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Abstract Books about human reproduction produced for English-speaking children both construct and perpetuate processes of social reproduction. This social reproduction takes place within the context of capitalist, patriarchal and heteronormative socio-cultural norms. Information about human reproduction is 'processed' and 'distilled' for the young – it is made sterile and perfected. For the purposes of this analysis, 18 children's books were interpreted. It is within these sections that I build a theory about the transference that occurs between humans and cells. I also develop a nascent theory about the interconnectedness of disembodiment and anthropomorphism. Through the use of the constant comparative method, I conclude with a discussion of the process of sperm taking on the role of social reproducer of culture in secular books whereas God assumes this role in Christian books.

Keywords children's books, heteronormativity, human reproduction, representation, sperm

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'Billy, the Sad Sperm with No Tail': Representations of Sperm in Children's Books

It was from an early age, around six or seven, that my initiation into the intricacies of sperm representation began. My first lesson consisted of my mother and me sitting on our 'entertaining' sofa in the living room (instead of the ratty family-room couch). The sofa, a forbidden place for me and ordinarily covered with a slick and shiny plastic wrapper, was plush and inviting. But it simultaneously indicated the serious nature of our pending conversation. My mother seemed giddy, smiling at me enthusiastically as we opened the pages to a new book. From *How Babies Are Made* (Andry and Schepp, 1968), I learned that 'the sperm, which come from the father's testicles, are sent into the mother through his penis' and that 'a sperm from your father joined with an egg from your mother' – there

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were illustrations of chickens, dogs and humans engaged in different sexual positions and white sperm in pursuit of the egg. My mother said I could read the book whenever I wanted and put it in a special place for me near the couch. It was a new treasure. My earliest introduction to sperm was part of a memorable event and to this day, I can still conjure up images of sperm as white eel-shaped illustrations positioned in dogs, humans and chickens.

I share this personal story to suggest there are different ways individuals can come to know sperm. Sperm matters to human bodies and beings. It is imagined and represented in both the musings of curious children and the biotechnical manipulation of reproductive processes. At least presently, each individual body originates in part from sperm – in this much, human beings have a common sperm origin. But our understandings of sperm can be quite different as sperm is layered with meanings related to human sexuality, reproduction, life and death, health and illness, masculinity and femininity, and populations. Having had many experiences with sperm,¹ it is remarkable how a seemingly private and personal relationship is so mediated by public interactions and representations.

Many of our intimate dealings with semen are shrouded in secrecy or confidentiality such as books read with our mothers, secrets shared in a coatroom, wet dreams hidden in our beds, or reproductive services pursued in the fertility industry. Ironically, these private and secret experiences are the products of *social reproduction* – for example, children's books are mass-produced and marketed, and professionals (i.e. in the medical and legal fields) coordinate donor insemination.

Books about human reproduction, produced for English-speaking children, both construct and perpetuate processes of social reproduction. This social reproduction takes place within the context of capitalist, patriarchal and heteronormative socio-cultural norms. Information about human reproduction is 'processed' and 'distilled' for the young – it is made sterile and perfected. The stylized and sterilized representations are then narrated to children in order to teach them about '*where they have come from*'. Similar to how research scientists and healthcare providers sanitize and sterilize medical instruments for their work, knowledge about human reproduction must be scrubbed, washed, massaged, and homogenized for consumption by the young. The reproduction of the 'perfect child' is both the purpose of contemporary human reproduction and the purpose of social reproduction of these books. As these biological actions are illustrated for the young audience, so too are heteronormative values imparted to reproduce social hierarchies. Humans then, are both biologically and materially reproduced by the circulation of sperm while simultaneously socially reproduced by images and narratives about the circulation of sperm.

Children's culture is both a fantastic and a dangerous space to explore sperm's discursive and representational constructions. 'When we want to prove that something is so basic to human nature that it cannot be changed, we point to its presence in our children' (Jenkins, 1998: 15). Both children and sperm are constructed as some form of pre-socialized creatures that exist as biological and thus remain unmediated, animalistic, primitive, and naïve. The truth of human nature is embodied in children and sperm cells. And we often lament how social forces corrupt children, through an aging process.

Even though it is an interactive event that requires seemingly endless social negotiation and power transfer, human reproduction is simply assumed to be some innate biological drive that furthers progressive human evolution. In order to erase this interactive event, we point to the presence of heterosexual and reproductive urges and desires within our children. The naïve child's body, similar to the imagined sperm cell, is naturally heterosexual, monogamous, reproductive, gendered – reading these texts (children's facts of life books), we are again reminded of the bombardment with social processes that fabricate universal truth.

Through her analysis of *Peter Pan*, Rose (1998) asserts that children's literature is written by adults, read to small children by adults, and often purchased or borrowed by adults. In this process of controlling the production and accessibility of children's literature, adult writers and readers project a notion of the *child* based on the adult's desire. Rose asks us to interrogate the adult's goals and desires in children's literature with specific attention to how these desires shape cultural production. In her estimation, children's own sexuality is erased in these children's books (they are never figured as sexual and sex acts are always couched as something to happen when they are married adults). However, in my reading I see children's sexuality as implied as an eventual natural unfolding of a code or script hidden in their cells. As Rose states, adults' 'panic' that children's sexuality will be radically different than their own often fuels a great instantiation of heteronormative regulation. 'Children's fiction emerges, therefore, out of a conception of both the child and the world as knowable in a direct and unmediated way, a conception which places the innocence of the child and a primary state of language and/or culture in a close and mutually dependent relation' (Rose, 1998: 59).

