

NATALIE ANGIER

Women: An Intimate Geography

You are about to take a verbal safari through the uncharted territory of the female body. Pulitzer Prize winning author Natalie Angier, has written the book "Women; An Intimate Geography" (Anchor Books \$22.50) that is a tantalizing witty journey through female biology all the while debunking many entrenched stereotypes and myths about women. Angier takes readers on a mesmerizing tour of female anatomy and physiology that explores everything from organs to orgasms. Ms. Angier writes about biology for the New York Times where she has won a Pulitzer Prize The American Association For The Advancement Of Science Journalism Award and other honors. The Author of two previous books, "The Beauty Of The Beastly" and "Natural Obsessions", she lives with her family in Takoma Park, Maryland.

M M Lets have a geography lesson on women's private parts. What don't we know, what do we need to know about the vagina?

NU We need to know that the vagina is not dirty, stinking and disgusting. A lot of us grow up thinking the vagina as this dark flaw. In some countries, particularly in Nairobi the word vagina translates into dirt. There is this idea, even among doctors, the vagina is a dirty place, it's like the anus. You have to be very careful and wash your hands if you go anywhere near it. There is a sense that it is shameful and it isn't.

When I consulted with a researcher, who studied what she called echo systems of the vagina, she really enlightened me on how clean and vibrant a place it is. The healthy vagina is the cleanest for assisting the body. Certainly much cleaner than your mouth or even your ear. It's clean, it has a chemical state very similar to a cup of yogurt or a glass of red wine. When it's healthy it's actually quite clean and there's no reason to ever worry about feminine orders. If anything douching results in feminine orders, so it can take care of itself. I think that another thing that women don't know is where things are located down there. When I was on a television show in America and asked one of the hosts of the show to point on the chart we where the colitis was located, she couldn't do it. She pointed to the urinary opening. I think that women should become

more familiar with the basic geography of their private parts; if for no other reason to feel confident about them.

MM You also mention that the vagina sweats, why is this important?

NU It sweats as a way of getting rid of body heat. It's interesting because men are generally better at getting rid of body heat than women are. This is one of the advantages they have in sports competition. They sweat more, therefore they don't tend to overheat internally. The vagina is one place that does sweat quite a bit. It's one way that excess heat can leave the body. Also important is the role of pubic hair, in helping to foster a healthy vagina. It has almost a thick wax coating on it, which helps to repel things like, menstrual blood and urine. It helps to keep things clean. I think this important because right now it's the fashion to shave. This brazil, which cut is becoming very stylish, is to shave yourself practically nude and I think that's a bad trend. The pubic hair is there for a reason. It's probably there for sexually attraction in helping to trap sexual orders that are maybe a kind of turn on, but it also serves a protective role. It also serves to cushion you, if you are to get insured, but in particular it helps to repel dirt.

MM What is there to know, that we don't know, about the cloritus?

NU The cloritus is an extremely nerve dense part of the body. It has more nerves per cubic square centimeter than anywhere else. Twice as many nerves as the penis and it's extremely sensitive. I think a lot of women who go through a period of feeling like they're sexually dysfunctional or not completely turned on, wonder why that is. Why the clitoris isn't located inside the vagina. We don't know, but I can say that the clitoris is very sensitive and is wired for sexual pleasure. When women do become familiar with how to use that it's a lot easier to get sexual pleasure. Too many women feel that they're inadequate if they need to have clitoral stimulation to have an orgasm. There's no reason to feel that's an inadequate way compared to orgasm during intercourse , because in fact, in nonhuman primates the clitoris is often stimulated extremely for the sake of sexual pleasure too. Therefore we're not alone in that. It's not something to be ashamed of.

MM You make note that there are very few books on the clitoris.

NU Yes, there are only two text books that I'm aware of and both of these are very skinny text books on the clitoris and both of them date back to the early 1970's. The clitoris is not something that has been widely studied. I think the reason is that it only exists for pleasure and doesn't have another function, unlike other parts of the reproductive system, including the male reproductive system; where if you have a dysfunctional penis, you can't reproduce it, you can't even urinate properly. The clitoris, if it doesn't work, who cares, it doesn't do anything but give you pleasure. I think that's part of the problem why it's been ignored, people are embarrassed by it or they don't think that's its that important.

MM What about a clitorrectomy?

NU You can either call it a clitorrectomy or clitordectomy, both terms are used. They used to do that to women here in America, it was the cure for masturbation to prevent women from selfabuse as they called it.

MM What is it exactly?

