I.

THE AGE OF INNOCENCE

It has been one of those rare days when everything seems effortless and easy. Speeding along the road lined with golden leaves, time seems to be moving slowly. Suddenly a little voice pipes up from the back seat. 'When I am bigger, I will have a baby in my tummy,' she says in her beautiful sing-song voice. She is not even three, and she speaks like a teenager at times, and acts like one too. I sometimes feel that my heart will burst open with the love, while at the same time, I am so exhausted that I don't even have the strength to pack up my bags before running away: the paradox of motherhood, where intense love jostles together with a desire to soar free, unencumbered and untethered. These trips to and from their nursery, driving across the countryside, can be so fractious at times, but today, she and her twin sister are in that most delicious toddler mood where I just want to squish them tight and imprint their soft corners on my soul.

'Susie in nursery says that when I am bigger like you, I will have a baby in my tummy,' she repeats in her giggly sonorous voice with that lilting Liverpudlian accent.

A familiar feeling rises up in my throat. It is a feeling that often

returns, the sensation of my lungs filling up with water, and the wordless inaudible screams that cannot escape to the surface. The sun is now hurting my eyes, as it dips down on the horizon, and I squint, trying to focus on the road ahead, as a pheasant runs senselessly across to the other side, its auburn and orange feathers blending into the autumnal colours of the hedgerows.

The dreamy haze cracks, and I feel irritated. The annoyance sits right on the surface. I don't know the context, yet I feel angry with Susie for drilling this narrative into my child that every woman will be pregnant one day, and that her destiny is inextricably tied down by her womb. 'You can have a baby in your tummy if you want, sweetheart, but you don't have to.' My feminist ideals surge vehemently to the forefront. 'And you might not be able to,' I want to add but wisely choose not to. 'Or it might not be as easy,' I say quietly. It is a battle I fight every day to counter the messages my three-year-old children receive from the world around them, messages that tell them how a girl is to act, and what a woman's destiny is. I remember my own childhood and I want to hold them close and tell them that they can choose their own paths, that they don't have to walk this road lined with tightly packed hedges. The world is bigger and their dreams can be big too, beyond their bodies and biology.

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In an article I discovered in the archives from 1925 in *The Iowa Homemaker*, Dr Florence Brown Sherborn from the University of Kansas makes a case for an all-inclusive preparation for motherhood that has to start from school.

I find a refreshing number of women college students who frankly

> say they want homes and they want children, but they want somewhere, somehow, to do something else worth while! What are we going to do about it? This, as I see it, is the real challenge of the hour.[1]

Sherborn talks about the ways in which women can make an impact without ever being involved in wars, treaties and diplomacy. Birthing a child is one of these four very essential ways that women can make a contribution to society.

The ancient myths of matriarchy are interlinked with the women goddesses; women were responsible for the continuation of the human race. The matriarchal system, with women holding a superior social, economic and political position compared to men, relied on their ability to produce offspring and create new life.

We women shoulder a huge responsibility. We have to fulfil our destiny of being the givers of life, and it seems like a huge cross to bear. For many reasons, we assign our identities to one small part of our bodies. In many cultures, a girl is perceived to become a woman when she starts her periods, and so we are encouraged to spend our lives believing that version of womanhood, with our fertility, our monthly cycles, at the very centre of our identity. But what this does is to restrict the notion of our identities and constrain the whole spectrum of human anatomy to certain limiting characteristics.

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It has been a gradual realisation how little I know about my own body, this body that I have inhabited for forty-odd years. I studied biology at school – it was one of my favourite subjects. Since I was four years old, when I started dreaming of becoming a doctor, I have always been keenly interested in how we, as humans, work, why we

work, what really makes each of us click. Yet all those years of learning and reading since then have not really educated me in how a woman's fertility works. How do we go through life without understanding or knowing our own bodies? Is it because we are taught to be inherently ashamed of ourselves, of what our body is capable of doing and desiring? Why is society so neglectful of giving this very basic and crucial information to young women, when its demands from them are so often non-negotiable?

