pfizer was conducting clinical trials for its use in angina treatment. It wasn't particularly effective in increasing blood flow to coronary arteries, but its effect on the penis came to light when test subjects apparently didn't want to return their experimental pills. While there *was* a degree of serendipity in Viagra's birth, in actuality pharmaceutical companies and urological scientists have long been interested in developing oral therapies (Bivalacqua et al., 2000; Guirguis, 1998; Kirby et al., 1999). Viagra did not just appear out of the blue, nor is it the only clinical treatment for 'erectile dysfunction'. Biotechnical remedies for rehabilitating erections have been common practice for many years.[1] What sets Viagra apart, however, is its relationship to the development of a molecular science of sexuality, its location by the medical and therapeutic communities within the 'natural' sexual response cycle, and its cultural take-up as the 'magic bullet' that will usher in a whole new era of both sexual medicine and sexual relations.

My focus in this article is to locate Viagra, as both a technological intervention and a cultural event, in relation to shifting and specifically gendered interpretations of sexual function and dysfunction. My discussion here is based on an analysis of both scientific articles in medical and clinical journals and mass-market books that seek to 'translate' the scientific findings to an audience of consumers.[2] While no formal coding of the texts was undertaken, some consistent themes emerged in the analysis regarding assumptions about the etiology and epidemiology of sexual dysfunction, conceptions of scientific progress in the field and perceived social consequences of sexual dysfunction and its treatment. After briefly locating Viagra in relation to the development of sexual science and, in particular, the medicalization of sexuality,[3] I will outline what has emerged as the current biomedical consensus on male and female sexual dysfunctions – including their bodily dimensions, social consequences and future prospects – and suggest that we might profit from paying attention to the underlying social claims. While the clinical and market success of Viagra has prompted biomedicine and its popularizers to speak of a 'new age' in human sexual relations, according it a causal role in social change (and in

particular, in affecting gender relations), the more interesting story is to be found in how gendered, sexual bodies and responsible individuals are being constructed in and through those discourses.

Sexual science and sexual 'dysfunction'

Without recounting a detailed history of sexual science, two significant shifts should be noted: first, the rise of science as the authenticating voice on what constitutes the 'normal' and 'abnormal', and second, a reframing of the 'abnormal' to emphasize *dysfunction* rather than moral *danger*.[4] It is this drive to identify and rectify sexual dysfunction that is '. . . manifested in anxieties about sexual performance, in the efficient deployment of the equation of desire with outcome' (Hawkes, 1996: 71).

What is the 'function' that 'sexual dysfunction' threatens? Quite simply, it is penile–vaginal intercourse in the marital (or at least stable heterosexual) unit. The 'function' is 'successful' intercourse, which is 'functional' for the couple, which is 'functional' for society. It is not that this understanding of sexual 'function' is *overtly* repressive of other forms of sexual expression or behaviour, but that it operates through an increasing valorization of, and eroticization of, marital intercourse. This has a long history. Much of classical sociology assumed a positive role for sexuality only within marital relations, and was insistent on the function of marriage in regulating passions (Marshall, 2001b; Sydie, 1994). The eroticization of marriage in the 20th century has always been seen as being in the service of the greater social good. During the inter-war period, for example, a number of influential 'marriage manuals' directed at a mass audience stressed the necessity of orgasm – his and hers – in the conjugal bed, and advised the anxious on erotic technique. Yet, '. . . while the means employed by the writers of the marriage manuals appeared radical, their goal – the defence of the existing family structure – was fairly conservative' (McLaren, 1999: 54). The increasingly scientific turn of sexology did not effect any divestment of this normative framing. Kinsey, for example, while putting on the white coat of the value-free taxonomist, repeatedly emphasizes the role of successful 'marital coitus' in 'maintenance of the home' and 'effectiveness of the home', and locates his work as contributing to the education of 'effective marital partners' (Kinsey et al., 1953). Masters and Johnson suggest, in the introduction to *Human Sexual Response* that '. . . the greatest single cause for family-unit destruction and divorce in this country is a fundamental sexual inadequacy in the marital unit' (Masters and Johnson, 1966: vi).[5]

Sexology, though, has always had problems of legitimacy, and one of the strategies used historically to establish itself as an authoritative science has been to assert a physiological basis for sexual problems within a

medical paradigm of diagnosis and treatment (Bullough, 1994; Irvine, 1990; Tiefer, 1996).[6] Thus, sexuality has become medicalized, rendering it amenable to intervention and management according to a biomedical model. This biomedical model accepts scientific rationality as a basic premise, and seeks universal truths about the body as a biochemical machine (Gordon, 1988). Medical discourses and practices – what Foucault (1975) has called the 'clinical gaze' – *construct* the body and its truths, rather than just 'discovering' them. Universalized bodily norms are constructed against which individuals can be measured and compared, and which provide a context whereby we not only understand our bodies, but *experience* them – as sick or healthy, functional or dysfunctional. Within sexual science, models of 'human sexual response' have provided such a universalized normative framework.

Masters and Johnson's physiology of the 'human sexual response cycle' (HSRC), continues to be the standard of 'function' against which sexual 'dysfunction' is measured. Central to the HSRC is the assertion of the basic physiological similarity of males and females, and the standardization of a series of stages or phases of physiological change that define 'normal' sexuality. The original HSRC identified 'arousal', 'plateau', 'orgasm' and 'resolution' as involving identifiable and quantifiable physical events, involving blood flow, tissue expansion and contraction, changes in heart rate and blood pressure, secretion of fluids and so on. Later revised, largely due to the influence of Helen Kaplan's work (Kaplan, 1977, 1995) to include 'desire' as a preliminary stage (although no physical changes are associated with this stage), the HSRC continues to be received as 'truth', forming the framework for the diagnosis of sexual dysfunction in the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-IV). 'Disturbances' to this 'natural' sexual response cycle can occur at any of these stages, and parallel male and female dysfunctions are identified for each stage (other than desire disorders, which are apparently gender-neutral). While the similarity of physiological response in males and females is emphasized through the mapping of the 'sameness' of the stages for each, 'dysfunctions' in each stage are specific to each sex. But in each case, the nomenclature of sexual dysfunction identifies particular disorders in terms of deviation from the 'expected' physiological response for that stage, in terms such as, for the arousal stage, 'failure to attain or maintain the lubrication-swelling response' or 'the inability to achieve or sustain an adequate erection' (Halvorsen, 1997: 45). Penile–vaginal intercourse is the assumed goal of arousal, as both lubrication in women and the erection in men are deemed adequate if they are sufficient to allow them to proceed to successful intercourse. A satisfactory orgasm, which is neither 'premature' nor 'delayed', is the assumed goal of intercourse for both partners. Thus, the HSRC requires physiological success at each stage to move

on to the next stage in enacting this 'normal' cycle, and 'dysfunctions' are defined and treated as abnormal events that disrupt this 'natural flow'. While a detailed critique of the HSRC and the DSM-IV's use of it in the nosology of sexual dysfunction is beyond the scope of this article,[7] a couple of points are worth emphasizing here. First, it has a remarkable tenacity in terms of its acceptance as a scientific, rather than social construction. This is particularly evident in the construction of 'orgasmic dysfunctions' in women, where it has been noted that what is, in fact, the 'norm' for women (inability to achieve orgasm through intercourse) is cast as a 'dysfunction' (Boyle, 1994: 74). As Boyle notes, even as sexual science has recognized women's need for clitoral stimulation to reach orgasm, it tends to be expressed as a need for 'additional' or 'extra' stimulation, implying something different from some normative level of stimulation (intercourse) which it is additional or extra *to*. Second, it is inherently tautological in its construction, where what is deemed to be an 'adequate' response or 'sufficient' excitement is defined by criteria of the model itself. As Leonore Tiefer puts it: 'Effective sexual stimulation is that stimulation which facilitates a response that conforms to the HSRC' (1995: 85). My emphasis in the remainder of this article will be on how this acceptance of a natural 'cycle' of sexual response grounds the intensive focus on specific physiological disruptions and their treatment, and the continuing difficulty that sexual science has negotiating the simultaneous 'sameness' and 'difference' of men and women – distinctions that the scientists themselves construct.[8]

