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1

"Fixing" Female Bodies through Reproductive Medicine and Assisted Reproduction: An Ideological Critique

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Abstract: *An ideological critique of reproductive medicine and assisted reproduction's disavowed socio-cultural complicity in the reiteration of the ideology of heterosexism necessitates a radical interrogation of the presupposed unmediated materiality of the sexed body. This ideological critique, which foregrounds the discursively and ideologically constructed materiality of the sexed body, refrains from fictionalizing the sexed body. On the contrary, this critique attempts to show that the sexed body is a "reified" entity, (re)produced as unmediated through mediations of different technologies of power and the ideological processes immanent in these technologies. These mediations render possible thinking of the sexed body as an entity, yet these mediations which are constitutive of the body are categorically disavowed by the so-called decontextualized medical knowledge and practice in search of objectivity and universality.*

***Keywords*:** Reproductive medicine, assisted reproduction, female body, unmediated materiality, heterosexism, heterosexual duality, ideological foreclosure, ideological critique.

The Female Body in Reproductive Medicine: Towards Ideological Critique of Ideology

All branches of medical science work with a constructed notion of its object of knowledge. When medical sciences refer to the notion of the body in general, they refer to the male body, which acts as the quintessential point of reference. However, in "circumscribed" medical discourses, such as reproductive medicine, the object of medical gaze is the female body and its reproductive functions (Das 2010). Reproductive medicine actively constructs the universal and general notion of the female body as its object

of knowledge and intervention. Although expert discourses construct a singular conception of what constitutes the female body, there are plural possibilities of conception of what female body means varying according to plural subject-positions. The aim of the present paper is to figure the mediations of power and ideology in the construction of the universal and general female body in heterosexist terms, in the domain of reproductive medicine and assisted reproduction. This paper works at the intersection of medical sociology and anthropology, and feminist philosophy to achieve the desired aim. The paper does not however offer a complete review of the existing literature, which is not to say that it is an exploratory research, but attempts to work at the intersection of philosophical readings on body, knowledge, power and ideology, both theoretical and ethnographic texts on biomedical and reproductive technologies, and my own ethnography of the domain of reproductive medicine and assisted reproduction, *to provide an ideological critique of this domain's ideological practices*.

This paper attempts to locate the moments of the ideological, where the ideological is understood both in general sense, to imply the contingent closures that are induced on the play of difference, the contingency of which is forgotten in the very moment of inducing the closure, thereby fixing meaning, and in a more particular or specific sense, as heterosexist ideology, in an attempt to locate how contingent closures are induced on the very thinking of the possibilities of sex and gender, by restricting the play of difference to the duality of male/man/masculine and female/woman/feminine. The moments of the ideological closure, both in general and particular sense, has been located in the practices of reproductive medicine and assisted reproduction, especially in their construction of the sexed body, and more specifically in the construction of the female body as the veritable object of medical investigation and intervention, and how such construction is achieved through the ideological closure of other possibilities, which nevertheless continues to haunt the selfsameness of the truths and fixed meanings produced through such ideological acts of closure. The paper attempts to provide an ideological critique of the ideological closures in the construction of the universal and general conception of the female body – a process which has been identified in this paper with the act of *fixing the female body through reproductive medicine and assisted reproduction*, which requires feminist attention and critique.

Now there remains a significant question to be answered: how is it possible to render a critique of ideology if ideology is so all encompassing that the closures it induces on the play of difference is forgotten in the very act of

their institution? This takes us to Anirban Das's *Towards a Politics of the (Im)possible: The Body in Third World Feminisms* (2010), where he engages with the problem of inevitability of ideological closure in the constitution of both the social and the subject. Das (2010), while recognizing that "the ideological is constitutive of both the social and the subject," is unwilling to give up on the idea of critique of ideology. He does not seem to be carving out a radical outside from which the critique of ideology would emanate but seeks to retain the notion of subject as a "necessary fiction" capable of rendering an ideological critique. This is because the constitution of the embodied subject in and through the mediations of power and ideology involves both the reiteration and displacement of the structure, which is not reducible to a known calculus, and the critique of ideology therefore, from the position of the embodied subject, necessitates "working through" the "undecidabilities" born out of the repetition of the structure. Thus, the attempt to map the moments of the ideological, on my part, should be seen as charting out of the closure/s on the infinite play of difference, from within ideology, while recognizing the impossibility of mapping of such closures into a completely stable structure and my own complicity in the reiteration of these closures. The problem is further complicated by the fact, that in trying to provide an ideological critique, I have already entered as a located researcher in a triadic relationship with both the medical practitioners and the intending parents and particularly the intending mothers. Unlike the objectivist, who believes in distancing herself from the so called "subjects" of research, I have rather entered into an ethical communication with the subjects, especially with the women contending with infertility and infertility treatment, in my ideological demystification of the assumptions and practices of reproductive medicine and assisted reproduction, despite the dissimilar locations we occupy and represent.

Having stated that, a brief note on the itinerary of the overall argument is in order. This paper begins by offering a conceptual matrix for thinking the female body through a reading of the ideas of Foucault, Butler and Das. After having discussed in detail how the female body is constructed at the intersection of power, language and ideology, the paper goes on to "demystify" contemporary scholarship on body and postmodern biomedicine which argues that body has been denaturalized and molecularized, through a critique of Rose and Haraway. The paper critiques the ethnographies of Martin and Oudshoorn which point to a growing popularity in reproductive medicine of hormonal metaphors in conceptualizing the female body, and for somehow indicating that anatomic markers have been rendered superfluous. The paper then goes to substantiate its claim on the continuing

centrality of anatomy in the demarcation of bodily normality and pathology through a discussion of the "otherized" bodies in reproductive medicine and assisted reproductive, deriving theoretical inspiration from Canguilhem and Das. It concludes the discussion on the anatomic "fixing" of the female body as maternal body through a critical reflection on construction of the female body as a process of "fixing" female body to definite essences, by inducing ideological closure on otherwise indefinite possibilities. In the concluding section, the paper resorts to Hacking's thoughts on sociological constructionism and calls for the need to nuance it further to problematize the complex power asymmetries and ideological processes through which objects and ideas about them become inextricably interwoven, and therefore, become analytically inseparable.