I remember the diagrams of the female reproductive system that we looked at in biology textbooks, showing the 28-day menstrual cycle as if that is the norm,* with ovulation 14 days before each period.† These lessons were rushed and hushed conversations around male and female reproduction, ovulation and insemination, during which some of the boys tittered and sneered, and girls either looked completely embarrassed or belligerent. We were all pretending they were not awkward in the least, while all the time inside we felt

* Clinical guidelines still state that twenty-eight days is the median length for most cycles, with the majority falling between twenty-five and thirty days, even though research has shown that there is greater variability than this, with only 13 per cent of cycles lasting twenty-eight days according to a study published in *Nature* in 2019. In this study, 1.4 million cycles were recorded by 124,648 anonymised users, but still the data was largely centred in the Western world.

† From studies of more than 100 fertility-awareness based mobile apps between 2014 and 2019 it may also be seen that many are still designed with the assumption that our historic understanding of the menstrual cycle is correct (ovulation 14 days before the next period). Research shows that only about 30 per cent of women reach the fertile window entirely within the days of the menstrual cycle identified by clinical guidelines – that is, between days ten and seventeen. Most women reach their fertile window earlier and others much later.

acutely self-conscious and mortified. Mind you, this was the early '90s, in a small town in India, where even though boys and girls were now studying together in mixed classrooms, we were largely regulated by our gender – or rather the sex‡ we were born with – and the narrow lanes and labels that society had pre-determined for us. We crossed boundaries and strayed from these paths but hesitatingly and very tentatively, quickly retreating to the safety of our boxes, and every act of rebellion had huge emotional costs. The fear of social ostracisation and stigma percolated our brains and bodies as warnings, the anxious refrains of 'log kya kahenge'§ drilled into us, continuously policing our actions, glances, words. So, while we might be occasionally flirting and socialising with the opposite sex, timidly and cautiously, we were also sitting flushed, hot and bothered, with red faces and furtive glances, while one of the most important lessons of our lives took place.

I remember our teacher, one Mr Dubey, who looked as uncomfortable as we did, or even more so. The boys relished his discomfort, cracking jokes, playing pranks, as he stuttered through the chapter on the reproductive system. I learned nothing more than the simple mechanisms of the menstrual cycle, the names of hormones and the basic biology of my body, but nothing about

‡ Sex refers to biological qualities characteristic of women (females) and men (males) in terms of reproductive organs and functions. Gender – a socio-cultural process – refers to cultural and social attitudes that together shape and sanction 'feminine' and 'masculine' behaviours, products, technologies, environments and knowledge, and is the identity that one presents to the world.

§ '*What will people say?*' Many such statements – both external and internal dialogue – in the book are in Hindi. I have added translations in the notes, where possible.

what really makes me work and how. Nor did I learn that women are not designed to a standard template, though my lived experience taught me any deviations from the accepted standard would be seen as an undesirable aberration, not simply the result of a genetic uniqueness. And so our peculiarities and abnormalities become an oddness for ever, the root of shame and guilt. This was the age before the internet. There was no tap of information at our fingertips.

Much of the language in these textbooks was very gendered too – and still is. It has been thirty years since Emily Martin published a landmark paper in which she first discussed how gender roles are imposed on the way reproduction is talked about in school textbooks.[2] Eggs are passive, while sperm is active. Things do not seem to have changed much. Lisa Campo-Engelstein and Nadia L. Johnson in their 2013 article also remind us of that opening scene from the 1989 film *Look Who's Talking* where we see sperm inside a woman's reproductive tract moving towards her egg.[3] The scene is narrated by one of the sperm, though we can hear some of the other sperm talking, seeking entrance through the egg membrane – a difficult task as evidenced by the lead sperm stating 'Kinda tough here'. The egg then envelops one sperm as it cries, 'Ohhh, ohh, I'm in, I'm in'. Our cultural and social values, and systemic gender norms, determine how science is taught and understood and this was never truer than in the case of reproduction. As Martin points out, the sperm was a 'knight in shining armour' and the egg was a 'damsel in distress' waiting to be rescued. The idea of fertilisation is set up as an old-fashioned courtship and romance, with gendered personalities – and roles – assigned to the gametes to bypass any awkwardness associated with the physicality of the act itself.

The role of the eggs, although proven to be as crucial as that of

sperm, has often been ignored in scientific literature.[4] The sperm 'fertilises the egg' but the egg never 'takes part in fertilisation'. Rather than 'fertilisation is the fusion of the egg and the sperm', often only a passive role is assigned to the egg, as in 'the egg is fertilised', with no agency accorded to the egg. In reality, the fusion of egg and sperm – two highly specialised gametes – to form a zygote is a series of complex physiological and biochemical processes. In order for the sperm to become 'fertilise-able' both egg and sperm first undergo a series of transformations collectively termed 'capacitation' which ensures that appropriate proteins have been released and there is enough motility for fusion to take place. When the egg and sperm first collide, the egg's zona pellucida, the extracellular coating outside its plasma membrane, fuses with the sperm. This initiates a series of processes called 'egg activation' where the egg releases calcium and zinc transients from internal stores causing fluxes in metal ions that then prevent additional sperm from fusing with the egg's plasma membrane. It also starts the early process of embryonic cell divisions.