Male sexual dysfunction

Throughout the 1980s and 1990s, a decisive shift was made from 'impotence' to 'erectile dysfunction' (ED). In 1982, the International Society for Impotence Research was founded, to facilitate research on '. . . the basic science of erection, defects in the erectile mechanism, and the clinical aspects of diagnosis and treatment of erectile dysfunction'.[9] In 1983, Dr Giles Brindley astounded an audience of his colleagues at a conference by injecting his penis with phenoxybenzamine, and displaying, for all to see, an erection obtained by purely chemical means.[10] While this led to the development of new therapies such as intracavernosal injection and transurethral therapies, the more revolutionary import was to visibly sever the mechanism of penile erection from any sort of psychological or emotional arousal, or even tactile stimulation, and to reconceptualize it as a primarily physiological event. The shift from 'impotence' to 'erectile dysfunction' was stabilized by the National Institute of Health's 'consensus development conference' on impotence (NIH, 1993). Thanks to 'hard' scientific advances, experts now confidently claim that ED is a physiological,

not an emotional or psychological problem.[11] As one of the leading researchers in the field summarizes it:

> Few fields in medicine can match the rapid progress that has been made in our understanding of male erectile function. These changes have been profound, and fundamental. Baseless speculation about the essential vascular mechanisms of erection and the belief in a predominantly emotional etiology have given way to the identification of the molecular events resulting in an erection and to effective pharmacological treatment of their alterations. The current state of the art is a pre-eminent example of what is achievable by systematic and conscientious application of basic research and clinical observation. (Morales, 1998: xv)

While the DSM recognizes four broad categories of sexual 'dysfunction' (desire, arousal, orgasmic, sexual pain), it is ED, under the category of arousal, which has been the focus of research and treatment with regards to men. The full and firm erection is generally viewed as the lynchpin on which the whole business of sex depends. Despite evidence from both community studies and clinical samples[12] that desire disorders may, in fact, be more prevalent, the assumption seems to be that if you can get the penis 'functioning' properly, desire will follow and / or simply be enacted. Similarly, even though premature ejaculation (an 'orgasmic disorder') has higher prevalence rates than 'erectile dysfunction' in many studies, we do not hear of an 'epidemic' of premature ejaculation.[13] But erectile dysfunction is 'epidemic', a 'serious health problem' with disastrous consequences for relationships and society more generally. This assertion is made repeatedly, in both the scientific and popular literature.

The study most frequently cited in support of the 'epidemic' of erectile dysfunction is the Massachusetts Male Aging Study (Feldman et al., 1994; McKinlay and Feldman, 1994). This study is considered pivotal because it is considered to have established 'levels of impotence', rather than treating impotence as an all or nothing condition. In a self-administered sexual activity questionnaire, which included nine questions related to sexual activity and satisfaction, 1,290 men (all between the ages of 40 and 70) reported on the frequency of their erections, and whether or not they had experienced difficulty getting or keeping an erection during the previous six months. The 'levels of impotence' assessment was made on the basis of a later 'calibration study', where approximately 300 men presenting at a urology clinic were asked the same questions, and in addition, were asked to rate themselves as 'not impotent', 'minimally impotent', 'moderately impotent', or 'completely impotent'. The resulting rates reported were that 17 percent considered themselves 'minimally impotent', 25.2 percent considered themselves 'moderately impotent', and 9.6 percent considered themselves 'completely impotent'. The researchers also established that erectile function was both age-related,

and related to specific diseases such as diabetes, heart disease and hypertension.[14]

What doesn't get reported in the ubiquitous citations to this study that seek to establish the epidemic conditions requiring immediate medical intervention, is the following finding of the researchers:

> Despite the marked declines in actual events and behavior and in subjective aspects of sexuality, men in their sixties reported levels of satisfaction with their sex life and partners at about the same level as younger men in their forties. (McKinlay and Feldman, 1994: 272)

The researchers attribute this to differing normative expectations associated with specific age groups. Thus, what the ED 'industry' is really tackling is not so much a medical epidemic, as it is a re-orientation of the normative expectations.

As has been long established, a 'healthy' male can expect some changes in erectile function as he ages. Specifically age-related changes include the need for more direct penile stimulation to achieve an erection, an erection which is somewhat less 'firm and full' than in his youth, less ejaculatory 'force', orgasms which feel less genitally centred and more diffuse, and a longer 'refractory period' (the length of time between one ejaculation and the next erection) (Levy, 1994; Masters and Johnson, 1966). These are precisely the normative experiences of the 'healthy' male that are now pathologized under the rubric of 'erectile dysfunction'.[15] What the underlying science of the physiology of erection has stressed is that deviations from the expected penile response to arousal are not a result of 'age' per se, but identifiable biological processes that are associated with aging and other diseases related to bodily aging (heart disease, diabetes, hypertension, arterial hardening). Identifying with precision the vascular pathways of flow and retention of blood in the penis as the site for medical intervention is, in these terms, a remarkable achievement. Male sexual dysfunction becomes a simple mechanical problem. Dr Irwin Goldstein, one of the leading ED scientists, has reduced the problem to one of achieving 'sufficient axial rigidity' to overcome the 'typical resistance posed by the average vagina' (2 pounds), and to 'create' an erection which does not 'collapse' or 'deform' when engaging that resistance:

> I am an engineer . . . and I can apply the principles of hydraulics to these problems. I can utilize medical strategies to assess, diagnose and manipulate things that are not so straightforward in psychiatry. (cited in Hitt, 2000: 36)

Viagra, then, is a mechanical solution to a mechanical problem; it '. . . facilitates robust vascular functioning so the flow of intimacy, pleasure and eroticism is not subverted' (McCarthy, 1998: 307). In other words, fix the technical problem and the rest is 'doing what comes naturally'.

One recent development has been a shift in the boundaries of the 'disease' to more inclusive definitions of erectile dysfunction. While the initial justification for the 'disease model' of ED was clearly framed in terms of a discernable physiological basis, and the relationship of ED to potentially serious health problems (including the medical evidence that ED could be seen as an early indicator of diabetes, hypertension, arterial sclerosis, and so on), the efficacy of Viagra in producing erections *regardless* of the etiology,[16] not to mention the huge profitability of expanding the market, has considerably broadened the clinical framing of ED as well as the way the user is being 'configured' (Woolgar, 1991).[17] Thus, we have the oft-repeated assertion that the existence of a highly successful and well-tolerated treatment reveals the 'true incidence of ED' (Broderick, 1998: 205), which has hitherto been clearly 'underdiagnosed' (Seiden, 1998: 3). The 'user' is now configured not just as the man who is, due to a physiological problem, unable to get or keep an erection much of the time, but includes all those whose erections could be 'improved'. Both the popular literature and recent advertising stress that you might have ED and *not even know it!*[18] One doctor sums it up well:

> Should a man take the pill to improve erections if he doesn't think he has ED? The issue can be side-stepped by saying that if a man takes the pill and his erections improve, then he had ED after all. (Lamm and Couzens, 1998: 82)

There is also an emergent shift in the scientific literature to viewing ED as a progressive condition (hence the language of 'early warning signs of ED', and 'phases of ED') and to looking at prevention in addition to treatment. This shift has incorporated, on the one hand, an increased responsibilization and individualization of risk, but on the other hand, an increased reliance on scientific expertise and consumption. The threat of sexual dysfunction as a consequence of an unhealthy lifestyle has been rapidly incorporated into health promotion discourses. Men are thus exhorted to eat a healthy diet, get lots of rest, stop smoking, drink in moderation and engage in a regular exercise programme in order to minimize the likelihood of 'problems that impede blood flow to his penis' (Whitehead and Malloy, 1999: 169). Also predicted is the potential use of Viagra or Viagra-like drugs as a prophylactic measure, similar to the manner in which aspirin is used to ward off heart disease: 'Some experts are predicting that, in the near future, the drug will be taken two or three times a week, even when the man is not engaging in sex, to ensure erectile health' (Lamm and Couzens, 1998: 137). However, the 'real' advances are expected to occur in molecular biology, where '. . . the future of the genetic therapy of human erectile dysfunction seems bright indeed' (Christ, 1998: 193) As one scientist confidently predicts, 'It is clear that early in the new millennium,

ED will not only be effectively treated but also potentially prevented' (Padma-Nathan, 1998: 216).