Power-Language-Ideology: A Conceptual Matrix for Thinking the Female Body

Michel Foucault's *The History of Sexuality: An Introduction* talks about the entry of power in the domain of life, individual and species, through sex or body "as a means of access" to both (1980:146). In a significant interview titled *Body/Power*, given to the editorial collective of the *Quel Corps*, Foucault maps the emergence of the body social as the object of political discourse (in a "quasi-medical sense") in the nineteenth century (Gordon 1980: 55). The monarch's body he argued came to be replaced by the body social as the object of protection, the rituals of power previously meant to protect the monarch's body from any violation whatsoever gave way to medico-therapeutic devices meant to protect the body social from pathological individuals. The body social in Foucault's view is not a product of "universality of wills" as the liberals suggested but rather the effect of power operating on the "bodies of individuals" (50-1). This power does not merely repress the body; it produces and intensifies the body by producing effects at the level of knowledge. The individual's knowledge of the body is thus the effect of power operating on the body through discipline and regulation (56-7). Foucault's archaeological approach to the study of human sciences envisages unraveling the role of power, body and knowledge in their interconnection in the project of rendering human bodies intelligible, disciplined and normalized (61).

Judith Butler (1993) targets Foucault for presupposing that body pre-exists power – that it is a materiality that is only rendered intelligible through the intervention of power. In *Bodies that Matter: On the Discursive Limits of "Sex"*, Butler dubs any attempt to posit bodily materiality outside signifying practices or language as seeking refuge to a problematic

"empirical foundationalism" – a gesture involved in securing body as a "primary given" or the surface on which social, cultural and historical 'inscription' unfolds. It is in this context that Butler critiques Foucault for ignoring the complex process of materialization of body over time into a fixed and pre-given concrete natural entity. Butler's recourse to the process of materialization of body however is not an attempt to affirm the materiality of women's body as the foundational principle for feminist politics. On the contrary she seeks to deconstruct body's materiality for dual purpose: firstly, to show that there is no bodily materiality outside the workings of power and language, and secondly, to establish that the attempt to deconstruct body's materiality is not a rejection of body's materiality *per se*, but a nuanced attempt to foreground the "metaphysical lodgings" and the misguided "political interests" associated with the epistemological certainty bodily materiality provides to feminist politics (1993: 30). Butler suggests that every effort to posit materiality outside of signification takes place in and through signification which is *always already* material. Materiality never completely escapes the signifying process by which it is posited. Butler adds that it is not an act of reducing body's materiality to language but an attempt to show that *pure* materiality cannot be posited without signification (68).

Das (2010) however locates in Butler's cautious move an exercise in reducing body's materiality into a function of language (39). In *Towards a Politics of the (Im)possible: The Body in Third World Feminisms*, Das discusses the social and ideological production of the sexed body's materiality. Das argues that the figuration of the sexed body as a concrete materiality located in 'three dimensional anatomic space' is a product not only of the working of power and language but also of the ideological process of hypostasis which produces the sexed body's "concreteness" out of "abstraction", and simultaneously obfuscates the history of such production (1). In his effort to grasp the role of power differentials and ideological foreclosures in the production of the sexed body, Das critiques theorizations of power, like that of Foucault and Butler, which are apprehensive of depth and overlook the 'deep structures operating behind surfaces'.However, the emphasis on "deep structures" should not be read as a return to the idea of "hidden presence" or the depth models of the Enlightenment tradition. On the contrary it is a nuanced attempt to grasp the absences overshadowed by the surface – the "obvious fullness of presence". In order to problematize the "full presence" of the sexed body, Das resorts to Heidegger's philosophical reading of the notion of thing, which is premised on the idea that '(T)he usability of things to the "human"

is prior to the being of things as such' (17). Das uses this idea to think of the sexed body by proposing that it is only through human intervention, particularly through the mediation of power differentials and ideological foreclosures, that things like the sexed body achieves neutrality, that is, gets transformed from things *in use* to things *as such* – into unmediated materiality.

The crucial lesson that is learnt from the preceding discussion is that the sexed body is rendered an unmediated materiality in and through the mediation of power differentials and ideological processes, heterosexism being one of them. Heterosexism produces the body as *always already* marked by sexual difference – a difference that produced in co-operation by the society at large and the medical-institutional set up but camouflages as an unquestionable natural or biological fact. Although reproductive medicine and assisted reproduction, like other medico-scientific enterprises, portray themselves as de-contextualized and objective, they are not outside the workings of heterosexism. They actively reproduce the unmediated materiality of the sexed body within the foreclosures induced by heterosexual duality, the mutual exclusivity of the sexes, women's compulsory procreative function, and the pathological possibilities these heteronormative preconceptions entail.

The deployment of the power-language-ideology triad as a conceptual matrix enables us to grapple with the naturalization of the female body and motherhood as a social role and institution because it proposes how power differentials and the ideological foreclosures operate through signifying practices both in society at large and in the medical-institutional set up to definitively articulate the notion of female body in terms of the essential, "pre-programmed", sex-specific anatomical, physiological and hormonal factors and the compulsory procreative function associated with them. Any diversion from this is seen as an aberration from what the normal maternal body should be like, and is targeted for corrective or assistive medico-technological intervention. But developing a conceptual matrix is not enough, it is also necessary to interrogate the literature which assumes that postmodern biomedicine destabilizes the holistic (Rose) and naturalistic (Haraway) conception of body of modern medicine, especially when ethnographic data suggests that rather than simply denaturalizing, it is re-naturalizing the body in newer forms, through innovative means, and more so in case of contemporary reproductive technologies.

How Natural and Whole is the Body? Reading Body-Technology Encounters

In *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century*, Nikolas Rose talks about the shift in the twenty-first century biomedicine towards conceptualizing the living body at the level of molecules rather than as a "systemic whole" (2007: 11-12). Rose particularly cites the instance of molecular genomics where biomedical interventions are done at the level of DNA, and assisted reproduction where human gametes are handled outside the body (14). This is what Rose (2007) calls "molecular biopolitics" where body as a "systemic whole" ceases to be the prime focus. But the fact that gametes are handled outside the body through biomedical expertise, does not necessarily imply that the sexed body as the site of reproduction has entirely lost relevance. In case of aberration from the goal of procreation, the sexed body is targeted as the site of corrective or assistive intervention. What is defined as the reproductive system comes to stand for the body as a whole. Bodily integrity is understood as a projection of the reproductive system, composed of a system of sex-specific anatomy and hormones, which are taken as the quintessential markers of authentic sexed bodies.[1]The universality and fixity of these markers are hardly called into question, given the epistemological certainty they offer to reproductive medicine and assisted reproduction, their heterosexist conceptions. Therefore, to say in general terms that there has been shift towards "molecularization" is misleading.