NU It's cutting off the clitoris, surgically snipping it off. In Africa something like two million girls a year are clitoridectimized. It's part of their tribal ritual, in some countries in Africa 90 % of girls end up being not just clitoridectimized but they may have part of their labia removed too. African female mutilation is very common and a lot of people are fighting against it.

MM What's the purpose of it and how old are these girls when it's first done?

NU The purpose of it is twofold, one is to try and make sure the girls remain chaste and tame their supposedly runaway libidos until they're married. The second reason is to give them a more feminine looking pelvis. Sometimes when you have your clitoris and labia all intact it can look almost masculine. By cutting it all off they make it look smooth and very feminine, so there's the twofold desire to have the emphasis on femininity plus chastity. In some countries it is done on girls at the age of five or six, in other countries they wait until they are-----.(couldn't make out the age)

MM How does it affect them for the rest of their lives once they're married.

NU Terribly, because the clitorrectomy is not performed in a hospital under sterile conditions, they take a razor blade or a knife or some other sharp tool and just cut it

right off. You hold the girl down screaming and so often there is tremendous problem with hemorrhaging, with infections, a lot of girls die as a result, they get septic. Even those who live will have scarring that can be painful for their whole lives. Sometimes they get these ----- (couldn't make out the word) that grow and they grow so large that they think they're dying of cancer. It can affect their fertility, it can make birth very painful, intercourse very painful, so the World Health Organization is actually going after this practice, not just as a denial of female sexual rights but a real human rights abuse because it can lead to so many health and medical problems that can often be fatal. There's a lot of organization now to try and end this practice.

MM Let's talk about the uterus. What did you discover about the uterus?

NU I discovered that the uterus is an amazing organ. Usually it's about the size of your fist and when you're pregnant it's capable of growing to a thousand fold its volume. Then within a few weeks of giving birth it's shrunk up again. The degree of plasticity is rather unique in the human body there's no other organ that you have that is capable of growing and shrinking like that without rupturing or having some horrible thing happen to it. So it's designed to be able to expand and is always in a state of balance during pregnancy. I think a lot of us recognize that with the contractions that we have the braxton hicks (that's what it sounds like) contractions that on the one hand you're trying to control things on the other hand you don't want to push the baby out. There's a kind of push me pull you going on during pregnancy all of it negotiated by different hormones. So it's a very complex, responsive organ. It's also perhaps not appreciated enough as a possible generator of the important hormones as well as the recipient of the affects of hormones. There is no equivalent in men so it's an unique organ, so a lot of our organs are kind of analogous to one another.

MM Let's talk about breasts because in this North American culture there is all this mammary madness. How do you explain it?

NU Breasts are interesting, because other primates have flat chests until they're pregnant then their breast swell up with milk and after they're pregnant their breasts shrink back down again. In humans the breasts develop their rounded form rather early in adolescent before a girl is actually ----- to carry a pregnancy. It's

one of the first signs of maturity in humans and of course the breasts stay swollen regardless of whether you're lactating or not. So the question is why, why do humans have these perpetually prominent swollen breasts.

MM And why do men jump out of their socks over them?

NU If the breast is designed as a sort of sexual attraction then you would predict that, however what exactly is attracting men to these breasts. We don't know, there are so many theories. Evolutionary theorists love to talk about breasts. What are the breasts there for, telling men. Are they a sign that the woman is especially fertile and the bigger the breasts the more fertile she is? No, there's no correlation between breast size and fertility. Are they telling a man that this woman has high genetic qualities? There's no evidence for that. Interestingly the size of a woman's breasts has nothing to do with her ability to lactate. Every woman has the same amount of lactational tissue in her breasts, about 1 teaspoonful per breast. This is true regardless of what bra size you wear. What makes the difference is just a lot of fatty tissue and that tissue is not even particularly useful. When you're resting (that's what it sounds like) your body is going to use the fatty tissue from your hips and your buttocks, it won't use the fatty tissue from your breasts. The fatty tissue from your breasts is kind of static, it's not very useable. So, is it saying anything important about a woman's quality, so far there is no evidence of that. So, what I've tried to do in my book is say well, breasts are only one part of a larger seam of the human body. What makes the human body visually very unique is that it still has periods of growth. So you have the curve of the buttock that is a unique form on both men and women. The curve of the calf, the curve of the muscles, the prominent arm muscles. Other animals are very very muscular but you never get that sort of prominent globular muscle form that is unique to humans. The curve of prominent cheek bones, so all of these curves that we find so attractive are seen across the human body, breasts are just one part of that. So I try to emphasize that while we're fixated on breasts now, many of these curves are naturally appealing to the human eye and it's not just the breasts.