The scientific reality that both gametes play an active role in fertilisation is never taught to us, and we start to believe that our destiny is to drift along passively as women, 'transported' and being 'swept away', submissive, docile and dutiful, and waiting to be discovered by a man. Men on the other hand, are supposed to be the real go-getters, the ones who have to take the lead and make the important decisions in a relationship, 'penetrating' and 'entering', being aggressive, determined and assertive. Linguistically, this also removes any sense of agency and autonomy from the egg, and hence the female. The sperm is the smallest cell in the human body, but most textbooks omit the fact that the egg is the largest. The sperm is almost always mentioned first, regularly and consistently, a conqueror on a 'quest' of rescuing the egg before it dies, much like an odyssey, the hero on an adventure. When

the male is mentioned first, and given more agency, this naturally confers a higher status[5] on it, and sets it up as the norm, reinforcing traditional stereotypes about men and women.

Additionally, many biology and medical textbooks[6] still use biased language[7] that creates a perception that the vagina is a hostile environment, where the sperm has to be protected from the 'acidic vagina', focusing only on the damaging aspects of the female anatomy, and not on the vaginal lubrication facilitating sperm migration. Discomfort and embarrassment around our own selves start here: our sluggish bodies, all murky, foetid and unpleasant.

Language does not exist in a vacuum, but is always a reflection of social norms. The problem with the use of sexist language in scientific textbooks is that it not only reinforces gendered roles and biases but also affects students and teachers negatively, impeding understanding of science in a non-gendered manner. Even at the level of undergraduate pre-medical and medical studies, the female biological system is presented as a comparison to the male one, often in reverse, such as 'sperm production' vs 'egg degeneration', and the amount of information is skewed disproportionately in favour of the male reproductive system. A discussion of anatomy textbooks between 1890 and 1989 showed that male bodies were always discussed first, and the female anatomy treated as a subset.[8] The imbalance in treatment, with not enough discussion of female infertility and sexual arousal, also creates an impression that the male reproductive system is more interesting or complex. There were sections in our textbooks on male sexual arousal, since erection and ejaculation are the primary facilitators for the act of fertilisation. But there was no mention of female sexual arousal, no indication that this was even a factor during sex, hence giving a clear message that it was not pertinent.

So, despite my official education, sex itself remained a mystery for

me and, I suspect, for many others. The word 'sex' was taboo, although I would roll it around my lips silently as if this was a sexual act in itself. The words that are most taboo have the most power psychologically, sociologically and emotionally. It was easy to see these black and white diagrams of the uterus and ovaries in a mildly detached way, to learn them for exams, painstakingly drawing out the diagrams neatly in pencil, labelling the parts, but still seeing them as alien. It was easy to dissociate ourselves from these mechanistic representations; it was hard to imagine that we were the sum of these parts, or even much more than that. Our desires, our childish attractions, our hormonal surges were a distraction, and I did not have time for these.

My memory of these diagrams are a bit hazy so I looked up some of the recent textbooks again as I coached some sixteen- and seventeen-year-olds in biology. The female reproductive system is often misrepresented. Even when other anatomical parts which are extraneous to reproduction (such as urethra and anus) are labelled, the clitoris is not acknowledged even when it can be seen in the diagram. In 1995, Lisa Jean Moore and Adele E. Clarke had observed the same trend in their examination of twentieth-century anatomy texts.[9] Failing to acknowledge the clitoris silences female sexuality and reduces women's genitalia to just their reproductive functionality. This also reinforces the dominant gender norms of female sexual passivity, and a woman's lack of agency in any reproductive decisions. Virginia Braun and Celia Kitzinger write in their 2010 article 'The Perfectible Vagina' that heterosexual female sexual pleasure is never placed on an equal par with male sexual pleasure.[10] Women's bodies are always defined in relation to heterosexual male pleasure rather than their own pleasure. A male orgasm is discussed in many textbooks; a female orgasm is only ever mentioned in the context of its value to transporting sperm or aiding fertilisation, views that were

held in the late nineteenth century and earlier but have since been debunked.[11] The failure to acknowledge female orgasm beyond its role in fertilisation reinforces the myth that women have much lower libidos than men,[12] that they are the ones responsible for setting acceptable boundaries, that any sexual aggression and misdemeanour on the part of a man is because of his naturally higher sex drive, thereby absolving men of responsibility for their actions. The misrepresentation in these scientific textbooks bolsters the illusion that female sexuality is only for the purposes of reproduction.