The 'new' female sexual dysfunction

Virtually all of the literature on the scientific discoveries about male sexual dysfunction suggests that one of the positive outcomes might be attention to the long-neglected issue of female sexual dysfunction. Female sexual dysfunction, not surprisingly given the emphasis on the erect penis in the construction of male sexual dysfunction, is dominated by a concern with the viability of the vagina for receiving the erect penis. The recent outpouring of scientific work on 'female sexual dysfunction' has been spurred on by the 'pharmaceutical revolution' in treating male sexual dysfunction. As summarized in a recent scientific article:

> Based on our understanding of the physiology of the male erectile response, recent advances in medical technology, and the recent interest in Women's Health Issues, the study of female sexual dysfunction is gradually evolving. (Berman et al., 1999a: 385)

The 'evolution' referred to here is one that takes the new science of the erection as its blueprint. While for a long period of time work on female sexual dysfunction has lacked the emphasis on performance outcome measures that characterized the study of men, this has begun to change. A new subspecialty is developing in urology which focuses on 'female sexual arousal disorders', with a great deal of research now directed at measuring vasocongestion (blood flow) in the genitals, lubrication of the vagina, and so on. The physiology of the penis and the erection is constructed as normative, and that to which the physiology of the clitoris and the receptive vagina is compared. No one, however, is sure as to what the problem is that vasoactive drugs such as Viagra would be treating in women. One book suggests that 'clitoral tumescence' is the parallel phenomenon of male erection. (Jarow et al., 1998: 133). Another suggests that 'vaginal lubrication . . . is the female equivalent of an erection' (Melchiode and Sloan, 1999: 213). As another book puts it, 'we're the same, yet we're very different!' (Seiden, 1998: 69). That is, while physiological similarity continues to be a central tenet (and has been since Masters and Johnson), women are, well, 'different'. Consider the conclusions of the team of scientists who are widely considered to be on the leading edge of the physiology of female sexual dysfunction:

> Although there are significant anatomic and embryologic parallels between men and women, the multifaceted nature of female sexual dysfunction is clearly distinct from that of the male . . . . The context in which a woman experiences her sexuality is equally if not more important than the physiologic outcome she experiences . . . . (Berman et al., 1999a: 390)

Women, it seems, remain the 'dark continent' for sexual medicine. (One can almost hear the refrain of, 'why can't a woman be more like a man' ringing through the labs). They are distinctly unlike men, for whom sexuality can be reduced to a fairly simple question of the mechanics of the erection, and apparently stripped from its 'context'. *Gender* is never absent for women in the way it can be rendered invisible for men. For example, the issue of the context of intimacy, and things such as 'body image' and concern with appearance, are frequently cited as 'confounding' variables in sorting out the physiology of female sexual response. Thus, in the treatment protocol for female sexual dysfunction advocated by Berman and Berman and their associates (Berman et. al., 1999a, 1999b; see also Berman et. al., 2000), who are among the frontrunners in the use of vasoactive drugs with women,[19] all patients are evaluated by a sex therapist who 'evaluates the context in which the patient experiences her sexuality, her self-esteem and body image, and her ability to communicate her sexual needs to her partner' (Berman et al., 1999a: 389). Nowhere in the literature on male sexual dysfunction is it suggested that such concerns should be given prominence in the diagnosis and treatment of ED.[20] The centrality of the firm, full and reliable erection to the male self-concept is assumed and naturalized, never problematized as a question of 'insecurity', 'poor self-esteem' or 'body image'. In fact, rather than incorporating evaluation by a sex therapist, ED diagnosis has shifted to a primarily 'self-report' basis (is it as hard as you'd like?) and it is predicted that the widespread efficacy of Viagra will eliminate the need for medical diagnosis altogether.

One of the puzzles for medical researchers is the difficulty of 'measuring' arousal in women. Female sexual responses are '. . . difficult to quantify objectively. The changes that occur are not only difficult to measure but are also often not readily visible or recognized by the patient' (Berman et. al., 1999a: 388). Another researcher (Heiman, 1995) notes that '. . . the clitoris presents more measurement problems because of its size, sensitivity and movement during arousal' (p. 160) and that '. . . technical problems have also plagued the development of a good direct measure of lubrication' (p. 167). Even more perplexing to scientists is the fact that women do not always perceive what the measuring devices tell them is arousal *as* arousal:

> While genital measures have attracted researcher attention as the more accurate or 'true' markers of sexual experience, the majority of psychophysiological studies have found revealing and perplexing differences between genital and subjective measures of arousal. (Heiman, 1995:161)

As Berman et al. (1999b: S35) put it: '. . . women are often not cognizant of their level of arousal (i.e. the amount of lubrication or genital swelling)'.

Thus, 'arousal' becomes a technically mediated experience, to be determined by objectively measured physiological responses, not by one's subjective experience. For both men and women, 'arousal' becomes coterminous with measurable vasculogenic activity. The corollary of 'erectile dysfunction' in men is 'vaginal engorgement and clitoral erectile insufficiency syndromes' (Goldstein and Berman, 1998) in women. Once 'female sexual arousal disorder' is defined is this way, it is rendered amenable to biotechnical treatment. It is no surprise to learn, then, that pharmaceutical companies are a major source of research funding – in research directed at defining problems as well as research directed at their solutions. Of the 19 scientists convened for the 'International Consensus Development Conference on Female Sexual Dysfunction' (Basson et. al, 2000), all but one acknowledged their association with a pharmaceutical company.[21] While Leonore Tiefer predicted several years ago that the medicalization of women's sexuality could likely follow the pattern of the medicalization of men's sexuality '. . . should some new physiological discovery about the genitalia emerge that could be developed into an industry and a clinical practice' (Tiefer, 1995: 200), it does not seem as if such a new physiological 'discovery' is required as a prerequisite. It appears more and more like research on female sexual dysfunction is directed at 'discovering' the problem for which lucrative remedies already exist. As with the expansion of the disease-model of erectile dysfunction to reflect the success of the available therapy, there is no simple linear move from an objectively defined disease state to 'discovery' of a cure – rather the 'cure' often appears to define the 'disorder'.

While the initial clinical trials of vasoactive drugs (such as sildenafil) with women have been disappointing in their results, the Food and Drug Administration in the USA has recently approved the first mechanical therapy for 'Female Sexual Dysfunction' – the EROS-CTD, a small, battery-powered suction pump designed to stimulate blood flow to the clitoris. Taking as unproblematic the assumption that it is inadequate blood flow to the genitalia that is the primary cause of 'female sexual dysfunction', and that 'more than 43 percent of American women' suffer from this disorder, the press release from the manufacture shouts: '40 Million U.S. Women Capable of Regaining a Healthy Sex Life with EROS-CTD' (Urometrics, 2000). The 'CTD' stands for 'clitoral therapy device'. While one can imagine that providing 'gentle suction directly to the clitoris' may indeed be a very good thing from the perspective of women's sexual pleasure, conceptualizing this as 'clitoral therapy' could only occur within the paradigm of Female Sexual Arousal Disorder as a vasculogenic deficiency.[22]

Looking forward?

The hegemony of medicalized understandings of sexuality and sexual 'function' in both men and women seems to have been secured, as both scientific and popular accounts proclaim a 'new era' of sexuality. Epidemiologists are building models to predict incidence and prevalence rates (Aytac et. al, 1999). Health economists are now turning their attention to cost–benefit analyses, as governments and private insurers are called upon to pay for an increasing array of treatments for sexual dysfunctions (Keith, 2000).[23] Yet a number of emergent issues suggest that there are questions that are far from resolved.

The increasingly fuzzy boundaries between correcting a 'dysfunction' and providing enhancement raises questions about the extent to which the medical / scientific community can maintain authority over diagnosis and treatment. There has already been a significant shift in the medical locus of diagnosis / treatment from specialists (urology) to primary care physicians (the family doctor). Diagnosis of erectile dysfunction, for example, has become an almost entirely self-assessed condition, based on a short-form of the International Index of Erectile Dysfunction.[24] A recent article in *The Lancet* suggests that 'the question has been raised whether any diagnostic investigation is required at all in an age of cost containment and the availability of a safe and effective oral medication' (Morgentaler, 1999: 1716). Another article predicts that medical intervention will only be required for 'oral-agent resistant ED' (Broderick, 1998: 205). Two recent studies have documented the ease with which Viagra is obtainable through internet pharmacies, circumventing direct contact with a physician altogether (Armstrong and Schwartz, 1999; Kahan et al., 2000).