MM What about hormones, Is there anything unique that you want to say about female hormones?

NU It's important to appreciate that estrogen is a wonderful hormone and it effects every part of your body. It used to be though that it was a sex hormone that had to do with your menstrual cycle and your reproductive organs but, now it's been shown that almost every tissue in you body is responsive to estrogen, needs estrogen, especially during development. It's a very important hormone and at the same time, there's that question, should we have hormone replacement therapy after menopause for every women. Some women, and I try to put that in a context of saying, in fact the body has ways of replacing the estrogen that we lose once we reach menopause and it may not be a catchall solution. I really try not to take a side for or against hormonal replacement therapy but to allow us to appreciate estrogen without thinking that we have to take pills our whole life.

MM What about the mood swings that so many women suffer with PMS, is that strictly female and something that we should cherish instead of beating ourselves up about it?

NU Interestingly, if women pay a little more attention to their menstrual cycle, without necessarily thinking about it as a negative thing, a number of women report having their senses enhanced and having greater visual acuity's . For example at certain times of the month, like at ovulation and right before menstruation it's almost as though the air is alive and if you pay attention to that and don't assume it's all bad then you will see that some of it is in fact possibly creatively enhancing. When you have these symptoms of PMS it has more to do with progesterone, the other hormone that falls in the menstrual cycle. Progesterone seems to be one that is more inclined to affect your moods and to give you all sorts of symptoms like bloating, headaches, pimples and so on. Progesterone seems to be the one more at fault then estrogen.

MM You talk about fetal cells being in the mothers blood stream. Tell me about that?

NU This is a recent discovery, that decades after a women gives birth she retains cells from every baby that she has borne. These cells are not just leftover, sloughed off dead tissue, these are living cells that are circulating in her body long after she gave birth. That means that they're still slowly dividing, because cells can't live forever unless they're dividing, so she still retains this trace of her baby. Why we don't know,

but it was such a surprise to researchers to discover this. They discovered this in the course of trying to find better ways of doing prenatal diagnosis.

MM Is there any purpose to this or does it mean anything?

NU We don't know, it's such a new discovery. Is it a way of having an immune recognition or is it a way of retaining an attachment on some cellular level or is it just somehow an ----- in a byproduct. We don't know but it is clearly something that is being maintained because these are living cells.

MM We always make jokes about our mothers always knowing what we're doing would this maybe be why?

NU there could be something in that. It's certainly true that once you've had a child you can't shake that attachment.

MM Why do you refer so much to the sexuality of animals in writing this book? What are we to learn from that?

NU By looking at the way different species behave we can perhaps get some cross sectional insight into our own emotions.

MM Can you give me a few examples. They're almost fun, such as the hyena who gives birth through the clitoris, it gives us something to think about.

NU The hyenas are amazing animals, the spotted hyenas when it's in the mother's womb, both the male and the female, they're exposed to such high amounts of androgen, male hormones, that both males and females and females come out looking the same. Both of them have penises and scrotums and in fact both of them greet each other to get erections. Both male and female use those little penises for social purposes and interestingly the females are slightly bigger than the males and they are dominate over the males even though they've both been exposed to the same amount of androgen. There's no reason why the female should be dominate but they are.

MM They give birth through the clitoris?

NU essentiality, that's what happens. The organs, the clitoris and the labia, have all kind of fused together and there's just a little hole there and that's the birth canal, so the mother has to give birth through, what it amounts to, it would be like a man giving birth through his penis. The first birth is very difficult, and when you see them they are

in obvious pain and quite often there's a still birth, because the baby doesn't make it out and both mother and baby die. If the mother has a successful birth it kind of rips it open and future births are much easier. The bonobos, which are closely related to the chimpanzee. The bonobos are interesting because they use sex for every single social purpose you can think of. A hand shake to them relates to a sexual gesture, like when anybody is upset, before they eat, to calm everybody down, to make new allies. A female uses sex with each to form alliances. So females form alliances that allow them a great deal of autonomy and so they are very independent and are able to be harassed by males the way regular people

MM So you mean they have sex with each other.

NU Yes. They have what is called genital to genital rubbing, they are facing each other and rubbing their genitals against each other. This the way of cementing these alliances. So bonobos are interesting in that they structure their whole society around sex and you see sex between young and old, males and males, females and females, everybody. It seems to be the glue that holds their society together and so if we compare that to other chimpanzees, which are much less sexy and are much more warlike you can see where we are somewhere in between those two.