In an effort to contradict Rose, following Donna Haraway (1991), it can be suggested that biomedical discourses today are "lumpy" (203-204). By the word "lumpy" is meant the "multiple languages", "inharmonious heterogeneities" and "confusions at the boundaries of meanings" at the very heart of biomedical science itself. It is useful to come to terms with the complex, non-linear, tension-ridden trajectory of biomedical research and practice. But the word has to be deployed with criticality. The fact that postmodern biomedicine engenders multiplicities and boundary confusions, does not necessarily imply that the power differentials disappear, that ideological processes conventionally at work within biomedical sciences are eliminated. These are significant questions that must be asked before taking for granted the multiple possibilities that are opened up by the shifting and dissipated field of biomedical power.[2] Haraway (1991), despite her nuanced attempts to grasp the asymmetries within the dissipated field of biomedical power, ends up arguing that the age old hierarchies based on "natural origin" and "essences" are undermined in the contemporary

biomedical field. She argues that the historical specificity of the body in contemporary biomedicine is its "denaturalized" character (204). For her the body is no longer an immutable map of determinate biological functions as it has transformed into maneuverable locus of "strategic differences" (211). Thus, she assumes that body's becoming of a maneuverable locus entails biomedical science's giving up of its fetish for the natural and the organic. But the fact that body has been rendered a hybrid by biomedical technologies or that the body is *always already* a hybrid, a product of the failed modernist project of purification (see Latour 1993), should not obscure the ideology of biomedical science and technology, research and practice, and their attempt to reinstate the natural, by inducing foreclosure on the proliferation of hybrids, which are the inevitable by-products of their own operations.[3]

Thus, any generalization on the character of biomedical science and technology is misleading. To say that contemporary biomedicine denaturalizes, that it has no fetish for the natural or the organic, is to operate within the same ideological configuration which would have us believe that biomedical science and technologies like the reproductive technologies denaturalize, even when they reinstate what is scientifically labeled as natural or organic. Even nuanced attempts like that of Haraway ends up reiterating the unexamined denaturalization thesis. The most interesting fact is, the infertility experts themselves are often wary of recognizing their intervention as denaturalizing, even when the recognition would have enabled them establish biomedical science's victory over the nature. In this context, it is worth looking at the different arguments infertility experts offer on body-technology encounter[4] in assisted reproduction.

When an expert was asked whether or not contemporary reproductive technologies defy the natural bodily principles, the immediate response was:

> ARTs[5] cannot defy the natural principles. Reproduction has a fixed natural course. If there are hindrances, only limited alternatives are left. Problems like *tubal blockage*[6] can be corrected surgically. But we are helpless when there is *azoospermia*[7] or *anovulation*[8]. We cannot produce sperms! We can only stimulate egg production with limited success! Then how can we say that technology can defy the natural principles! Defy is not the right word. You can rather say bypass. I hope you understand the difference….[9]

On probing once again for greater clarity, the expert replied:

> Reproductive system consists of a series of stages with definite functions. If there is a collapse in even one of the stages, the system breaks down, successful conception becomes impossible. In some cases, the collapse is surgically repairable, in many others, it is not. In the latter cases, we try to bypass the blockage by replicating the natural process outside the body. This is done in IVF[10], where the sperm and the ovum are fertilized outside the body and later implanted into the uterus. In IVF we replicate the natural process. I mean we try to copy the natural process. But it is not as you said (refers to me) defying the natural course….[11]

These excerpts remind me of Sarah Franklin's (1997) ethnography of IVF, where she says that the experts see their practice as "giving nature a helping hand", which is a way of suggesting that IVF can supplement nature, but cannot substitute it. In the excerpts presented above there is an explicit suggestion that science and technology can only replicate the natural processes by bypassing the hindrances to conception but it cannot completely defy body's reality, its fixed principles. Instead of basking in the glory of biomedical expertise, the expert attempts to emphasize the irreparable bodily hindrances to conception and biomedicine's attempt to bypass them. This stance can be read as serving dual purpose. Firstly, in saying that ARTs replicate rather than defy the body, the expert averts the risk of rendering the body a completely malleable entity. The deployment of terms like "replication" and "bypassing" can be seen as strategic. This is because; replication involves displacement from the original and the bypassing of nature or body in ARTs is not equivalent to directly challenging nature or body's inherent principles. Secondly, the expert also averts undermining the relevance of science and technology in the face of nature or body's fixed inherent principles. But this is achieved by arguing that science and technology attempts to negotiate body's inherent principles by replicating them rather than defying them altogether. Thus, we have a perspective on body-technology encounter, where technology is seen as bypassing the bodily hindrances rather than outdoing the body altogether. However, we have another perspective which suggests that ARTs attempt to outdo the body by suppressing its internal principles and regulating it through external agents but very often fails to do so successfully. Here is an excerpt from an interview with an expert who holds such a view:

> In IVF we control the body. Body's inherent hormonal system is suppressed and replaced by hormones from outside. We attempt to make the body do things which it would not otherwise do due to

> abnormal conditions. That is why ARTs is a blessing for infertile couples. It enables infertile couples to have their own children, even when there are anatomical or hormonal complications. Still ARTs have a lot to achieve. The success rate in IUI and IVF is still only 40%. We still do not know how to ascertain the viability of embryos; we transfer more than one embryo during IVF, which may also lead to multiple pregnancies, which is undesirable…. Moreover, the *take home baby*[12] rate is high when conception is natural. It is not completely possible to have the exact maternal environment which is one of the main reasons behind low success rate. There is no doubt that ARTs attempt to control women's ovulation to prepare the body for producing sufficient healthy follicles or for gestation. But often our effort fails to bear fruit, we have to resume the treatment cycle all over again. Very rarely are we successful at the very first go, we have to continue with the *empirical therapy,*[13] a kind of trial and error method, you know![14]

It is evident from the excerpt presented above that this perspective emphasizes more on the effort of ARTs to suppress and regulate the body rather than bypass it. It presupposes that biomedicine can control the body and substitute body's internal mechanisms by those induced technologically from outside, through techniques such as *ovarian induction*[15]*,* yet such substitution may not necessarily yield the desired quality and quantity of eggs for IVF. Substitution in this perspective is fraught with the element of doubt as these substitutions often fail to recreate the "exact maternal environment" that is necessary for successful conception. That is why low success rates in IUI[16] and IVF is often attributed to the lacunae in reconstructing in hormonal terms the natural 'maternal environment' indispensable for conception. It is necessary to clarify that such a categorization of perspectives is not foolproof, because techniques such as *ovarian induction* is an integral part of IVF.[17] This analytical separation has only been done to depict the two different perspectives on body-technology encounter, which often coexist in the context of IVF. In first case, technology is seen as bypassing the body and replicating the natural processes outside, and in the second, technology is seen as suppressing the internal mechanisms of the body, to substitute it with biomedically recreated bodily environment which conducive to conception, but only with very limited success. The third category of body-technology encounter views the body as "definitely flexible" but this flexibility is seen as a function of technology, and not an inherent element of body itself.