Also widely circulated are anecdotes of men and women using Viagra 'recreationally' (Trebay, 1999), lots of Viagra humour – jokes, cartoons, stand-up comedy – and even a new genre of porn (which I've dubbed 'viagerotica'[25]). We might draw some parallels here with the history of the vibrator, as documented by historian Rachel Maines (1999). She suggests that the vibrator was originally introduced as a 'labour saving' device for physicians treating 'hysteria' and was under the authority and control of the 'experts'. However, both technological developments (i.e. the development of devices which were small and able to be mass-produced, in contrast to the original large, rather unwieldy contraptions) and the cultural 'takeup' of the vibrator (e.g. its introduction as a prop into erotica and its marketing directly to consumers) resulted in a shift of the locus of control of the technology. Medical science was unable to sustain its authority as the legitimate 'prescribers' and 'users' of vibrator 'therapy'. Similarly, previous technologies for erectile dysfunction required direct professional involvement – either through surgery (implants) or provision

of specialized equipment and instruction in its use (e.g. injection therapy) – which the introduction of effective oral pharmaceutical agents has largely eliminated. What may happen as such technologies become un-moored from their original locus in physiological 'dysfunction' and move away from clinical control remains a set of open questions. Certainly the consequences are never foreclosable in advance, and they may, in fact, reconfigure bodies, sexualities and relationships in ways that are unpredictable. Yet because technologies like Viagra are premised upon certain assumptions about the bodily and cultural parameters of sexuality, they may suggest particular ways of constructing and disciplining sexual subjects even in non-medical contexts. That is, rather than representing an emancipatory de-medicalization of sexuality, the loosening of medical control over such sexual technologies might be seen as part of the process of their 'black-boxing',[26] through which the very assumptions about sexual bodies that made them possible are both consolidated and obscured. For example, as Potts (2000: 99) suggests, 'very few men might ever actually experiment with the sensations of the non-erect penis due to the prioritization of the erection in notions of healthy and satisfying male sex'.

Conclusions: reflections on the 'sexually dysfunctional'

> Viagra has already shed more light on the once forbidden area of sexual function than any medical discovery since the dawn of time . . . (it) has thrown open the door to frank discussion and enlightened study of human sexuality in a way that no scientific development has ever done before. (Melchiode and Sloan, 1999: 230–1)

If the advent of Viagra has brought about a new 'discursive explosion' on sexuality, it has been one which Foucault might have characterized as consolidating yet another 'strategic unity' which forms 'specific mechanisms of knowledge and power centering on sex' (Foucault, 1978: 103): the 'sexually dysfunctional'. In conclusion, there are several key aspects of this 'strategic unity' that I want to emphasize, very briefly, in order to make some connections with some existing and emergent themes in the sociological literature.

First, there is a remarkable story to be told about the *science* of sexual dysfunction. The story told by the scientists themselves is one of progressive discovery, assisted by new technologies of visualization, which has allowed them to get at the truth about 'molecular events resulting in an erection' (Morales, 1998: xv). Yet the hegemony of scientific and specifically physiological definitions of 'dysfunction' renders invisible the matrix of assumptions about gender and sexuality on which they rest. In doing

so, the 'human sexual response cycle', with penile–vaginal intercourse as its centrepiece, is re-naturalized by intervening to correct 'disturbances' in its 'natural' flow. Following Roelcke, we might term this the 'biologizing of social facts' (Roelcke, 1997).[27]

Second, the redefinition of typically observed changes in sexual response associated with 'healthy' aging as 'dysfunctions' poses some interesting questions about the more general 'disciplining' of old age (Katz, 1996), and the shift from 'health' to 'fitness' in the discipline of the body (Marshall and Katz, 2001). As indicated in an earlier section of the article, a reorientation of the normative expectations of the aging population was integral both to the definition of the medical 'problem' at hand, and the marketing of a solution.

Third, the technologically determinist framing of the scientific literature on sexual dysfunction, and specifically on Viagra, deflects attention from both the social / political context of the design and development of technologies and 'interpretive flexibility' in the use of technology.[28] (Bijker et al., 1987; Bijker and Law, 1992; Casper and Berg, 1995; Grint and Gill, 1995; MacKenzie and Wajcman, 1999; Pinch and Bijker, 1987). Importantly, technologies are not only 'tested' in the laboratory, but also in the media and in public discourse more generally (Oudshoorn, 1999).

Fourth, the filtration of scientific 'discoveries' through popular media coverage and more mundane forms of sociality such as humour and erotica, opens a number of interesting lines of inquiry about the 'weight' that sexuality and adequate sexual performance carries in terms of the formation of the 'modern self'. As Jackson and Scott note, being 'bad at sex' isn't like being bad at gardening or golf (Jackson and Scott, 1997). This very centrality of sexuality to identity connects to two key themes in the literature on self-formation in modernity: the role of expert systems and knowledges in constructing the self, including the sexual self (Giddens,1991, 1992; Rose, 1996), and the increasing emphasis on consumer 'choice' in solving problems of identity (Slater, 1997). There are certainly some clear indications that the 'sexually dysfunctional' is being configured as a 'bad consumer'[29] who is unwilling and / or unable to recognize that a solution exists. The 'good' consumer is promised even better choices to come.[30]

Finally, this seems to be yet another site where cultural expectations of 'gender' (here, as heterosexual performance) seem more rigid and less malleable than physiological 'sex', while at the same time locating masculinity and femininity more deeply within the body, more resolutely presocial, and less open to reconfiguration. There are clear implications here for thinking through the problematic distinction between sex and gender as it implicates the body, and as it invokes a 'heterosexual imaginary' (Hausman, 1995; Ingraham, 1996; Marshall, 2000; Marshall, 2001a; Witz, 2000).

It is tempting to summarize by pointing a finger at the root cause of all this. Certainly, it seems that not since Freud have we seen such a phallic construction of 'sexual dysfunction', nor one that is so saturated with functionalist notions of the positive social benefits of 'successful' conjugal relations. I do not want to suggest, however, that it represents some sort of masculine medical conspiracy, as is implicit in some feminist accounts of sexual science (Jackson, 1987; Jeffries, 1990).[31] It is equally tempting to blame the sheer profit motive of biomedical industries, but neither is that a satisfactory explanation. As Bauman suggests:

> Market forces can be blamed, at the utmost for exploiting without scruples the resources already at hand . . . . Charging them with the powers to conjure up the resources themselves would be like accepting the alchemist's authorship of the gold found in the test-tube. (Bauman, 1998: 21–2)

I think that what has occurred is more the result of a sometimes uneasy and constantly shifting coalition of actors – including scientists, doctors, patients, industries, media and consumers – operating within a cultural horizon of rationalization, medicalization, commodification and gendered heteronormativity. My concern in subsequent stages of the research is to more precisely trace the history and contemporary dimensions of the 'strategic unity' of the 'sexually dysfunctional' as it implicates all of these actors, and as it intersects with some important domains of sociological concern.

Acknowledgments

Research for this article was supported by a grant from the Trent University SSHRC Committee on Research. An earlier version was presented to the Canadian Sociology and Anthropology Association meetings at the University of Alberta in May, 2000. For encouragement and / or helpful feedback on earlier drafts, I wish to thank Claude Denis, Jorgen Jensen, Stephen Katz, Claudia Malacrida, Deborah Parnis (who also deserves credit for suggesting the title), Don Slater, Anne Witz, and the various and sundry members of Gail's kitchen table caucus. I would especially like to thank *Sexualities*' reviewers for their constructive suggestions for revision.

Notes

1. A complete history of biotechnical remedies for inadequate or absent erections is beyond the scope of this article. These run the gamut from early forms of splints and supports, hormonal and glandular therapies, rejuvenation tonics, herbal remedies and penile exercises, to more recently standardized treatments including penile implants and prostheses, vacuum cylinders, penile injections, urethral suppositories, and oral medications. Historically, this is an arena of treatment in which struggles for legitimacy and authority over diagnosis and prescription have figured prominently.
2. The initial selection of texts was undertaken in the spring of 2000, when

searches for scientific articles were conducted on Medline, Pubmed and Current Contents, using 'erectile dysfunction' and 'Viagra' as keywords. Beginning with the most recent 'state of the art' reviews (e.g. Hatzichristou, 1998; Padma-Nathan, 1998; Wierman, 1999), key researchers and most frequently cited works were identified, resulting in approximately 40 articles that formed the basis for the initial analysis. Reviews of the scientific literature have been ongoing, with several hundred articles now in my files. These tend to be highly repetitious with respect to their general framing and assumptions (often using exactly the same phrasing), so only a minority are directly cited here. The eight mass-market books analysed represent all titles returned on a 'Viagra' keyword search through chapters.ca, an online bookseller, in March 2000. They include Drew (1998); Jarow et al. (1998); Katzenstein (1998); Lamm and Couzens (1998); Melchiode and Sloan (1999); Seiden (1998); Vaughn (1998) and Whitehead and Malloy (1999).