My sperm in shining armor

Guided by the work of Star and Griesemer (1989), I understand semen as a boundary object – that is, the same object, semen, is brought into different arenas and its flexibility allows it to be used for local purposes and inscribed with local meaning by different social worlds (Clarke, 1991).

Meanings about semen accrue through practices and uses. For example, members of certain professional groups including andrologists (physicians and scientists who perform laboratory evaluations of male fertility), semen bank owners and operators, and reproductive scientists all depend upon constructing semen as a healthy, attractive, fertile and desirable commodity. Sex workers, on the other hand, have called semen, 'hazardous waste material' referring to its potentially dangerous or lethal quality (Moore, 1997).

Focusing my analytic lens on sperm itself provides me with interesting angles from which to interpret how sperm is 'spent', is 'reabsorbed', and how it 'swims', 'spurts', and careens, crashes, through ducts, penises, vaginas, test tubes, labs, families, culture, and politics. Groundbreaking work by Martin (1991: 500) has explored the absurdity of 'objective and true' knowledge about fertilization by revealing the ways in which knowledge is always socially and temporally situated. She explained that these biology textbooks construct tropes, which reveal the cultural beliefs and practices enacted in their suggestive images. Sperm cells become performers acting out heterosexist fantasies/realities of patriarchal culture by 'keeping alive some of the hoariest old stereotypes about weak damsels in distress and their strong male rescuers'. But we are exposed to these narratives well before we enter middle school. My desire is to go beyond the easily argued interpretation of children's facts of life books as reliant upon and reinforcing of gendered and sexed hierarchies in the social worlds. By using grounded theory analysis, I not only interpret the similarities between sperm representations in these children's books but I also incorporate outlier books as well as their differences. This includes an exploration into the processes of transference, disembodiment and anthropomorphism that emerge from these books.

Bettelheim's (1976) *The Uses of Enchantment* explores the creation, dissemination and consumption of fairy tales as processes of socialization. To read fairy tales is to transmit role models to children in preparation for social rituals, most importantly heteronormative sexuality.² But it is not only the transmission of cultural norms that children's literature provides. Sociological and historical analyses of many texts have revealed persistent and pejorative representations of subordination, inferiority, weakness, and stupidity for those who rank lower with respect to social power. Gender, racial/ethnic, age, and ability biases have been embedded in children's literature since the beginning of the genre (Ayala, 1999; Council on Interracial Books for Children, 1980; Day, 1999; Klein, 1985; Nasatir, 2002). Sex and gender role stereotyping is perhaps the most prevalent form of discrimination in preschool children's books (Kolbe and La Voie, 1981; Lehr, 2001).

Davies' (1989) seminal qualitative and post-structural study of

children's play, children's speech and children's reading practices, reveals the immersion of children in the culture, pragmatics and sanctions of 'doing gender' (West and Zimmerman, 1987). However, Davies remains hopeful about a child's alternative or even transgressive comprehension of normatively constructed texts. Children are also meaning-making beings and may interpret things differently than the way adults intend them to.

Children are subjected to the material forces of the discursive and interactive practices through which the male–female dualism is constituted as a given. They can learn, however, to see this as one form of discourse that they are free to resist if they are freed from the moral obligation to constitute themselves in terms of a polar definition based on genital/reproductive sex. (Davies, 1989: 40)

A child's ability to construct an alternate 'reading' of a text is complicated by their self-reported practice of 'adopt[ing] discourses simply in order to please teachers' and other adults (Fraser, 1990: 77). Although not the aim of this article, it would be valuable to interrogate children's roles in the production of their own culture and how children do transgressive reading of these 'heterosexual manuals'.

Moving beyond the self-identified fairy tales, which are clearly fictionalized and fantastic, children's facts of life books make different claims under the rubric of 'science'. Perhaps in maintaining a fairy tale motif, children's books can ease into science, a marker of maturity, while at the same time preserving a notion of the precious innocence of childhood. There is a more profound assertion of the pre-eminence and 'naturalness' of reproductive development and participation. Nevertheless, these books also communicate norms, sanctions and rewards about human reproduction to children aged four to ten. As demonstrated later, these books are moral tales with protagonist heroes and damsels and villains culminating in a happily-ever-after ending. Dorothy Broderick,³ a librarian and renowned intellectual freedom advocate (co-founder of *Voice of Youth Advocates*), addressed the contents of children's facts of life books in her 1978 article 'Sex Education: Books for Young Children' which are perhaps the social prescription for biological fairy tales:

Sex Education books should impart accurate information and healthy attitudes. Two essential attitudes must come through loud and clear: (1) the sexual act that leads to a baby being created should be connected with human emotions of loving and tenderness the man and woman feel for each other and make clear the commitment they have to each other and (2) the book should convey that having a baby is a conscious decision on the part of the couple and not an inevitability of the sex act. (Broderick, 1978: 160)

Although heroic in her fight against the repressive and omnipresent

threat of censorship, these ‘essential attitudes’ have become the backdrop of almost all children’s books about reproduction.

However, this monolithic origin story is not always true, and children who do not enter the world this way could be confused or shamed by reading it. It is difficult to deny the ideological statements embedded in this prescription for sex education children’s books. In these books, heteronormative, committed, intentional sexual relations are presented as a necessary context when representing reproduction. When I began my research, I was interested to see if the pace of technological innovation and changing methods of conception has amended children’s books’ contents.