The most significant point that can be derived from these three instances of body-technology encounter is that in all the cases, technology is attributed with agency, although in varying degrees. Body, on the other hand, is represented as devoid of agency. It is either seen as incorrigible brute matter that has to be bypassed or as potentially mouldable but too rigid to be completely refashioned with success or as a function of technology. But what purpose do these three instances of body-technology encounter serve in trying to respond to the question: how natural and whole is the body? Through a theoretical re-appraisal of the ideas of Rose and Haraway, it can be argued that the sexed body, understood as a "systemic whole" composed of specific anatomical and hormonal functions, continues to be the object of ARTs' intervention. On the basis of ethnographic data, it can be shown that infertility experts attempt to preserve the naturalness of the sexed body by attributing to it traits like fixity and rigidity. Although there is no singular notion of the sexed body, which all the practitioners unanimously agree upon, naturalness seems to be the underlying subtext in the multiple articulations of body's interface with technology, where naturalness is narrowly defined in terms of universal and immutable internal principles. That is why there is problem in generalizing the denaturalization thesis, as the experts themselves are of the view that body's internal principles cannot be adequately mastered by biomedical technologies.[18] Even if the denaturalization thesis is provisionally retained, one has to look more critically into the ideological investment of specific biomedical technologies and their experts in specific socio-historical contexts, in retaining or renouncing the notions of biological 'essences' and 'natural origins'.

The conception of the sexed body as a non-denaturalizable "systemic whole" is rendered possible not only through the mediation of power of reproductive medicine and assisted reproduction, and the array of techniques, technologies and arrangements developed by them, but also through ideological processes of hypostatization of an otherwise material-semiotic hybrid into a concrete unmediated materiality in terms of fundamental heterosexist principles.

From Sexed Anatomy to Sex Hormones: Engaging Further Complications

In *The Woman in the Body: A Cultural Analysis of Reproduction* (1987), Emily Martin argues that till the late eighteenth century female reproductive system was seen as "structurally analogous" to the male reproductive system (27). In the early nineteenth century the idea of structural similarity of male and female bodies came under vehement critique as it contradicted

the fundamental biological differences between men and women posited by the opponents (31). The latter half of the nineteenth century witnessed the emergence of business metaphors like "saving and spending", "loss and pain", "intake and outgo", and likened menstruation in women to the excessive sweating in men, but these new metaphors identified menstruation as "pathological" (34). Early twentieth century witnessed the emergence of new "medical models of female bodies" based on the organization of urban industrial space around the principle of hygiene (34-5). The development of molecular biology resulted in the re-conceptualization of women's reproductive system in terms of "signal-response metaphor" – involving information transmission along "the hypothalamus-pituitary-ovarian axes" which prepares female body for reproduction (37-41). The failure to reproduce came to be viewed as unresponsiveness of the female body to the signals of reproduction. The denigration of menstruation as 'pathological' or 'failed production' in Martin's view is associated with the ethos of an emerging industrial society which conceives of lack of response to signals of production as regression (47). Along with the female body as a whole, the "uterus" in particular came to be conceived of as a "machine" and the obstetrician as a "mechanic" – a development signifying the placing of mechanical intervention at the centre of the act of birthing (54-6). The mechanization of birthing Martin contends fragments the birthing process and equates it with labouring in factories where productivity is the prime concern, autonomy is minimized and regulation is maximized (66).

In Nelly Oudshoorn's *Beyond the Natural Body: An Archaeology of Sex Hormones* (1994) the emphasis shifts from the historicization of the medical metaphors relating to female body and reproductive organs to sex hormones. Oudshoorn argues that by 1910 the idea that gonads are the authentic determinants of sexual difference came to be problematized within biology. The primacy attributed to ovaries and testes as the "seat of femininity and masculinity" gave way to sex-specific hormonal systems as markers of sexual difference (21-2). This in Oudshoorn's view was radical enough to destabilize the "pre-scientific" logic of sexual duality. The turning point however according to Oudshoorn was 1920s and 30s when the even the sexual specificity of male and female hormones came to destabilized within sex endocrinology with the coming to light of the "unexpected data" that female sex hormones could be present in male bodies and vice versa (25). Attempting to retain the mutual exclusivity of sex hormones, research in sex endocrinology came up with the *foodhypothesis* and the *adrenal hypothesis* (26-7).Researchers either argued that female hormones have a "functionless presence" in the male bodies or they clearly identified in

such presence the indication of pathology, leading to research on homosexuality (30-1). The quantitative theory of sex endocrinology destabilized classifications based on the anatomical criterion like the normal male, normal female and the abnormal intersex, engendering new categories like *virile male*, *effeminate male*, *feminine female* and *masculine female* (38). Measurement of opposite sex hormones in homosexuals was at the forefront of sex endocrinology (56). Oudshoorn ends by suggesting that although sex endocrinology rendered sexual difference matter of degree rather than kind, it did not end the sexual stereotyping of male and female hormonal systems, attributing stability and regularity to male hormones and "instability" and "lability" to female hormones (59).

Both Martin and Oudshoorn demonstrates that the production of scientific facts is situated and contextual, and to be more specific, that the supposed objective writing technology of biomedical science is imbued with heterosexism. But there are few disagreements with both. Although Martin's ethnographic material is fascinating, she operates within a theoretical framework that presupposes authentic female body objectified and alienated in the process of (re)production. There is nostalgia for pre-mechanized and pre-technological approaches to birth in Martin's tone. Martin seems to be oblivious of the crucial point, to put it in a Foucauldian style, that technology is productive. Technology produces the body it controls and regulates. The concern should not only be, in my view, the mechanization of the natural functions of the body through technology but how the body itself cannot be thought apart from the technologies which constitutes it, how technology itself cannot function without actively producing the body. Oudshoorn's ambitious declaration of a "beyond" to the natural body also seems less convincing. To anticipate in the production of the hormonal body, a 'beyond' to the heterosexual matrix is problematic for two reasons: firstly, such a position overlooks the fact that the redefinition of masculinity and femininity that sex endocrinology entails takes place within the ambit of heterosexist principles. And secondly, it uncritically presupposes a linear transition from anatomic or gonadal certainty of sexual specificity to non-specific sex hormones as determinants of sexual difference.