3. My project is greatly indebted to the work of Leonore Tiefer, who has provided a path-breaking analysis of the medicalization of male sexuality based on pre-Viagra treatments (Tiefer, 1995) and of the medicalization of sexuality more generally (Tiefer, 1996).
4. The distinction between *dysfunction* and *danger* is never complete, nor is the medical / scientific framing of dysfunction ever free of assumptions about moral imperatives to be sexually functional and the potential dangers to the individual and to the social order should their performance not be up to scratch.
5. While the assumption that lots of good sex leads to good marriages is often asserted, there is no clear empirical evidence to support it. One review of a number of surveys on sexual activity and marital happiness suggests that it is far from a linear relationship, that it is bound up with other measures of compatibility, and that it is reciprocal. In any case, as the authors conclude, the relationship '. . . is not nearly as strong as one might surmise on the basis of the normative definition of American marriage' (Edwards and Booth, 1994: 254)
6. See also Adele Clarke's excellent study of the development of the reproductive sciences, in which she relates their struggles to disassociate themselves from the less 'scientific' and somewhat disreputable field of sexology (Clarke, 1998).
7. On this, see Boyle (1994), Irvine (1990, 1995), Morrow (1994, 1996) and Tiefer (1995, 1996).
8. See Marshall (2001a), where I review the genital anatomies that sexual medicine constructs, and how these reflect socially derived assumptions about how properly heterosexed bodies should 'function'. For related work on sexual anatomies, see also Moore and Clarke (1995), Petersen (1998) and Wilton (1997).
9. This statement is taken from their website, at www.issir.org (last visited 23 / 09 / 01). At their meeting in 2000, the organization adopted a new charter, and changed its name to the International Society for Sexual and Impotence Research, broadening their orientation 'towards the whole field of human sexuality'. In practice, this seems to be related to a growing

interest by urologists in female sexual dysfunction, as evidenced by articles being published in their journal, the *International Journal of Impotence Research*, which published a supplement devoted to this in 1998.

10. This incident is widely recounted as a watershed in the shift from psychological to physiological etiologies of impotence. See for example Broderick (1998) and Whitehead and Malloy (1999).
11. The shift from psychological pathology to physiological pathology in the last few decades reverses an earlier shift from physiology to psychology that occurred alongside the development of psychology and psychoanalysis earlier in the 20th century. For elaboration of this shift, see Marshall and Katz (2001).
12. See for example Laumann et al. (1999), Simons and Carey (2001) and Spector and Carey (1990). However, Simons and Carey note a number of methodological limitations of the studies reviewed.
13. There is some evidence that premature ejaculation – or 'ejaculatory dysfunction' as some recent research has called it (e.g. Morales, 2000) – may be gaining more attention, although it has not achieved nearly the degree of attention that erectile dysfunction has in the scientific literature. Certainly its prevalence and the age profile of those 'afflicted' would make it a large and profitable market for intervention, and increased attention to this 'disorder' would fit well within the exisisting 'performance' model of male sexual function. I thank Leonore Tiefer for raising this point in personal communication.
14. 'Erectile function' was largely determined by two questions: 'During the last 6 months have you ever had trouble getting an erection before intercourse?' and 'Have you ever had trouble keeping an erection once intercourse has begun?' It is interesting to note that these two questions specifically locate erections in relation to intercourse only, and had only 'yes' or 'no' answers. Methodological details of the original and calibration studies are recounted in Feldman et al. (1994). For a review of the use of sex surveys more generally in sexual science, see Erickson (1999) and Stanley (1995).
15. Marshall and Katz (2001) provide a detailed and historical analysis of male 'sexual fitness' as a pivotal age/sex problematic.
16. Numerous clinical trials have demonstrated that Viagra is most effective in cases of erectile dysfunction for which *no* organic origin has been identified (classified as 'psychogenic')(Shabsigh, 1999; Steers, 1999). That it so effectively 'works' in these cases acts to reinforce the conviction that it must have been physiological after all.
17. One of the noticeable ways that this is occurring is the shift in marketing strategies towards younger men, see Langreth (2000).
18. Nor, indeed might your partner: 'Erectile dysfunction can range widely in severity from men who are completely 'impotent' in every negative and absolute sense of the word to men whose problems are so slight that not even their partners are aware they have it' (Katzenstein, 1998: 5).
19. Drs Jennifer (an urologist) and Laura (a therapist) Berman are not only central figures in urological circles, but have become the public face of the new interest in 'female sexual dysfunction'. They have made television

appearances on programmes such as *Oprah* since publishing a book for the popular market (Berman and Berman, 2001), and have recently established the Female Sexual Medicine Center in the Department of Urology at the University of California Medical Centre in Los Angeles. They have also started a website – Network for Excellence in Women's Sexual Health (NEWSHE) at www.newshe.com (last visited 26/09/01) which disseminates the latest medical word on female sexual dysfunctions.

20. Where self-esteem is an issue in the literature on male sexual dysfunction, it tends to be taken as a dependent variable, rather than a contributing variable, as in '. . . no malfunction of the human apparatus – not even cancer or heart disease – can be more painful to the male ego or catastrophic to the male psyche than sexual impotence' (Melchiode and Sloan, 1999: 17).
21. See the special issue of the *Journal of Sex and Marital Therapy* published in 2001 (v. 27) for extended discussion of the 'consensus' conference. For a critical analysis of the relationship between the pharmaceutical industry and sex research more generally, see Tiefer (2000).
22. That clitoral stimulation increases women's sexual pleasure is hardly a cutting-edge scientific insight. Yet the clinical trials on which the FDA approval of the EROS-CTD was based did not compare its effectiveness with other forms of clitoral stimulation (such as cunnilingus, manual stimulation or stimulation with a vibrator). Even more fascinating is the comparison of this biomedical technology, framed as therapy, with other devices framed as 'sex toys'. The EROS-CTD is available on prescription at a retail cost of approximately $360, which is expected to be covered by insurance companies. Sextoys.com, an online erotic merchandiser, markets a 'vibrating clit pump', not as a device to correct a disorder, but as something that can produce 'intense pleasure', for $34.95. When is a sex toy not a sex toy? When it's a sophisticated piece of biomedical technology. I hope to pursue the implications of this 'market segmentation' in a future paper.
23. The acceptance of Viagra as a bona fide medical treatment by insurance companies has raised the question of how many pills per month will be covered – which implicitly involves deciding what an appropriate frequency of sexual intercourse is. This frequency differs considerably across contexts, with some private insurance companies allowing for 10 pills per month, some government agencies allowing for 8 pills per month (for example, this is what is covered for Canadian war veterans), and others for only 4 pills per month (some state medicaid programs – see the editorial in *Formulary*, 2000).
24. Originally a multidimensional 15-question instrument which covered the domains of erectile function, orgasmic function, sexual desire, intercourse satisfaction and overall satisfaction (Rosen et al., 1997), recent studies suggest that only the erectile function domain questions are necessary (Cappelleri et al., 1999) and that of the six questions in this domain, the primary 'end points' are two questions, which determine the 'ability to achieve an erection sufficient for sexual intercourse and the maintenance of an erection after penetration' (Padma-Nathan, 1998: 210). More recently, Padma-Nathan (1999: 13) suggests that Viagra's efficacy may be assessed

simply 'in terms of the number of patients reporting erections hard enough for sexual intercourse'. It is the performativity of the penis in the context of penetrative sex that defines its function.

25. For a remarkable example of this, see Myles and MacFarlane (1999). While the subtitle is 'Women Who Take it Reveal Their Erotic Tales' and the cover blurb promises 'a candid peak into the new FEMALE sexuality', the content delivers anything but! Of the 18 'stories' (all very sexually explicit) only nine actually involve women ingesting Viagra. Of these, the main effect was to make women insatiably penetratable, and was frequently used as an excuse for them to transgress the boundaries of what they would normally do (e.g. to have anal sex, to perform fellatio, to have intercourse with two men in one evening, to engage in a bisexual threesome). Of those where the 'ingester' was male, women frequently appeared as mere props in the story – for example, as prostitutes in a Nevada brothel. In short, women are configured here as 'using' Viagra even if they are merely the paid recipient of the Viagrified penis. What this demonstrates is the ease with which such a 'revolutionary' technology is absorbed into very conventional (and male-centred) narratives of gendered sexuality.
26. The term 'black-boxing' originated in the social construction of technology (SCOT) literature (see, for example the collection edited by Bijker et al., 1987), where it refers to the tendency for technologies to become stabilized in such a way that they appear to be naturalized and / or immune to political critique. See also Marshall (forthcoming)
27. There are clear connections, in this sense, to the literature on reproductive technologies and historical research on rejuvenation technologies (Clarke, 1995; Clarke, 1998; Melo-Martin, 1998; Sengoopta, 1998; Squier, 1999; Trimmer, 1967).
28. For an innovative reading of Viagra from the perspective of technology studies and 'technological embodiment' that considers some of these questions, see Mamo and Fishman (2001).
29. Elaboration of this thread is beyond the scope of the present article. However, two aspects that form consistent themes in the mass-market books on Viagra are worth mentioning briefly. First, the male reader is positioned as already having taken the 'first step' to making good consumer choices by buying that particular book, and nothing short of a life-altering change is promised should they 'take advantage' of the 'choices' available to them. Second, women are ambivalently constructed as 'consumers' of Viagra in different ways – (i) as enthusiastic, though indirect, consumers who encourage their partners to make the right choices and welcome the renewal of his erection; (ii) as potentially direct consumers of the drug (every book contains a section or even a chapter on its potential in treating female sexual dysfunction); and (iii) as defective consumers, who for a variety of reasons (all pathological – narcissism, aggressiveness, ignorance) resist or reject the viagrified penis.
30. Pfizer is reportedly working on a faster-acting version of Viagra in the form of a nasal-spray or wafer (apparently, some consumers don't like the 45–60 minute wait, despite the fact that many sex therapists see this as one of the

benefits of Viagra in its current form – it actually promotes anticipation and foreplay!). A number of oral and topical pharmaceuticals are also in development and clinical testing by other companies, all of which promise even greater tolerability, faster action and easier use (Alger, 2000; Burnett, 2001; Goetzl, 2000; Marcial, 2000; Morales, 2001; Pryor and Redman, 2000; Stipp and Whitaker, 1998). It is truly a limitless horizon for the receptive consumer.