After a brief discussion of my methodology, I review the state-of-the-art scientific construction of sperm. My analysis continues with an exploration into the different cultural, social, economic and material contexts of sperm representation in my sample of children’s books. I offer my theory of the implications of children’s literature, which renders and describes sperm as heroic. Through a more detailed comparison of two types of books, I suggest that secular and Christian children’s books differ in their approach to narrating and imagining reproduction by placing agency in different sources. This is part of a larger project about the multiple constructions and productions of semen in different industries, such as sperm science (Moore, 2002), DNA forensics, and semen banks (Moore and Schmidt, 1999). These industries do not exist within a vacuum, and as a sociologist, I work to contextualize these industries. They are all part of a contemporary moment in which men’s power and status are being questioned and reconfigured (and also reproduced and maintained). Interpreting different social worlds’ portrayals of sperm, I work to reveal the rules by which sperm becomes good and bad, productive and destructive. In so doing, I hope to promote the field of gender and sexuality studies by extrapolating from semen how contemporary western men are depicted as good and bad.

Methods

For the purposes of this analysis, 18 children’s books were interpreted. The books chosen for this examination were selected based on the following inclusion criteria:

- written in the English language
- representation of sperm through narrative or visual images
- hard copy, text-based
- audience – intended for children aged 4–10.

This study does not claim to be exhaustive nor representative of all children’s books on human reproduction. However, I did work to

incorporate a range of variation based on the dimensions of publication date (range: 1968 to 2001), gender of author (M 6 /F 10 /Both 2), type of illustration (3 photography, 11 cartooning, 3 painting, 1 pen and ink drawing) and stated ideology (4 religious and 14 secular). Each book was read and analyzed by a single coder. All the books, sperm representations and narratives about sperm were assigned categories (e.g. scientific, humorous, religious) and dimensions (e.g. anthropomorphized, non-human/speaking, non-speaking, personhood). Analytic memos were written to explore these categories and dimensions. To check coder reliability, a second analyst recoded the books.

These data were then analyzed based on a modified grounded theory methodology. According to Strauss, a key developer of grounded theory, it is through one's immersion in the data that these comparisons become the 'stepping stones' for formal theories of patterns of action and interaction between and among various types of social units. Grounded theory is a deductive process whereby analysts incorporate as much data as possible in order for the formative theories to be used as deductive tools. This tool, the grounded theory, ultimately aims to incorporate the range of human experiences in its articulation and execution.

'Theory evolves during actual research, and it does this through continuous interplay between analysis and data collection' (Strauss and Corbin, 1994: 273). My methodology combines grounded theory techniques with content and discourse analysis as a way to develop theoretically rich explanations and interpretations of semen. Content analysis is the study of *social artifacts* (Babbie, 1989), which are used to make inferences to the larger society (Weber, 1990). Similar to other qualitative research, content analysis can be *exploratory* and *descriptive*, enabling limited insight into why significant relationships or trends occur. The aim is not toward standardization of facts into scientific units, but rather an appreciation and play with the range of variation of a particular phenomenon. Outliers, books that do not fall neatly into the collection of the most common themes and concepts, are useful because they enable analysts to capture this range of variation and dimensions of the concepts. This process builds an understanding of the diversity of human experience.

For the purposes of this article, I have queried the following areas:

- What are the contexts in which sperm may be represented in children's books?
- What are some of the underlying ideologies that can be extrapolated from these contexts and representations?
- How do children's books represent the state-of-the-art scientific innovations in sperm science? In other words, if science constructs a 'truth' of sperm to be mostly polymorphic, often non-motile, and sometimes

dwindling, are children's books incorporating these differences in their text?

- Are assisted reproductive technologies considered as ways to become pregnant?
- Are deformed or slow sperm represented at all? How?
- Are there 'gay sperm' or other non-normative, renegade sperm represented in children's books?⁴
- How gendered are textual and visual narratives of sperm?
- Is there male bonding or bullying in sperm representations?

One of the significant contributions of Davies' study is exploration of the difficulty of using an adult understanding of the world, as lens to interpret a child's understanding of the world. 'Meanings which seemed to me to be readily available to any listener were not necessarily readily available to [children]' (Davies, 1989: viii). Children's books, perhaps more so than other texts, are polysemous. Because I am no longer a child, I do not have access to that interpretive angle in my own research. As Buckingham (1990) articulates,

Interpreting any children's program, and perhaps particularly one aimed at a very young audience, is fraught with difficulties. As adults, we are not the intended audience; and as such, there is a significant risk of 'misreading', taking things too literally, or simply lapsing into pretentiousness. It is all too easy to dismiss such programs as boring or simplistic, or alternatively to find them cute or anarchic or surrealistic, responses which could be seen as characteristics of how adults relate to children generally. The danger here is that we end up simply imposing adult categories, and thereby making unwarranted assumptions about viewers. Spotting the intertextual references and symbolic associations or alternatively 'hunting the stereotypes', are easy games to play; but they tell us very little about how children themselves interpret and relate to what they watch.