Sex education and biology textbooks have also been very heteronormative, and much of Western culture, in particular, relied on two-sex models, oversimplified and stereotyped.[13] And it still does. The complete focus on heterosexual vaginal intercourse as the route to fertilisation means that any other way is considered abnormal or unnatural.

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Infertility was never a part of the curriculum, and never a life plan.

No one really talks about struggles to get pregnant, or even pregnancy itself, in these formative texts and classes. It is as if pregnancy is the culmination, the ultimate goal and there is only paradise thereafter. What is worth discussing once a woman has been impregnated? The man's role is over, and the woman becomes the vessel and the vehicle. I learned nothing whatsoever at school about what happens to a woman's body once it becomes pregnant. I had seen pregnant women, in real life, on television and in magazines, carrying on their womanly duties, shopping, cooking, looking after their families, but never a pregnant woman working – except if they belonged to a social class where their bodies and their labour were indebted to the state in service to other, higher classes of society:

the underbelly of society, where women had to continue working even as they became pregnant because they had no other choice. In other, more economically advantaged scenarios, women rested; they moved around slowly and uncomfortably, glowing, being cherished and adored by the rest of their family. They would never go out to work. I did not know what pregnant women did for nine months. I often wondered if they just rested and slept all the way through pregnancy, then magically gave birth as easily and painlessly as I had heard in all those mythological stories that my mother had read to me since early childhood. 'And then a child was born.' That is how most stories ended, but never began.

Motherhood, and the glorification of it, has played a huge role in Indian societies: considered obligatory, a role every girl was born to fulfil, shaped by the patriarchal constructions of mother goddesses. The ancient *Upanishads* and Jyotish Sanskrit texts, filled with representations of feminine divinity, have numerous instances of rituals and prayers women were supposed to perform to beget a child. Fertility symbols and rituals are ingrained in the daily life of the Hindus. Hinduism, like Buddhism, is bursting with fertility associations. I grew up with these stories, and even though we were not religious, it was impossible to escape completely. Women were referred to as 'fertile land', and 'mother earth', but only an earth that is abundant and prolific, sprouting and flowering. In a society where women are already discriminated against, and do not hold as much power or authority, a woman who is unable to conceive is seen as being on the lowest level of hierarchy. She is an untouchable, someone who is ostracised and holds no value for her husband or her family. Infertile women are called bhanj or waanj (barren) and childless women receive taunts and hostile behaviour from others too, often being made unwelcome at family gatherings and weddings.

In many communities they are still not allowed to be present at auspicious ceremonies, because their presence is thought to cast an evil eye on a newborn child, and even result in their death.

While this ostracisation is not common in larger cities and towns any more, and so many of my friends are choosing not to have children or to delay having them, there is a large population of India that still resides in smaller villages and towns. Here talking about fertility treatments is taboo, and natural remedies and prayers are resorted to when a woman does not give birth soon after getting married.

Most of the girls among friends and extended family were dutifully prepared for childbirth from a young age, their destiny etched out for them since they were born. My mother did not want this for me, or for my two sisters. And so she never talked to us about it. That said, I do not know if she would have, in any case, because women are supposed to be born with some innate sort of knowledge. 'You will know what to do when you become a mother,' we are told. And we believe it; we believe that we know how our bodies work, because weren't we born in them? Empowering people with more knowledge and information will help them make better choices and decisions, of course, but does society really want this? Is ignorance just another way to maintain oppression of women? We are unleashed on the world at eighteen as adults, and we are supposed to just *know*. And we muddle through the years, pretending to know, making mistakes, fumbling, awkwardly hiding our mistakes and foibles, ignorance evoking shame and guilt. Feeling guilty about not knowing all, carrying the guilt close, until it is encoded as part of us. So much said but so much left unspoken. Wondering in the solitude of our agony if we would ever find a co-conspirator in our shame.