31. Such a perspective tends to gloss the history of the construction of masculine sexuality, which suggests that male bodies have long been acted on by bio-medical sciences, often in extremely invasive ways (Parsons, 1977), that individual men have long experienced great anxiety over their inability to conform to an idealized masculine sexuality (Hall, 1991), and that there is very little about *pleasure* for men in all of this – only performance. This is not to deny that sexology is male-*centred*, only that to imply some sort of an intentional conspiracy in making it so is misguided. For other discussions of masculine sexuality and its discontents, see Buchbinder (1987), Haller (1989), McLaren (1997), Morgan (1993), Mumford (1992) and Nye (1989).

References

Alger, A. (2000) 'Viagra Falls', *Forbes* 165(3): 130–1.

Armstrong, K. and Schwartz, J. C. (1999) 'Direct Sale Of Sildenafil (Viagra) To Consumers Over The Internet', *New England Journal of Medicine* 341(18): 1389–92.

Aytac, I. A., McKinlay J. B. and Krane R. J (1999) 'The Likely Worldwide Increase in Erectile Dysfunction Between 1995 and 2025 and Some Possible Policy Consequences', *British Journal of Urology* 84: 50–6.

Basson, R., Berman, J. et al. (2000) 'Report of the International Consensus Development Conference on Female Sexual Dysfunction: Definitions and classifications', *Journal of Urology* 163: 888–93.

Bauman, Z. (1998) 'On Postmodern Uses of Sex', *Theory, Culture and Society* 15(3–4): 19–33.

Berman, J., Adhhikari, S. P. and Goldstein, I. (2000) 'Anatomy and Physiology of Female Sexual Function and Dysfunction: Classification, Evaluation and Treatment Options', *European Urology* 38: 20–9.

Berman, J. and Berman, L. (2001) *For Women Only: A Revolutionary Guide to Overcoming Sexual Dysfunction and Reclaiming Your Life*. New York: Henry Holt.

Berman, J., Berman, L. and Goldstein, I. (1999a) 'Female Sexual Dysfunction: Incident, Pathophysiology, Evaluation, and Treatment Options', *Urology* 54: 385–91.

Berman, J., Berman, L., Werbin, T. J., Flaherty, E. E., Leahy, N. M. and Goldstein, I. (1999b) 'Clinical Evaluation of Female Sexual Function: Effects of Age and Estrogen Status on Subjective and Physiologic Sexual Response', *International Journal of Impotence Research* 11 (supplement 1): S31–S38.

Bijker, W., Hughes, T. P. and Pinch, T., eds (1987) *The Social Construction of Technical Systems*. Cambridge, MA: MIT Press.

Bijker, W. and Law, J., eds (1992) *Shaping Technology/Building Society*. Cambridge, MA: MIT Press.

Bivalacqua, T., Champion, H. C., Hellstrom, W. J. G. and Kadowitz, P. J. (2000) 'Pharmacotherapy For Erectile Dysfunction', *Topics in Pharmacological Science* 21: 484–9.

Boyle, M. (1994) 'Science, Gender and Sexual Dysfunction', in T. Sarbin and J. Kitsuse (eds) *Constructing the Social*, pp.101–18. London: Sage.

Broderick, G. A. (1998) 'Impotence and Penile Vascular Testing: Who Are These Men and How Do We Evaluate the Etiology and Severity of Their Complaints?', *Journal of Sex Education and Therapy* 23(3): 197–206.

Buchbinder, H. (1987) 'Male Heterosexuality: The Socialized Penis Revisited', in H. Buchbinder (ed.) *Who's On Top? The Politics of Heterosexuality*, pp. 63–82. Toronto: Garamond.

Bullough, V. L. (1994) *Science in the Bedroom: A History of Sex Research*. New York: Basic Books.

Burnett, A. L. (2001) 'Novel Pharmacological Approaches in the Treatment of Erectile Dysfunction', *World Journal of Urology* 19(1): 57–66.

Cappelleri, J. C., Rosen, R. C., Smith, M. D., Mishra, A., and Osterloh, I. H. (1999) 'Diagnostic Evaluation of the Erectile Function Domain of the International Index of Erectile Function', *Urology* 54: 346–51.

Casper, M. J. and Berg, M. (1995) 'Constructivist Perspectives on Medical Work: Medical Practices and Science and Technology Studies', *Science, Technology and Human Values* 20(4): 395–407.

Christ, G. J. (1998) 'The Control of Corporal Smooth Muscle Tone, the Coordination of Penile Erection and the Etiology of Erectile Dysfunction: The Devil is in the Details', *Journal of Sex Education and Therapy* 23(3): 187–93.

Clarke, A. (1995) 'Modernity, Postmodernity and Reproductive Processes, 1890–1990, Or "Mommy, Where Do Cyborgs Come From Anyway?"', in C. H. Gray (ed.) *The Cyborg Handbook*, pp. 139–56. London: Routledge.

Clarke, A. E. (1998) *Disciplining Reproduction: Modernity, American Life Sciences and 'the Problems of Sex'*. Berkeley, CA: University of California Press.

Drew, B. (1998) *Viagra and the Quest for Potency*., Sarasota, FL: Health Publishers.

Edwards, J. N. and Booth, A. (1994) 'Sexuality, Marriage, and Well-Being: The Middle Years', in A. S. Rossi (ed.) *Sexuality Across the Life Course*, pp. 187–259. Chicago, IL: University of Chicago Press.

Erickson, J. A. (1999) *Kiss and Tell: Surveying Sex in the Twentieth Century*. Cambridge, MA: Harvard University Press.

Feldman, H. A., Goldstein, I., Hatzichristou, D. G., Krane, R. J. and McKinlay, J. B. (1994) 'Impotence and its Medical and Psychological Correlates: Results of the Massachusetts Male Aging Study', *Journal of Urology* 151: 54–61.

Foucault, M. (1975) *The Birth of the Clinic: An Archaeology of Medical Perception*. New York: Vintage Books.

Foucault, M. (1978) *The History of Sexuality, Volume 1*. New York: Vintage Books.

Formulary (editorial) (2000) 'Sildenafil: Identifying and Correcting Inappropriate Use in a State Medicaid Population', *Formulary* 35: 540.