Thus, one limitation of my research is that it is not an empirical account of how children experience and integrate these texts into their understandings of the human body and social relationships. A robust understanding of how children, as social and cultural agents, interpret the polysemous nature of these texts would require detailed analyses of how children consume these images.⁵

A brief scientific biography of *normal* sperm

Traditional fairy tales are essentially fables transmitting the norms of social reproduction. These stories provide a vision of how lives begin, progress and end. As normative structures, fairy tales are scripts of how we should live and reproduce culture. Many contemporary western stories about human reproduction emerge from a scientific context but similar to fairy

tales they are just as rhetorical. These books are reliant upon the fields of biology, anatomy, gynecology, and urology. Clearly, when labeling and narrating reproductive processes, authors and illustrators use scientific terminology such as 'sperm', 'egg', 'ovum', and 'conception'. Furthermore, the images, whether rendered through photography, cartooning, or painting, are knowable through the use of scientific technologies such as electron microscopes, dissection, and x-rays. This scientific context is important to acknowledge because it is the children's books' reliance on science that bolsters their contents as being objective and truthful. But just because there is a claim of scientific relevance and objectivity does not mean that these stories are not also fantastic and reveal prevailing moral and social imperatives. Indeed, what is remarkable about these books – published over a 40-year span – is the homogeneity of social messages reiterated through the child-appropriate scientific lens.

Before I begin my analysis of these children's books, it is important to review briefly the widely accepted contributions of contemporary reproductive endocrinology as a baseline for scientific interpolation translated into these 'child-appropriate' texts. Sperm, and more specifically semen, is a substance essential to human reproduction. Determining the *normal* semen and sperm has been the work of scientists for many centuries in response to experiences of male infertility (Moore, 2002).

Sperm count, motility and morphology are the scientific and clinical parameters used to categorize the relative health of a man's fertility. Sperm count is the number of sperm cells in a quantity of semen. A concentration of more than 48 million per milliliter is considered normal (Guzick et al., 2001). Some men who have lower sperm counts can experience fertility but it is assumed that they rank highly on the other measures. It is often said in the fertility industry that the quality of sperm is more important than the quantity.

Motility⁶ is the movement of sperm cells within semen. A motility of greater than 63% is considered normal. Morphology, or the shape of sperm cells, must be greater than 12% of normal morphology (Guzick et al., 2001). During the 1930s, G.L. Moench sketched out 50 variations in sperm morphology with names such as, microsperm, megalosperm, puff ball type of cell, and double neck. No longer do we simply have to contend with the 50 variations of sperm cells represented by Moench, we now must understand sperm as dissected into distinct parts: cytoplasm, head, neck, mid-piece and tail. Spermatogenesis,⁷ the process by which the primordial stem cells evolve into spermatogonia, is broken into various stages to identify the abnormality in the process that leads to male factor infertility (Spark, 1988).

If you were to examine microscopically a sample of semen from most men, you would find that the sperm are polymorphic; there are several

different shapes and sizes of sperm cells. Also some sperm would be moving in haphazard directions while others would be stationary. 'Ideally', a sperm cell 'should' have an oval head, with a connecting mid-piece and a long straight tail and move in a forward direction. If too many sperms are abnormally shaped (round heads; pin heads; very large heads; double heads; absent tails), this means the sperm will not be able to fertilize the egg. As in most human endeavors, scientific methods attempt to normalize human variation and create standards. Based on this brief scientific synopsis of sperm, and given the great range of variability of sperm's shape and functionality, I am curious about the accuracy of representations of sperm in and across many venues.

Analysis

There are five different contexts I explore in this analysis. They are:

- the biological continuum
- setting the mood
- the site of reproduction
- images of conception
- the spermatoc hierarchy

It is within these sections that I build a theory about the transference that occurs between humans and cells. I also develop a nascent theory about the interconnectedness of disembodiment and anthropomorphism. In this article, I use the term *anthropomorphism* as the act of attributing human forms or qualities to entities, which are not human or attaining 'personhood' (or fully human, for sperm and egg in homo sapiens are 'human'). Children's book authors anthropomorphize nearly everything from letters of the alphabet to cats in hats to Bernstein bears. Specifically, anthropomorphism is describing sperm or egg cells as having human form and possessing human characteristics such as jealousy, competition, or love. This anthropomorphism of sperm and eggs offers a way for sperm or eggs to dance their way into children's imaginations. *Disembodiment* is the process whereby body parts and organs are removed from their physical and somatic contexts and viewed as independent of the human forms from which they come.

Within these children's books there is a relationship between *disembodiment* of reproductive owners of the means of production (the humans) and *anthropomorphism* of workers of reproduction (the sperm and eggs). Through the use of the constant comparative method, I conclude with a discussion of the process of sperm adopting the role of social reproducer of culture in secular books whereas in Christian books God assumes this role.

The birds and the bees: biological continuum

A heuristic measure used to situate a majority of the books' subject matter places humans in a *biological continuum* of flowers, amphibians and mammals. Many books precede the discussion of human reproduction with an exploration of the greater realm of nature and hence 'natural' relationships. Other species, such as flowers, birds, bees, and dogs all 'fit together' – a description used in several books as a way to indicate the predetermined way that 'beings' intuit how to reproduce. Universally books present idealized images of biological exemplars with no imperfections. Furthermore, there are virtually no images of infertility, disease, mutation, homosexuality, auto sexuality, sexual violence, or coercion.

In many children's books, the first few pages are about the courtship and performance of all species. 'Love starts as a twinkle in two people's eyes, warming the hearts of both gals and guys. Animals, too, feel this wild attraction; it makes the males spring into action. Once they've picked a special sweetheart, then dazzling displays of affection start' (Davis, 2001: 14). After enacting some natural role of performance, 'fitting together'⁸ culminates when a baby is achieved. In the end the perfect baby is on a pedestal with a cheering, delighted audience. This is the grand finale where the baby is the epitome of achievement for the two parents. The treatment of a child's birth as an achievement, albeit natural, is echoed in many children's books. Is this supposed to make the child (reader) feel good, that they've done something remarkable already by being born? Perhaps this ties in to the experiences of making children feel special when we teach them about heterosexual reproduction, as in the anecdote at the beginning of this article.