MM How does this relate to humans? Like they're sort of sexual Olympians, I guess

NU I'm interested also in the ability of the females to form alliances with each other because it helps to give them a great degree of autonomy, so I present this as evidence that female subordination is not inevitable. People have often used the chimpanzee model to say Male chimpanzees dominate over the female so human males of course dominate over women. So I use the bonobos example as this is another way of structuring society as they are closely related to us as chimpanzees so we don't have to say we're like chimpanzees and this is our evolutionary path.

MM What other misconceptions do you see about women that really irritates you whether it has to do with their anatomy or their nature.

NU It irritates me that people continue to think of women as less aggressive or nicer than men or naturally better. This different emphasis on our superiority of we can get along or are more cooperative and so on. More monogamous, more cuddly, more

nurturing, more choosy, less interested in achievement and competition, all of these things that are the traditional stereotype. There's very little evidence for it, in fact I talk a lot about female aggression and how powerful it is. I think that women have to reclaim all parts of themselves, we're not only this or not only that. Different situations are going to bring out different parts of our nature. I really resist being pigeonholed at cooperative and this motherearth role that we're given.

MM why have women always been punished for promiscuity, adultery and displays of sexual desire?

NU Because the battle is over who controls the female sexuality. What does the female want to do, she wants to control her sexuality, what does the male want to do, he wants to control female sexuality too. Why? Because female sexuality is the bridge to the future. A man can't reproduce on his own so everybody wants to control female sexuality. It's seen as an incredibly sexual force and so it doesn't surprise me that men the world over want to try and control it. We see this happening in other species. Male dolphins try to control female dolphins to keep them in line. It's something that males want to do because this is their ticket to genetic immortality. I'm not surprised they do it but obviously it's not always in women's best interests to be controlled by men.

MM Who gets the most from marriage?

NU I think that both sexes benefit pretty much. It's been shown that men tend to benefit more in terms of their health. There's more documented evidence that men's health improves from marriage more than women's and also they tend to live longer. Marriage gives more and more longevity to men than it does to women, however in terms of reporting on levels of happiness both women and men seem to report the same amount of happiness from marriage. Married people do seem to report being happier than unmarried people of both sexes.

MM What's love got to do with it? Where's love and romance fit into it?

NU We're an amazing loving species and we maintain love and bonds with each other long after other species have forgotten all about that kid that they had, who is now gone and comes back. They don't care, they don't recognize him. We maintain bonds

with each other throughout our lives , also I think romantic love and passionate love that we feel, which is lot like drug addiction has all the symptoms of that, with the heart palpitations, sweating palms, dilated pupils. It all looks a lot like you're on cocaine. This is a way of getting you out of a relatively passive state and into a much more active aggressive state where you're seeking to be with the other in a kind of hungry way. So it kind of pushes you out and into the world and to the other. Once you form a bond with someone the kind of flip side of aggression is affiliation and love. After romantic passion comes romantic love and that is much more of a soothing feeling kind of physiological state where it lowers your blood pressure, calms you heart. It's again like a drug but more of a tranquilizing one, without it sort of making you stupefied, it seems to be very healthy to the body. It's almost like the romantic passion tenderizes the brain for the bonds of attachment.

MM We're incorrigible romantics, we're always going to look for romance right?

NU It's found, in every culture that they've look at evidence of romantic love. It was thought that it was an invention of 14th century France, with the rise of the bourgeoisie. It is true that in a lot of cultures, marriages are arranged and you are forced to marry someone you don't love. In fact, even in those cultures where marriages are arranged, there's evidence there is a feeling of romantic love, either for someone you're not married to or in many cases you become romantically in love with the person to whom your marriage has been arranged with. It does seem to be an important part of human bonding.

MM What do you think that men need to know about the true nature of women? Or that maybe women need to know.

NU Men need to know that women are proactive, yearning, aggressive, ambitious, loving, that we are complex, that there is no one way to pigeonhole us or define us and probably as complicated as the man feels he is and a women is as well. I'm not saying that men and women are the same, but the urges are all there. We want love, we want autonomy, notice of our fellow human beings, we want praise, we want status, we want all of those things. We want pleasure and we want to have control over our

pleasure. We want to be acknowledged as, pretty much like hyena girls if you will.
There's a lot of voracity there, and it would be nice to have it acknowledged.
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