In the following paragraphs, I elaborate through empirical substantiation, two important points: firstly, there is an internal tension within reproductive medicine regarding granting primacy either to the gonads or the hormones as the only determinant of sexual difference, and that there is definitely a nostalgia for the epistemological certainty provided by gonads or anatomy – visible and palpable – as the determinant of sexual difference, and secondly,

even when hormones are taken as non-specific markers of sexual difference, the associated uncertainties are precluded to render them continuous with the culturally constructed notions of sexual duality and mutual exclusivity of sexes.

In an editorial commentary titled 'Deconstructing the Path to Reconstructing Reproductive Organs,' in the *Journal of Assisted Reproduction and Genetics,* Albertini (2011) critically evaluates the obsession of current research in fertility preservation with gonad reconstruction – to somehow *artificially reconstruct the gonads* (emphasis mine) rather than reproduce, at the same time, the secretory roles intrinsic to them. Here is a long quote from Albertini:

> The logistics behind such a monumental effort find their roots in the field of biomedical engineering, a staple of the regenerative medicine movement. And the momentum for such an endeavour has its origin in the emergent field of fertility preservation. In the case of the latter, the prospect of preserving ovarian or testicular function as a countermeasure to acquired or induced disorders such as premature ovarian failure, Turner's syndrome, or Sertoli cell-only syndrome has evoked two independent lines of research. On the one hand are those subscribing to the *au naturel* approach. Cryopreserving testis or ovary (or pieces thereof) harbouring the elusive but much-sought-after germ cells are the goal here, with subsequent transplantation of these tissues into donor patients. This approach has received encouragement, direction, and tractability from the pioneering studies of Sibler; Gosden; Donnez and Meirow among others. The scenario exploited in these highly publicized cases involves whole ovary transplantation or transplantation of strips of ovarian cortex that have re-established cyclicity and reproductive competence to the small but fortunate number of patients who have benefitted from such treatments.
>
> While many obstacles remain with respect to the use of tissue or whole organ transplantation, with respect to optimizing cryopreservation protocols, limiting damage from ischemia, and the genetic integrity of contained gametes, this *au naturel* approach attempts to maintain the valuable

> supply of germ cells in a native environment or niche within which the subsequent steps of gametogenesis will proceed.
>
> Yet another camp proffers a more ambitious agenda for preserving fertility that I refer to as the "deconstructing reconstructionists". Let me explain. Accepting that our gonads are dualistic in function as both purveyors of the gametes upon which the next generations will derive and endocrine machines (and probably paracrine) in their secretory profile, not one, but two functional attributes must be recapitulated in the design of artificial gonads. The plot immediately and necessarily thickens when one considers these as not so mutually exclusive operational endpoints for a self-respecting mammalian gonad. If you are designing a testis, then there is no choice but to establish an organ equivalent bearing both gamete-producing spermatogonial stem cells and the cellular and endocrine environments known to sustain the process of spermatogenesis. Thus, any facsimile of an artificial testis must embody a seminiferuos tubule analog that satisfies the complex interaction between Sertolli, Leydig, and germ cells. Getting sperm out of tubule equivalents is another matter but, for now, we will assume that access to sperm an appropriately temperature-regulated segment of male anatomy is possible.
>
> If you are designing an ovary, then matters of proximity to the fallopian tube remain. This approach (*de novo* construction of an ovary equivalent) also implies anatomical proximity coupled to an ovulatory capacity. As we will see, such a feat may well exceed the expectations of the most optimistic among us….[19]

From the quote presented above, it is evident that Albertini (2011) delineates two predominant modes of attempting to preserve the fertility of the gonads, through gonad reconstruction, in the wake of "acquired or induced disorders". The first approach, attempts to reconstruct the gonads, by using materials from the gonads, and restore the natural functions intrinsic to it. This is called the *au naturel* approach. The second approach, attempts to reconstruct the gonads artificially. Here the challenge is not only to replicate the anatomical structure, but also the accurate secretory functions intrinsic to the structure of the gonads. The second approach is called *de novo*.

Albertini particularly problematizes this second approach which emphasizes too much on the structure of gonads rather than their function. He clearly argues that reconstructing the testes or the ovaries is not enough, the processes of *spermatogenesis* or *folliculogenesis* has to be initiated, otherwise mere reconstruction of gonads is of no use. Thus, for him sexual function is not only anatomic, it is also hormonal. But the fact that he delineates the practitioners of the second approach as "deconstructing reconstructionists" implies that he notes in them an obsession with the anatomic aspect of the gonads, if not real, at least artificial. Although Albertini praises both of the modes of gonad reconstruction, he seems more inclined towards the first viz-a-viz the second approach, not only because it is scientifically faulty to have artificial organs, without proper hormonal functions, but also because the former preserves '…the genetic integrity of contained gametes…and maintain(s) the valuable supply of germ cells in a native environment or niche within which the subsequent steps of gametogenesis will proceed. 'The tension here is twofold: firstly, there is disagreement among the researchers on what is to be granted primacy, the gonads or hormones, which precludes any idea of a general agreement that sex hormones are gaining primacy, and secondly, Albertini himself is more inclined towards the natural approach, which preserves the germ line, which also demonstrates that there is an implicit opposition to the increasing artificialization (read against nature) in gonad reconstruction practices in reproductive medicine.[20]