Giddens, A. (1991) *Modernity and Self-Identity*. Cambridge, MA: Polity.
Giddens, A. (1992) *The Transformation of Intimacy: Sexuality, Love and Eroticism in Modern Societies*. Cambridge, MA: Polity.
Goetzl, D. (2000) 'Bayer set to push Viagra rival', *Advertising Age* 71(49): 1–2.
Goldstein, I. and Berman, J. (1998) 'Vasculogenic Femal Sexual Dysfunction: Vaginal Engorgement and Clitoral Erectile Insufficiency Syndromes', *International Journal of Impotence Research* 10 (supplement 2): S84–S90.
Gordon, Deborah (1988) 'Tenacious Assumptions in Western medicine', in M. Lock and D. Gordon (eds) *Biomedicine Examined*, pp. 165–96. Boston, MA: D. Reidel.
Grint, K. and Gill, R., eds (1995) *The Gender–Technology Relation: Contemporary Theory and Research*. London: Taylor and Francis.
Guirguis, W. R. (1998) 'Oral Treatment of Erectile Dysfunction: From Herbal Remedies to Designer Drugs', *Journal of Sex and Marital Therapy* 24: 69–73.
Hall, L. A. (1991) *Hidden Anxieties: Male Sexuality, 1900–1950*. Cambridge, MA: Polity.
Haller, J. S. (1989) 'Spermatic Economy: A 19th Century View Of Male Impotence', *Southern Medical Journal* 82(8): 1010–16.
Halvorsen, J. G. (1997) 'Sexual Dysfunction: Classification, Incidence and Prevalence, Aetiology and Initial Patient Evaluation', in A. Halaris (ed.) *Sexual Dysfunction*, pp.43–62. London: Baillière Tindall.
Handy, B. (1998) 'The Viagra Craze: a Pill to Cure Impotence?', *Time* 151: 38–45.
Hatzichristou, D. G. (1998) 'Current Treatment and Future Perspectives For Erectile Dysfunction', *International Journal of Impotence Research* 10 (Supplement1): S3–13.
Hausman, Bernice (1995) *Changing Sex: Transsexualism, Technology and the Idea of Gender*. Durham, NC: Duke University Press.
Hawkes, G. (1996) *A Sociology of Sex and Sexuality*. Buckingham: Open University Press.
Heiman, J. R. (1995) 'Behavioral and Psychophysiological Approaches in Women', in J. Bancroft (ed.) *The Pharmacology of Sexual Function and Dysfunction*, pp. 157–74. Amsterdam: Excerpta Medica (Elsevier Science).
Hitt, J. (2000) 'The Second Sexual Revolution', *The New York Times Magazine*, pp. 34–41, 50, 62, 64, 68–68. February 18.
Ingraham, C. (1996) 'The Heterosexual Imaginary: Feminist Sociology and Theories of Gender', in S. Seidman (ed.) *Queer Theory/Sociology*, pp. 168–93. Oxford: Blackwell.
Irvine, J. (1990) *Disorders of Desire: Sex and Gender in Modern American Sexology*. Philadelphia: Temple University Press.
Irvine, J. M. (1995) 'Regulated Passions: The Invention of Inhibited Sexual Desire and Sexual Addiction', in J. Terry and J. Urla (eds) *Deviant Bodies*, pp. 314–37. Bloomington, IN: Indiana University Press.
Jackson, M. (1987) '"Facts of Life" or the Eroticization of Women's Oppression? Sexology and the Social Construction of Heterosexuality', in P. Caplan (ed.) *The Cultural Construction of Sexuality*, pp. 52–79. London: Tavistock.

Jackson, S. and Scott, S. (1997) 'Gut Reactions to Matters of the Heart: Reflections on Rationality, Irrationality and Sexuality', *Sociological Review* 45(4): 551–75.
Jarow, J., Kloner, R. A. and Holmes, A. (1998) *Viagra: How the Miracle Drug Happened and What it Can Do for You!* New York: M. Evans and Co.
Jeffries, S. (1990) *Anticlimax: A Feminist Perspective on the Sexual Revolution*. London: Women's Press.
Kahan, S. E., Seftel, A. D. and Resnick, M. I. (2000) 'Sildenafil and the Internet', *Journal of Urology* 163: 919–23.
Kaplan, H. S. (1977) 'Hypoactive Sexual Desire', *Journal of Sex and Marital Therapy*, 3(1): 3–9.
Kaplan, H. S. (1995) *The Sexual Desire Disorders: Dysfunctional Regulation of Sexual Motivation*. New York: Brunner / Mazel Publishers.
Katz, S. (1996) *Disciplining Old Age: The Formation of Gerontological Knowledge*. Charlottesville, VA: University Press of Virginia.
Katzenstein, L. (1998) *Viagra: The Potency Promise*. New York: St. Martin's.
Keith, A. (2000) 'The economics of Viagra', *Health Affairs* 19(2): 147–57.
Kim, Y. C. (2000) 'Algorithm for Diagnosis and Treatment of Erectile Dysfunction in the Era of Sildenafil Citrate', *International Journal of Andrology* 23 (Supplement 2): 85–6.
Kinsey, A., Pomeroy, W. B., Martin, C. E. and Gebhard, P. H. (1953) *Sexual Behavior in the Human Female*. Philadelphia: W.B. Saunders.
Kirby, R., Carson, C. and Goldstein, I. (1999) *Erectile Dsyfunction: A Clinical Guide*. Oxford: Isis Medical Media.
Krane, R. J. (2001) 'Changes in ED Therapy in the Viagra Era', *World Journal of Urology* 19: 23–4.
Lamm, S. and Couzens, G. S. (1998) *The Virility Solution: Everything You Need to Know about Viagra, the Potency Pill that Can Restore and Enhance Male Sexuality*. New York: Fireside Books (Simon and Schuster).
Langreth, R. (2000) 'Hard Sell: Pfizer Aims Viagra at a Younger Crowd', *Forbes* 166(11): 56.
Laumann, E. O., Paik A. and Rosen, R. C. (1999) 'Sexual Dysfunction in the United States: Prevalence and Predictors', *Journal of the American Medical Association* 281(6): 537–44.
Levy, J. A. (1994) 'Sexuality in later life stages', in A. S. Rossi (ed.) *Sexuality Across the Life Course*, pp. 287–309. Chicago, IL: University of Chicago Press.
MacKenzie, D. and Wajcman, J. (eds) (1999) *The Social Shaping of Technology*. Buckingham: Open University Press.
McCarthy, B. W. (1998) 'Integrating Viagra into Cognitive–behavioral Couples Sex Therapy', *Journal of Sex Education and Therapy* 23(4): 302–08.
McKinlay, J. B. and Feldman, H. A. (1994) 'Age-related Variation in Sexual Activity and Interest in Normal Men: Results From the Massachusetts Male Aging Study', in A. S. Rossi (ed.) *Sexuality Across the Life Course*, pp. 261–85. Chicago, IL: University of Chicago Press.
McLaren, A. (1997) *The Trials of Masculinity: Policing Sexual Boundaries, 1870–1930*. Chicago, IL: University of Chicago Press.
McLaren, A. (1999) *Twentieth-Century Sexuality: A History*. Oxford: Blackwell.

Maines, R. P. (1999) *The Technology of Orgasm: 'Hysteria', the Vibrator and Women's Sexual Satisfaction*. Baltimore: Johns Hopkins University Press.
Mamo, L. and Fishman, J. (2001) 'Potency in All the Right Places: Viagra as a Technology of the Gendered Body', *Body and Society* 7(2).
Marcial, G. (2000) 'Giving Viagra a Run for its Money', *Business Week* 3704 (October 23): 173.
Marshall, B. L. (2000) *Configuring Gender: Explorations in Theory and Politics*. Peterborough: Broadview Press.
Marshall, B. L. (2001a) 'The Nature of the Body: Heterogendered Bodies and Sexual Medicine', paper presented at the Annual Conference of the British Sociological Association, Manchester, April.
Marshall, B. L. (2001b) 'Snips and Snails and Theorists' Tales: Classical Sociological Theory and the Making of Sex', paper presented at the Second Conference of the International Social Theory Consortium, University of Sussex, July.
Marshall, B. L. (forthcoming) 'Critical Theory, Feminist Theory and Technology Studies', in P. Brey, A. Feenberg, T. Misa and A. Rip (eds) *Technology and Modernity*, Cambridge, MA: MIT Press.
Marshall, B. L. and Katz, S. (2001) 'Forever Functional: Sexual Fitness and the Aging Male Body', paper presented at the Fifth Conference of the European Sociological Association, Helsinki, Finland, August.
Masters, W. H. and Johnson, V. E. (1966) *Human Sexual Response*. Boston, IL: Little Brown.
Melchiode, G. and Sloan, B. (1999) *Beyond Viagra: A Commonsense Guide to Building a Healthy Sexual Relationship for Both Men and Women*. New York: Owl Books (Henry Holt and Co.).
Melo-Martin, I. (1998) 'New Assisted-Conception Technologies: Social Dimensions and Democratic Participation', *Research in Philosophy and Technology* 17: 219–38.
Moore, L. J. and Clarke, A. E. (1995) 'Clitoral Conventions and Transgressions: Graphic Representations in Anatomy Texts', *Feminist Studies* 21(2): 255–301.
Morales, A. (1998) 'Preface', in A. Morales (ed.) *Erectile Dysfunction: Issues in Current Pharmacotherapy*, pp. xv–xvi. London: Martin Dunitz.
Morales, A. (2000) 'Developmental Status of Topical Therapies for Erectile and Ejaculatory Dysfunction', *International Journal of Impotence Research* 12 (supplement 4): S80–5.
Morales, A. (2001) 'Yohimbine in Erectile Dysfunction: Would an Orphan Drug Ever be Properly Assessed?', *World Journal of Urology* 19: 251–5.
Morgan, D. (1993) 'You Too Can Have a Body Like Mine: Reflections on the Male Body and Masculinities', in S. Scott and D. Morgan (eds) *Body Matters: Essays on the Sociology of the Body*, pp. 69–88. London: Falmer.
Morgentaler, A. (1999) 'Male Impotence', *The Lancet* 354: 1713–18.
Morrow, R. (1994) 'The Sexological Construction of Sexual Dysfunction', *Australian and New Zealand Journal of Sociology* 30(1): 20–35.
Morrow, R. (1996) 'A Critique of Masters and Johnson's Concept and Classification of Sexual Dysfunction', *Revue Sexologique/Sexological Revue* 4(2): 159–80.