Setting the mood-creating fertile ground

Emotions are used to separate entities on the biological continuum – flowers differ from animals because humans feel (and apparently so do sperm cells). The books work to set the ambience or the context under which reproduction should occur.

- (a) Emotional context: Heterosexual, properly gendered humans are in love, in a committed, monogamous relationship (there is no question of paternity). They are intentional actors guided by their intense feelings.
- (b) Physical context: These actors have appropriate anatomical equipment. They are potent and fertile bodies that fit together, particularly in the missionary position.
- (c) Material context: The humans perform their sex act in a home in a bed (often decoratively detailed).

One book (Mayle, 1977) even depicts a sperm in a tuxedo entitled *The*



Figure 1. From Peter Mayle (1977) *Where Did I Come From? The Facts of Life Without Any Nonsense and with Illustrations*. All rights reserved. Reprinted by permission of Citadel Press/Kensington Publishing Corp. www.kensingtonbooks.com

romantic sperm. The caption reads: 'How could an egg resist a sperm like this?' (Fig. 1). This exceptional anthropomorphized sperm cell clearly indicates the contexts of human reproduction – emotional: it is seated on a heart and blushing and smiling in a suggestive fashion; physical: it is capable with senses (eyes, nose, mouth, hands, tail); material: it is classed and cultured with a top hat and a bow tie and 'tails'. The sperm cell becomes a character to root for in his Gatsbyesque pursuit of goals and desires.

There is also a concomitant moral tale of the specialness of the sex act, a personal and intimate connection not to be shared with just anyone. Weddings are illustrated in several books (Baker, 1990; Christenson, 1982; Hummel, 1982; Nystrom, 1995; Westhemier, 2001). Transference between sperm and egg cells and human beings is also very evident in these books. For example, just as the man and woman are in love, so too are sperm and egg. There is a process whereby the emotions and agency of the human reproducers are transferred to the materials of reproduction.

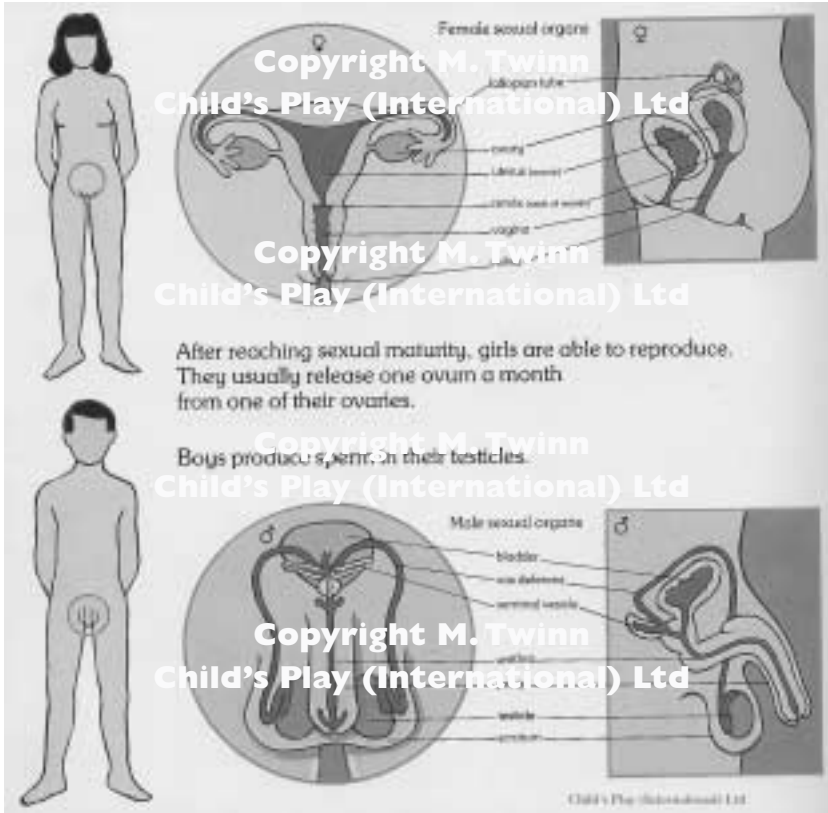


Figure 2. Reproduced with kind permission from Child's Play (International) Ltd from *The Birds and the Bees* © M. Twinn, 1990.

These cells become the stand-ins for the mom and the dad since sperm and eggs are appropriately gendered. Sperm is depicted as blue and eggs are colored pink. Sperm are identified as 'him' and 'his'. Furthermore, when sperm speak to one another, they use male terms for male bonding: 'Come on boys!' (Cole, 1993). Eggs are also gendered with false eyelashes, perfume, make-up, and hearts.