During my fieldwork, I also found that the practitioners recognize the significance of hormones in determining a 'healthy' female body, but they are more inclined to refer to the anatomical markers of authentic femininity. The recurrent answer to the question on the essential markers of female body was provided in terms of the *primary* and *secondary sex characteristics*[21]. Both serve as visible indicators of sexual difference. The gross physicalist approach to the understanding of female body is evident from the constant reiteration of the centrality of the "healthy" ovaries, "unblocked" tubes, womb "without scars" and vagina devoid of anomalies as the basic markers of functioning female reproductive system. For men, on the other hand, the single, most oft-cited factor is sufficient motile sperms; the anatomical structure does not get primacy otherwise. In the context of modern medicine, Das (2010) argues, that the body is a generality produced through the conjunction of three bodies: the anatomical, the physiological and the biochemical or the hormonal. But, in practice, the body, which is a complex, non-homogeneous unity is always reduced to its anatomical structure, located in "three dimensional space."(80) Most importantly, this

gross physicalist understanding of the body or anatomic reduction has profound heterosexist dimension, which operates at the very level of both the clinical and cultural imaginings of the female body. Moreover, as I have already argued, in opposition to Oudshoorn, the uncertainties unleashed by the hormones as non-specific markers of sexual differences are also flattened out in favour of sexual duality. This is evident in cases where the practitioners recognize the inevitable presence of male hormones in female bodies and vice-versa, as indications of pathology (which is also anticipated by Oudshoorn), and end up establishing a linear causal relation between female hormones and women's subjectivity (which is most dangerous!). Here is an excerpt from one such interview where hormonal explanations were given by the ART practitioner for women's "typical" subjectivity and biological make up:

> Anatomy is significant; we need to check whether the patient has normal genital system. If there are complications, we try to correct them surgically. But the most important thing is oestrogen hormone! Women are women because of this hormone…. Oestrogen makes them more sympathetic, motherly and emotional. Maternal feelings are associated with oestrogen…. Normal women have regular ovulation cycles. Infertility occurs because of hormonal imbalances. Abnormalities in female hormone system also occur because of increased levels of male hormones. Male hormones hinder female reproduction…. *Women with high levels of male hormones are manly, they are more intelligent, more achievement oriented*! (Emphasis added)[22]

It is evident, from the brief quote presented above, that the practitioner provides a hormonal argument for women's nature, their inherent "maternal feelings" and how transgression from the normal level of female hormone results in the breach of socially accepted feminine qualities. The non-specific sex hormones, expressible in clinical measures, despite the accompanying uncertainties, are harnessed by the practitioners to justify their claims to the determination and classification of who is a better male or better female, which is also a way of reiterating sexual duality. Thus, the heterosexual duality is not breached with the understanding of body based on non-specific sex hormones, which contains in itself the potential for the sustained reproduction of the fundamental heterosexist principles. Having outlined how the anatomical indicators continue to be relevant in the postmodern biomedicine, in the figuration of the sexed body, and more specifically, the

female body, let me further demonstrate the salience of anatomical indicators in the figuration of the normal and the pathological or 'abject' bodies in reproductive medicine and assisted reproduction.

The Bodily Other(s): Anatomical "Messiness" and Abjection

Throughout this essay, a recurrent set of words have been normal and pathological. This section attempts to map the configurations of the normal and the pathological in the context of reproductive medicine and assisted reproduction. It is clear by now that the normal female body is one which is capable of successfully reproducing. The construction of this normal female body occurs viz-a-viz the paradigmatic pathological individuals, implicitly arranged in increasing order of abnormality: the older woman, the homosexual, and the hermaphrodite.[23] These are the paradigmatic pathological individuals, medically and socially, because of their inability to produce genetic offsprings through heterosexual sex. The fact that what is medically designated as pathological is continuous with social pathology shows that medicine is essentially a normative activity, which is engaged, along with the society at large, in determining the accepted standards of normality and pathology.

Here I deploy, though a bit reductively, two approaches to the study of normal and pathological. The first approach is associated with Canguilhem (1978), who argues that the normal is both a fact and a value. It is a fact as it is determined by a majority of cases of a particular kind. It is a value as it is associated with a notion of what "should" be (69). The normal, in this sense, implies the "majority of cases of a determinate kind, *"which is attributed a value preference*, *and medicine attempts to realize and maintain that condition*. (ibid, emphasis added) To put in Canguilhem's own terms, '…the normal state designates both the habitual state of the organs, and their ideal…the reestablishment of this habitual ideal is the ordinary aim of therapeutics.' (ibid.) For Canguilhem, the art of medicine exists because human being themselves designate certain states in life as pathological, as these states hinder the norm of continuance of life and medicine performs the significant task of re-establishing the norm, in the wake of deviations from the norm (69-70). In fact, life itself is viewed as a "normative activity" by Canguilhem, which *spontaneously* responds to the factors that hinder the "preservation" of life. Life is "normative" as it cannot remain "indifferent" to the conditions that both engender and hinder life (70). This is called *biological normativity* by Canguilhem, which is the responsiveness of life to the conditions that engenders life. In

understanding normativity, Canguilhem does not fall back upon a statistical means of determining or deriving the normal and the pathological. Although, he recognizes that "relative statistical frequency" is one way of deriving the normal and the pathological, he primarily focuses on the criterion of incompatibility of certain conditions with life as a means of determining the deviations from the normal (76-78). Through these ideas, Canguilhem demonstrates: firstly, that life, which is the object of biological sciences, is essentially a "normative" activity, which presupposes the norm of responsiveness of the organisms to the changing environmental conditions, and secondly, that biological normativity is dependent upon the environment, it is contingent and contextual.

The other approach is that of Das (2010), who demonstrates that construction of the normal body in modern medicine consists of both the statistical calculation of normalcy and the contingent and contextual notion of normativity (83). Das particularly argues that modern medicine borrows from statistics, terms and methods to construct the universal notion of the body, which accommodates normal variations, but not the abnormal deviations, which constitutes the pathological or "abject" bodies (ibid.). The construction of the universal body of modern medicine does not preclude the empirical variations of particular bodies, without which it is impossible to conceive of the body in general terms (ibid.). The normal body (involving normal variations), for Das, is determined by "the standard" parameters, which are material-semiotic (84). The hypostatization of these material-semiotic parameters into purely unmediated concrete indicators occurs through the mediation of knowledge, power and ideology, suggests Das (ibid.). If we take some instance from the present ethnography, then "healthy" ovaries, "unblocked" fallopian tubes, womb "without scars" and vagina without anomalies can be designated as the most oft-repeated, the material-semiotic indicators of the normal female body. This is not to say that there is no scope of normal variations within reproductive medicine and assisted reproduction. Variation such as 'differential receptivity' of different women to the possibilities of conception is part of the notion of normal female body in reproductive medicine. When the anomalies hinder or block the process of reproduction from following its natural course, which is also a hindrance to the continuance of life, such conditions are seen as pathological. Thus, is relevant the figures of the older woman, the homosexual, and the hermaphrodite within reproductive medicine and assisted reproduction. These are the paradigmatic pathological figures that facilitate the construction and maintenance of the normal, owing to the absence of the "standard" determinants of normalcy in these figures, although in varying