Mumford, K. J. (1992) '"Lost Manhood" Found: Male Sexual Impotence and Victorian Culture in the United States', *Journal of the History of Sexuality* 3(1): 33–57.

Myles, E. and MacFarlane, B. (1999) *Viagra, Sex and Romance: The Women Who Take it Reveal Their Erotic Tales*. Boca Raton, FL: Boca Publications.

NIH Consensus Development Panel on Impotence (1993) 'Impotence', *Journal of the American Medical Association* 270(1): 83–90.

Nye, R. (1989) 'Honor, Impotence and Male Sexuality in Nineteenth-century French Medicine', *French Historical Studies* 16(1): 48–71.

Oudshoorn, N. (1999) 'On Masculinities, Technologies and Pain: the Testing of Male Contraceptives in the Clinic and the Media', *Science, Technology and Human Values* 24(2): 265–89.

Padma-Nathan, H. (1998) 'The Pharmacologic Management of Erectile Dysfunction: Sildenafil Citrate (Viagra)', *Journal of Sex Education and Therapy* 23(3): 207–16.

Padma-Nathan, H. (1999) 'Oral Sildenafil Citrate (Viagra) in the Treatment of Erectile Dysfunction: Assessment of Erections Hard Enough for Intercourse', *International Journal of Clinical Practice* (Supplement 102): 13–15.

Palmlund, I. (1997) 'The Marketing of Estrogens for Menopausal and Post-menopausal Women', *Journal of Psychosomatic Obstetrics and Gynecology* 18: 158–64.

Parsons, G. P. (1977) 'Equal Treatment for All: American Medical Remedies for Male Sexual Problems: 1850–1990', *Journal of the History of Medicine and Allied Sciences* 32(1): 55–71.

Petersen, A. (1998) 'Sexing the Body: Representations of Sex Differences in Gray's Anatomy, 1858 to the Present', *Body and Society* 4(1): 1–15.

Pinch, T. J. and Bijker, W. E. (1987) 'The Social Construction of Facts and Artifacts: or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other', in W. Bijker, T. Hughes and T. Pinch (eds) *The Social Construction of Technological Systems*, pp. 17–50. Cambridge, MA: MIT Press.

Potts, A. (2000) 'The Essence of the Hard-on: Hegemonic Masculinity and the Cultural Construction of 'Erectile Dysfunction', *Men and Masculinities* 3(1): 85–103.

Pryor, J. L. and Redman, B. (2000) 'New Therapies and Delivery Mechanisms for Treatment of Erectile Dysfunction', *International Journal of Impotence Research* 12 (supplement 4): S158–62.

Roelcke, V. (1997) 'Biologizing Social Facts: An Early 20th Century Debate on Kraepelin's Concepts of Culture, Neurasthenia, and Degeneration', *Culture, Medicine and Psychiatry* 21: 383–403.

Rose, N. (1996) *Inventing Our Selves: Psychology, Power and Personhood*. Cambridge: Cambridge University Press.

Rosen, R. C., Riley, A. J. and Wagner, G. (1997) 'The International Index of Erectile Function (IIEF): a Multidimensional Scale for Assessment of Erectile Dysfunction', *Urology* 49: 822–30.

Seiden, O. J. (1998) *Viagra: The Virility Breakthrough*. Rocklin, CA: Prima Publishing.

Sengoopta, C. (1998) 'Glandular Politics: Experimental Biology, Clinical Medicine, and Homosexual Emancipation in Fin-De-Siecle Central Europe', *Isis* 89: 445–73.
Shabsigh, R. (1999) 'Efficacy of Sildenafil Citrate (Viagra) is Not Affected By Aetiology of Erectile Dysfunction', *International Journal of Clinical Practice Supplement* 102: 19–20.
Simons, J. S. and Carey, M. P. (2001) 'Prevalence of Sexual Dysfunctions: Results From a Decade of Research', *Archives of Sexual Behavior* 30(2): 177–219.
Slater, D. (1997) *Consumer Culture and Modernity*. Cambridge, MA: Polity.
Spector, I. P. and Carey, M. P. (1990) 'Incidence and Prevalence of the Sexual Dysfunctions: A Critical Review of the Empirical Literature', *Archives of Sexual Behavior* 19(4): 1990.
Squier, S. (1999) 'Incubabies and Rejuvenates: The Traffic Between Technologies of Reproduction and Age-Extension', in K. Woodward (ed.) *Figuring Age: Women, Bodies, Generation*, pp. 88–111. Bloomington, IN: Indiana University Press.
Stanley, L. (1995) *Sex Surveyed, 1949–1994*. London: Taylor and Francis.
Steers, W. D. (1999). 'Viagra – After One Year', *Urology* 54: 12–17.
Stipp, D. and Whitaker, R. (1998) 'The Selling of Impotence', *Fortune* 137(5): 115–24.
Sydie, R. A. (1994) 'Sex and the Sociological Fathers', *Canadian Review of Sociology and Anthropology* 31(2): 117–38.
Tiefer, L. (1995) *Sex is Not a Natural Act and Other Essays*. Boulder, CO: Westview.
Tiefer, L. (1996) 'The Medicalization of Sexuality: Conceptual, Normative and Professional Issues', *Annual Review of Sex Research* 7: 252–82.
Tiefer, L. (2000) 'Sexology and the Pharmaceutical Industry: The Threat of Co-Optation'. *Journal of Sex Research*, 37(3): 273–83.
Trebay, G. (1999) 'Longer, Harder, Faster: From Sex Parties to Raves, for Both Men and Women, It's Not Bob Dole's Viagra Anymore', *Village Voice*, 49(43): 38–41.
Trimmer, E. J. (1967) *Rejuvenation: The History of an Idea*. London: Robert Hale.
Urometrics (2000) 'Press release: FDA Grants Market Clearance for EROS-CTD, First Treatment for Female Sexual Dysfunction', May 3.
Vaughn, S. C. (1998) *Viagra: A Guide to the Phenomenal Potency-Promoting Drug*. New York: Pocket Books (Simon and Schuster).
Weiske, W. H. (1999) 'Invasive Diagnosis and Therapy – Are They Still Reasonable in the Age of Sildenafil?', *Andrologia* 31 (Supplement 1): 95–7.
Whitehead, E. D. and Malloy, T. (1999) *Viagra: the Wonder Drug for Peak Performance*. New York: Dell Books.
Wierman, M. E. (1999) 'Advances in the Diagnosis and Management of Impotence', *Disease-a-Month* 45(1): 5–20.
Wilton, T. (1997) 'Genital Identities: An Idiosyncratic Foray into the Gendering of Sexualities', in L. Adkins and V. Merchant (eds) *Sexualizing the Social*, pp. 102–21. London: St. Martin's Press.

Witz, A. (2000) 'Whose Body Matters? Feminist Sociology and the Corporeal Turn in Sociology and Feminism', *Body and Society*, 6(2): 1–24.
Woolgar, S. (1991) 'Configuring the User: The Case of Usability Trials', in J. Law (ed.) *A Sociology of Monsters: Essays on Power, Technology and Domination*, pp. 57–99. London: Routledge.

Biographical Note

Barbara Marshall teaches sociology at Trent University. She is the author of *Engendering Modernity: Feminism, Social Theory and Social Change* (Polity, 1994) and *Configuring Gender: Explorations in Theory and Politics* (Broadview, 2000), as well as various articles on feminism, social theory and gender. She is continuing to explore the historical and contemporary intersections of gender, sexuality, technology and consumer culture, and, in a joint project with Anne Witz, is conducting an interrogation of the masculine ontology that underpins sociological theories of modernity. *Address*: S103 Lady Eaton College, Trent University, 1600 West Bank Drive, Peterborough, Ontario, Canada K9J 7B8. [email: bmarshall@trentu.ca, website: www.trentu.ca / sociology / bmarshall]