Material site of reproduction

A majority of the books perform an act of *disembodiment* by placing the site of reproduction in a centralized place often circled or dissected from the human body. We are taught that human reproduction occurs not in the head, not in the breasts nor the feet – rather it is centralized only in the penis and uterus represented by disembodiment in many ways (Fig. 2). Uteri and penises are both unencumbered by the complexity and messiness

of the human bodies (and psyches and desires) from which they emerge. However they are now seen as parts that function as closed systems. Maps of sperm reproduction teach readers about sperm's journeys through detailed directions and highlighted pathways. They are illustrated with names of places, directions and legends (Brown and Brown, 1997). Notably body parts are not anthropomorphized – but treated as an objective 'environment' for the egg and sperm. The children's books' imagery and text switch back and forth from the disembodiment of human body parts to anthropomorphizing the sperm and egg where cells are given human subjectivity, personalities and scripts. The audience is asked to now switch identification from the human producer to the sperm as the agent and the egg as the damsel. There is even a blueprint for rational production of the quintessential sperm complete with smiling face and tail in motion. This image entitled 'sperm plans' provides measurements of sperm and evaluative comments such as 'what a swimmer!' and 'Likes eggs' (Harris, 1999: 34).

The site of reproduction also provides a context for capitalist principles of production and competition. These books are in the process of naturalizing capitalism. One book figures the industrial imagery of semen and sperm cells as being factory made (Harris, 1999). Maps and directions offer more precision for the factory to mass-produce the best sperm. The man's body is a factory of mass production whose purpose is the further production of labor power (under a capitalist system). This is further illustrated by a drawing of male reproductive system where there are colored arrows that show how the sperm travels. Testicles are labeled with 'millions of sperm are made here'. The sperm race through a factory of complex machinery and fueling stations. Also, a competition metaphor is used to show the sperm moving and talking about their feelings and actions. Getting there first is a theme in many books (e.g. Davis, 2001: 25), where the race motif is made explicit. The race 'on your mark, get ready, get set . . .' is narrated by some sperm (Harris, 1999: 22). Sperm also inform one another of their losses, 'what's happening, is we just lost the race' (Harris, 1999: 36) and turn to swim away from the victor.

Furthermore, there is clear imagery of a mechanized factory of mass production used around the creation of the sperm cells. This is distinctively male, as the same process is not used to illustrate the creation and production of an egg. Parents are responsible for the reproduction of cultural capital. Through competition for scarce resources, parents must prepare in the capitalist reproductive cycle – parents are owners of means of production and the sperm and eggs are the workers. There are rules, a pathway, a sense of scope, a sense of humor – office culture, overcrowding. The social reproduction of capitalist production is illustrated through human reproduction (Martin, 1992). The actors are the raw materials of

reproduction (the sperm and egg) wherein we are given blueprints to create our own competitive and alienated labor force.

In many books, there is a recurring theme that suggests the closer and closer we get to the moment of conception, the more and more disembodied the human actors become. Simultaneous to this disembodiment, agency, personality and subjectivity are now fully transferred from the human producers to their sperm and egg cells (anthropomorphically illustrated and narrated). The sperm and egg are made to stand in both visually and textually for human beings.

Swimming to action: images of conception

The claims of the historical legacy of sperm's and men's crucial, necessary and even exclusive role in human reproduction have been well documented and analyzed (e.g. Laqueur, Correia-Pinto). Children's books may play a part in keeping this interpretation of sperm's centrality alive. Some of the text echoes theories of men starting life and not needing an egg, rather just a womb. Historically, this is the representation of a male producing homunculus in sperm, to be deposited fully formed into a female body for incubation. 'A spurt of quite thick, sticky stuff comes from the end of the man's penis and this goes into the woman's vagina. Well, believe it or not, this sticky stuff is how you and I and all of us started. It's called semen, and in the semen are sperm' (Mayle, 1977).

In many books, sperm are portrayed as having consciousness, self-reflexivity and abilities to communicate with each other. Sperm are also happy and willing to do what they are programmed to do. Sperm are integral to insemination – the sperm cell is portrayed as having a purposeful goal and intentional action/agency. They have feelings as well as agency. Perhaps yielding to the anti-sex pressures to make 'age appropriate' literature, sperm and eggs are only depicted in relation to a baby. There is no question that ejaculate exists in other contexts.

- Image of sperm going to the big sun like light of the glowing egg (Hummel, 1982)
- An image reminiscent of the Jedi knight racing toward the death star (Blank, 1983)
- Dr Ruth's pop-up book for three-dimensional effect (Westheimer, 2001)
- Image of sperm racing to the finish line where an egg with a heart above her is waiting. Valentines-type illustration with hearts and egg on a red tasseled pillow is used to portray the fragility of the egg (see Davis, 2001)

Furthermore there is a preponderance of narratives describing the exceptionalness of the one sperm that gets to fertilize the egg. Other than primping and batting eyes to be attractive to the sperm, eggs typically are

passive. As with many content analyses, a brief word sampling comparison of descriptors used for sperm cells reveal a preponderance of verbs and masculine terms: ‘faster’, ‘swims’, ‘hurries’, ‘digs’, ‘wagging’, ‘fertilize’, ‘strong’, ‘healthy’, ‘wow’, and ‘yahoo’ versus passive nouns and feminine terms for eggs:⁹ ‘waits’, ‘travels’, ‘beautiful’ and ‘is released’.

These descriptions are also useful for depicting the sperm as active.

Mommies do have eggs. They are inside their bodies.

And daddies have seeds in seed pods outside their bodies.

Daddies also have a tube. The seeds come out of the pods and through the tube.