degrees. There is complete agreement with Das, when he says that 'the normal has many "others"' (ibid.) and that modern medicine attempts to "negotiate" 'this otherness into defined territory of knowledge, into its defined categories of the abnormal.' (84) Indeed, the relationship of medicine with the pathological is not merely that of exclusion, but of incessant negotiation with the challenges that are posed by the "abject" bodies to the selfsameness of medical knowledge. But all the 'abject' bodies are not of the same significance, some are more pathological than the others, and therefore, there is qualitative variation in attempts to negotiate each of them. The *older woman*, the obvious target of the normalizing interventions of assisted reproduction is the potentially normal pathological subject; the subject whose biological and social roles can be rendered coterminous with the norm of procreation, through technological intervention. The *homosexual*, though not the conventional target of assisted reproduction's normalizing gesture, is located at the margin of the circuit of normalization. The homosexual is "yet" to be rendered completely normal. And beyond the limits of the normalizing gesture is the *hermaphrodite*, the most "abject" of all the bodies, owing to the "messiness" of its reproductive apparatus and the genital system. The hermaphrodite defies reproductive medicine's neat and linear depiction of the natural course of reproduction and the logic of locating sexual difference in the sex specific anatomy and hormones. The homosexual, in this sense, is different from the hermaphrodite, because the homosexual's anatomy, in its materiality, is at least sexually specific. This is why, in case of homosexuality, which is often identified as psychic abnormality, the pathology cannot be attributed to any visible or palpable anatomic factors, and is therefore, different from the hermaphroditism, which is characterized by "gross" anatomical and gonadal anomalies. The fact that visible anatomical and gonadal anomalies serve as "real", "objective" and "unquestionable" empirical indicators of deviation from the norm of life-preservation, one can argue that the anatomical imagination continues to be crucial in postmodern biomedical technologies such as assisted reproduction. While it true that the "ontology of depth" in contemporary biomedicine has been problematized, it is also true that there is a contrary move within biomedicine in general and reproductive medicine in particular, which attempts to preserve the structure of knowledge in which the empirical indicators serve as determinants of pathology.[24]

It is important to mention, that this section must be seen in continuity with the overall argument of this paper. In this section, I have particularly discussed the relevance of anatomy in the determination of pathology. Instead of valourizing the idea that body has been molecularized by postmodern

biomedical technologies, though I do not reject the possibility all together, I have been arguing that latest biomedical technologies, like assisted reproduction, attempts to retain the idea of unmediated (read natural, fixed, based on authentic internal principles) materiality of the sexed body, figured as a complex whole of comprising of sex specific anatomical make up and hormonal condition. The attempts to preserve the unmediated materiality of the sexed body is entirely continuous with the ideology of heterosexism, which bases sexual difference in the immediacy and specificity of sexed anatomy and sex specific hormones, and renders women's child bearing function an ultimate biological and social role. Thus, it has hard to believe that biomedical technology in general and assisted reproduction in particular is a decontextualized and objective enterprise, given its social-cultural embeddedness and its complicity in the (re)production of the ideology of heterosexism. An ideological critique of reproductive medicine and assisted reproduction's disavowed socio-cultural embeddedness and complicity in ideology of heterosexism necessitates a radical interrogation of the presupposed unmediated materiality of the sexed body. This ideological critique, which foregrounds the discursively and ideologically constructed materiality of the sexed body, refrains from fictionalizing the sexed body, by saying that it is unreal. On the contrary, following Das (2010), this ideological critique attempts to show that the sexed body is a "reified category", (re)produced as unmediated through mediations of different technologies of power and the ideological processes immanent in these technologies. Body's reality is that it is *always already* mediated by power and ideology; these mediations render possible thinking of the body as an entity, yet these mediations which are constitutive of the body are categorically disavowed by the so-called decontextualized medical knowledge and practice in search of objectivity and universality.

Throughout this paper, I have attempted to trace a few instances of these disavowed mediations, which despite their inherent tensions and uncertainties, unfailingly construct the female body as the site of heterosexual procreation, natural or assisted. But to say that the body is constructed, *always already* mediated is not enough, it is necessary to foreground, explicitly, what notion of construction one is deploying. The following section engages with this issue at hand.

Construction as "Fixing": Nuancing Sociological Constructivism

Ian Hacking, in his book *The Social Construction of What?* (1999),[25] insists that it is necessary to make an analytical separation between the construction of the object and the construction of the ideas about the object.

The suggestion is that social sciences should be concerned with the *history of ideas*, the way certain ideas about certain objects are produced, the way meanings are ascribed to them by contingent socio-historical forces. He does not however suggest that the objects and the ideas about the objects or the meanings attributed to them are separable. On the contrary, he argues that the objects interact with the ideas about the objects in the process of their social structuring, so that the objects acquire and reiterate the essential meanings and descriptions attributed to them. This acquisition and reiteration of the ideas by the objects is manifested not only at the discursive level but also in the institutional and material practices. Now, let us try to deploy the analytical separation that Hacking suggests between - the object and the ideas about the object - with reference to the sexed body in assisted reproduction. If we closely follow Hacking's logic, then the sexed body itself is not a construction but the ideas about the sexed body, the different ways of conceiving it, are constructed by contingent factors. To put it in other words, the ways we conceive of the sexed body are not inevitable, but they are constructed as such through contingent factors. Moreover, Hacking argues, the "matrix" in which ideas proliferate and develop, plays a significant role in the determining the subjectivities of those about whom ideas are produced. This is called the *looping effect*. For example, the prevailing ideas about infertility as a medical condition determine how those categorized as infertile think of themselves, what they do and how they organize their practices. Thus, for Hacking, subjectivities are not indicative of definite essences; they are the effects of classificatory practices. Hacking's ideas are interesting, but there are fundamental disagreements.