The tube goes into the mommy’s body through a hole. Then the seeds swim inside using their tails. When the seeds are inside the mommy, they start . . . the Great Egg Race. (B. Cole, 1993)

The father’s sperm are even smaller, so small you can see them only with a microscope. Sperm from different animals have different shapes, but they always have heads and tails. The tail moves and helps the sperm swim fast. (Andry and Schepp, 1968: 15)

There are outliers for these representations that stand out as significant. As a sign of the feminist movement or perhaps a commentary on recent innovations in reproductive endocrinology, Harris’ book states ‘Scientists have discovered that if an egg is in one of the tubes, a chemical in the liquid around the egg attracts one sperm out of the two hundred sperm – just like a magnet.’ However, unable to shake off the gendered, heteronormative context, this text is accompanied by an illustration of an egg, coiffed with lipstick and blush, putting on perfume and a sperm speaking with hearts in his text bubble:

One sperm speaking to another:

‘I feel a strange attraction.’

‘What’s around the corner?’

‘See anything yet?’

‘I feel like I’m being pulled by a magnet.’

‘Oh my! Look at that!!’

The Harris (1999) book is also unique in that it is the one book that incorporates Assisted Reproductive Technologies into the normative reproductive narratives. When the sperm is not rendered as agentic, it is the scientist who stands in to get the sperm to function properly.

Scientist as matchmaker: ‘In fact, scientists have figured out several ways for an egg cell and a sperm cell to meet’ (Harris, 1999: 38).

Scientist as pimp, or God: 'Doctors can place sperm into the vagina or uterus with a syringe – a tube like an eyedropper. The sperm can then swim to the Fallopian tubes where a sperm can meet and join with an egg. Or doctors can put an egg and a sperm in a special laboratory dish where egg and sperm can meet and join together' (1999: 38).

Scientist as club owner, or swinging single: 'There are times when a man and a woman have sexual intercourse, but do not wish to make a baby. Scientists have invented ways called 'birth control' that can keep a sperm and egg from meeting. And if a sperm and egg do not meet, the beginning cells of a baby cannot start to grow' (1999: 38).

'We was robbed': spermatic hierarchy

As the biological sciences attest in the foregoing passages, in children's books not all sperm are created equal. Embedded in sperm imagery from cartoon books are smiling, competitive, or befuddled sperm talking to one another and presumably the audience. These sperm evaluate themselves and others based on their ability to follow directions, swim quickly, navigate the difficult terrain, and eventually merge with the egg. In children's books, the measure of the better sperm is loosely based on motility, not morphology.

From this subset of the sample, secular books that anthropomorphize sperm ascribing language skills to the cells, we learn that:

- sperm have desire
- sperm are in a race
- sperm are competitive
- there will be one and only one winner
- there is a sense of entitlement and unfairness
- there is a sense of empowerment
- action and speed are good; fatigue and slowness are bad

For example, one author states how 'For most of the time, though your sperm are inside your body, waiting and twiddling their thumbs. What they would really like to do is get out.' (Mayle, 1975: 26). Sperm are depicted with racing stripes and numbers on them, and state 'Gotcha' and 'We was robbed' as they are racing en masse to the egg (B. Cole, 1993: 24). There is also a sense of male bonding in that sperm cheer each other on. 'Come on, boys' appears in three of the books as a rallying cry from the masses of sperm in pursuit of the egg (B. Cole, 1993; Smith, 1997: 5).

Present even in the books that do not explicitly anthropomorphize sperm, there is a quality of exceptionalness to the sperm that is able to swim and fertilize the egg. There is a notion that out of the millions and millions of sperm that exist, the one that actually 'swims' to join with the egg is important. This distinction of being *the* sperm that gets to

inseminate the eggs is noted almost universally (e.g. Andry). Hierarchies among men are also naturalized along the way through the naturalization of competitions based on physical strength, endurance and speed as the natural – and adaptive way to figure out hierarchies among boys and men.

'It's all God's plan'

While reading these children's books, I was struck by both the similarities and the distinct differences between secular books and those that labeled themselves explicitly Christian. Using a component of grounded theory, the constant comparative method, I continually compared a particular incident (using the categories mentioned earlier) from data from secular books with another incident in the data from Christian books in terms of similarities and differences. Similar to secular books, Christian books do maintain an integration of the biological continuum and (not surprisingly) a heteronormative context for human sexual relations. Although not all books are as explicitly Judeo-Christian as Ruth Hummel's (1982), *Where do Babies Come from? A Series for the Christian Family*, images of God's plan of heterosexual coupling and matrimony abound in imagery of weddings or brides and grooms.

'Is that when they get married and they're a bride and groom and everything?' Suzanne put her ribbon on her hair and pretended it was a veil.

'Yes, God is happy when two people decide to get married and start a life together with His blessing,' Mother continued. 'He made them for living together and showing their love to each other all their life. At special times they like to hold each other very close. God made their bodies so they fit together in a wonderful way.'

'At those times the sperm from the man's body can go into the woman's body. Sometimes a sperm and an ovum join in the mother's body. That is when a baby begins.'

Despite these similarities, a remarkable and striking difference began to emerge – Christian books do not represent sperm in an anthropomorphized fashion rather, they are much more scientific (less animated or anthropomorphized) than secular books. It is notable that this Christian approach – by its silence – constructs heterosexuality as problem-free, just as much as the secular ones. There is no room for people who are unwilling or unable to have this kind of heterosex. As outlined earlier, a trend in secular books is for human reproduction to be disembodied and broken down into bodily organs as centralized sites of reproduction. Sperm and eggs are transformed into happy characters with smiling faces. The knowledge of social reproduction is transferred to the emotional and anthropomorphic sperm and egg. Readers are asked to identify with new

protagonists of sperm and egg and this transfer of knowledge is complete. This anthropomorphism is the crux of how children learn to identify with the good guy – the sperm – that is,

- properly gendered male
- happily mass-produced
- a diligent laborer
- heterosexual
- happily competitive, but a good sport
- intentional
- speedy
- a winner

But Christian books do not require these characters (dressed or talking) because the normative values come from God. There is complete disembodiment during the site of reproduction but no anthropomorphism of the sperm and egg. Agency does not rest with the sperm, nor are the sperm or egg depicted as proxies for humans. Rather, agency is wholly relegated to God, not sperm – ‘It’s God’s wonderful way’ (Christenson, 1982: 28) and ‘Yes, that’s the way God planned it! Both mother and father have a part in making the baby, but God has the biggest part’ (Hummel, 1982: 22). Therefore there is no transference as the marker of the movement of agency from one entity to the other. God is agency. Heteronormativity does not need to be taught through happy smiling tadpoles, it is transmitted through an all knowing, everywhere God. This reinforces a classic Christian interpretation of social problems – ‘love the sinner, hate the sin’. That is, there are no bad people (reverse-anthropomorphized as sperm in this case), just bad behaviors. Sperm does not get ascribed with all the human achievements and failures. The human embodiment is perfect because it comes from God; it is just the behavior that is wrong (homosexuality, promiscuity, infidelity).

Conclusions

Children’s books about human reproduction attempt to explain biological processes to a young audience. However, they are also socially reproducing normative guidelines for gender display, sexual orientation and citizenship. Adults who write, publish, read, control, or deny these books are part of the interactive process to train potential reproducers. Through the creation of the sperm and egg as characters, many children’s books anthropomorphize these entities presenting personalities for easy identification. It is open to empirical analysis how successful these books are at naturalizing gender, sexuality, relations of production, and divine intervention for children. By relegating the entire ‘natural order’ to God, Christian

children's books are able to code prescriptive social norms as God's will when describing human reproduction. Remarkably, secular children's books, even those that strive to be feminist, rely on the sperm and egg, in eerily stereotypic ways, to transmit normative socialization for gender, sex, and sexuality development.

Children's books are only one enterprise that produces representations and meanings of human sperm. Sperm is almost universally viewed as the bringer of life within children's books. These books neglect to mention that sperm has also been construed as the bringer of death (forensics, AIDS/HIV and sex workers). It seems to me there is traffic between the notions of semen and the categorization of men. Again and again, children's books, semen bank enterprises, sex workers, forensics, scientists, and pornographers socially produce semen and sperm in stylized ways that draw on existing tropes of masculinity while simultaneously constructing new ones. Sperm enterprises, whether religious, scientific, sexual or popular create partial representations of sperm which rely on existing beliefs about power, hierarchies and dualisms. For example, lively semen and men are depicted in children's books as:

- loving, heterosexual, monogamous, intentional, God-fearing
- pursuing reproduction, fertile, productive
- fathers and daddies
- non-violent

Deadly semen and men are depicted in the semen industry and forensic practice as:

- homosexuals, bisexuals, men who have sex with men
- men of color
- unfaithful men, sexual predators

Unfortunately many of these representations are taken as a version of a singular truth about biology and destiny. We must remember that these are not arbitrarily produced representations and we must work to reinsert social analyses of the belief systems that these images and practices re-create and perpetuate.

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Notes

1. In addition to my academic investigations of sperm, I have also served as the President of the Board of Directors for The Sperm Bank of California in Berkeley, California from 1991–1996.
2. What I mean by heteronormative sexuality is the processes by which heterosexual normative relations (that is, genitally born boys who become men pair up with genitally born girls who become women) are produced as natural and reinforced as transparent and unambiguous positions. Heteronormativity is hegemonic in that refines and reproduces itself through using socio-cultural ideological forces to convince individuals of its inherent naturalness and thus superiority. Social institutions that relegate various others as sex, gender and/or sexual outlaws multiply construct heteronormative sexuality.
3. Dorothy Broderick was famous for stating that every library in the country ought to have a sign on the door reading: 'This library has something offensive to everyone. If you are not offended by something we own, please complain.'
4. It is from thinking about these different sperm morphologies that led to the title of this essay: 'Billy, the Sad Sperm with No Tail'. Others considered were 'Why Sammy Can't Swim', 'Ten Million Aren't Enough: A Counting Book', and 'Not Too Fast and Not Too Slow'.
5. Due to the convergence in North America of a culture of sexual repression and a construction of childhood as 'pure innocence', it would be very difficult to gain access to a sample of young readers under 12. Indeed, since academic researchers must get Committee on Human Subjects Research approval from their college's Institutional Review Board, it is likely that many researchers (including this one) would get derailed in endless bureaucracy and revisions of forms.
6. Determining motility is a fairly complicated process that involves a four-tiered system of rank. The World Health Organization uses an A–D system: Grade A sperms are those which swim forward fast in a straight line, Grade B sperms swim forward, but either in a curved or crooked line, or slowly, Grade C sperms move their tails, but do not move forward and Grade D sperms do not move at all. Sperms of grade C and less are considered poor.
7. It takes approximately 70 to 76 days for sperm to be produced from the first stages of spermatogenesis to last moment prior to ejaculation.
8. 'Men's and Women's Bodies are made to fit together. The man puts his penis into a woman's vagina and releases his sperm near her egg' (Davis, 2001: 28).
9. Eggs are described much less frequently than sperm.

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