Firstly, one may question the feasibility of making the analytical separation between the object and the idea, and a possible justification for such a questioning could be that it is impossible to think of the object as separate from the ideas about the object. To say that the object and the ideas about the object interacts, that there is a *looping effect* of the classification on the actions and practices of those classified is not enough, one has to come to terms with the fact that the imagination of the object is *always already* contaminated by the ideas about the object, which renders it impossible to think of the object as analytically separable. To think that the sexed body is analytically separable from the ideology of heterosexism is to presuppose that one can conceive of materiality without the mediation of ideology, (Das, 2010) which I argue is impossible. This first point is associated with the second one I am about to make. Indeed, the "matrix" is significant in engendering the ideas about the object, through various discursive and

material practices. The "matrix" of heterosexist ideas can be seen as actively (re)producing the body in its presupposed sexual differences, in changing *avatars*, through research and practice, in the expanding domain of reproductive medicine such as assisted reproduction, genetics, fertility preservation, regenerative medicine etc. The unmediated materiality of the sexed body is the effect of heterosexist ideas and practices of reproductive medicine and its allied fields, among other technologies of power, which precludes the possibility of thinking the sexed body beyond the naturalistic assumptions about its compulsory procreative function. But the normal female body is not a mere effect of the heterosexual ideas and practices, effect in the sense of being a determinate product of the unilateral ideological work of heterosexism. On the contrary, it is both the cause and effect of heterosexism. It is not simply the "matrix" of ideas that shapes the sexed body; the sexed body itself is a constitutive condition of the formation of the "matrix". This recognition of the analytical inseparability and mutual inter-implication of the object and the "matrix" of ideas, the sexed body and the ideology of heterosexism is fundamental to an ideological critique of reproductive medicine and assisted reproduction's essentialist figuration of the sexed body that this paper has attempted to achieve.

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Notes

1. Here, I am particularly interrogating the obvious idea that body is *always already* sexually differentiated, that sexual differentiation is seen as a natural or organic attribute of bodies in the context of reproductive medicine and assisted reproduction. This is an attempt to problematize the primacy of sexual difference in reproductive medicine and assisted reproduction rather than a rejection of sexual difference in the name of equality or sameness. The focus is particularly on how sexual difference is actively produced through power, signifying practices and ideological means so that it is rendered a transcendental truth.

2. It is interesting to note the tension built into reproduction medicine and assisted reproduction in so far as the issue of denaturalization is concerned. On the one hand, denaturalization acts as rhetoric to convince people that contemporary reproductive technology can achieve conception even in the face of bodily hindrances by 'bypassing' nature and its principles. On the other hand, though the experts attempt to convince others that ARTs are denaturalizing through various strategies, they are themselves not completely convinced that body is denaturalized in and through assisted reproduction. Technology is seen as mere supplement to what is chancy or divinely ordained.
3. Biomedical research and practice attempts to produce pure biological or natural entities out of material-semiotic or natural-cultural hybrids, that is, they attempt to purify and maintain the separation between the natural, the material and the semiotic, the cultural, but the irony is that any purificatory move ends up proliferating hybrids, they are the inevitable confusions produced by ideological attempts to avert confusion or boundary transgression. This is argument is influenced by Bruno Latour, but also attempts to incorporate ideology as a crucial factor in imposing foreclosure on the proliferation of hybrids.
4. Body-technology encounter has been used as a concept to denote the different perspectives that the experts have on the interface between the maternal body and assisted reproductive technologies.
5. Acronym for Assisted Reproductive Technologies.
6. *Tubal Blockage* refers to a condition in which the fallopian tubes are blocked which in turn hinders the transmission of the ovum from the ovary to the uterus.
7. *Azoospermia* is a condition of male factor infertility where there is no sperm in the semen.
8. *Anovulation* is a condition of female factor infertility where there is no production of ovum in the ovaries.
9. This is a section from an interview with an infertility expert.
10. Acronym for In-Vitro Fertilization.
11. This is part of the same interview mentioned above.
12. The *Take Home Baby* is the final successful output of assisted reproduction, and refers to the live baby who is discharged from the hospital to be taken home by the intending parents.
13. The infertility experts use a series of investigative methods to ascertain the nature of hindrance to reproduction and the necessary treatment protocol one after the other, when one set of investigative method and

treatment protocol fails, the experts opt for the next set, this is called *empirical therapy*.

14. This is a long excerpt from an interview with an IVF expert.
15. *Ovarian induction* refers to the stimulation of the ovaries through the use of Follicle Stimulating Hormones (FSHs) to induce successful production of follicles for reproduction.
16. Acronym for Intra-Uterine Insemination.
17. A major critique of IVF emanates from its ovarian hyper-stimulation to produce multiple follicles to increase the success rate. Ovarian hyper-stimulation can cause ovarian cancer.
18. I believe that the discussion of the denaturalization of the body, in contemporary biomedicine and biotechnology, cannot be done from an objective position. Here, I have attempted to show whether the infertility experts, from their location within the practice, at all perceive their interventions as denaturalizing or not. Since, I am not concerned with the question whether the body is actually denaturalized or not (one can also suspect whether such a question can at all be asked irrespective of the location from which the question is asked), but with the perceptions of the infertility experts, I have just given instances from the field to show how the experts adhere to fixed and essentialist notions of the maternal/sexed body.
19. See David Albertini, 'Deconstructing the Path to Reconstructing Reproductive Organs' in *Journal of Assisted Reproduction and Genetics*, 2011, September; 28(9): 759–760. Published online 2011 August 26. doi: 10.1007/s10815-011-9624-7.
20. Please note that the journal from which the excerpt is taken is not an Indian journal. This has been taken from the *Journal of Assisted Reproduction and Genetics* to depict the tensions inherent in reproductive medicine. It must be read as a singular instance, rather than an attempt to make a generalization. Moreover, although my ethnography is situated in Kolkata and other medical materials are drawn from Indian practitioners, I am not making a generalization about Indian society or the city of Kolkata. It is just a preliminary attempt to map both the socio-cultural and ideological underpinnings of clinical practice.
21. Primary sex characteristics are sex characteristics one is born with and secondary sex characteristics develop with adulthood. Genitals are the example of the former and pubic hair of the latter.
22. This is an excerpt from an interview with an ART practitioner.
23. These instances where provided by the practitioners themselves, sometimes together or separately to define the normal female body in

ART. These categories are drawn from field data; I have just attempted to systematize them over here. The hierarchy was not provided by them. It is constructed on the basis of the arguments by the practitioners regarding how each of them is different from the normal female body.

24. It is interesting to read Foucault and Rose together in so far as they map the distinctiveness of the structures of knowledge of modernity and postmodernity respectively. Here I argue that the structure of knowledge dominant in modernity can be equally relevant in a context where the foundational assumptions are contrary to that of modernity.

25. See Ian Hacking, 'Why Ask What' in *The Social Construction of What?* United States of America, Harvard University Press, 1999, pp. 1-34. The entire paragraph is a summarization of some of the key ideas discussed in this chapter of the book.

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