

One sex or two? Kathleen Stock on Thomas Laqueur

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Abstract. I argue that Kathleen Stock omits crucial information in her 2021 book *Material Girls*, when she debates with Thomas Laqueur, information which enables readers to appreciate the excitement in relation to his historical discovery. I argue further that this is more than just a communicational problem. I then present a reason for rejecting the theory Laqueur uncovers: the initially strange theory that there is just one sex. But I argue that the one sex theory is unlikely to be killed off by this reason. I also raise a concern about Stock's interpretation of Mrs. Gaskell's *Cranford*. The writing style here is influenced by an essay by a medic.

An uneducated man. There is a character who appears in some old essays and I wish to extract them from there and enter them into a new context. Here is the character being referred to in a nineteenth century essay: "Betaking ourselves, therefore, to the uneducated man, let us find from him, if we can, what lies at the bottom of his notion of moral responsibility." I wish to take this uneducated man and transport him to the present. Let us teach him that the world is round at least, and then call him the plain man. I don't know if the person referred to or kind of person was actually uneducated, or whether he was merely called that because he did not know Latin and Ancient Greek, and I don't want to insist that it is better in general for him to be educated. It is better for my purposes here for this character to have some knowledge.

I shall not be interested in our plain man's notions of moral responsibility, but rather of the sexes. And I shall be interested in them for the mere purpose of communicating certain

points and criticizing a critic.¹ The critic is Kathleen Stock; the target of criticism is Thomas Laqueur, or at least a target. Have readers heard of Laqueur? In my mind I associate him with another “social constructivist about the sexes,” namely Judith Butler. (They work at the same university. She is much more famous and her ideas are much more discussed. The large difference in fame and discussions-levels is strange to me.²)

To begin with, I shall use the plain man to help introduce a theory held by past scientists and brought to light by Laqueur, namely the one sex theory. Then I shall present a question that our plain man has in relation to this theory: is there some piece of evidence that compels any sensible person to abandon this theory in favour of our familiar way of thinking? I observe that in her recent book *Material Girls* (2021), Stock omits the information that leads the plain man to pose the question, or re-pose it, and she does not answer it, despite strongly rejecting the one sex theory.

I look into the question. When pursuing the question, our plain man will largely disappear from sight and a puzzle will be presented, of interest to philosophers of science and probably to others. The paper is intended to both serve as a preliminary guide to one sex theory versus two, and also to present warnings about Stock’s stimulating book. Regarding this latter aim, towards the end I also consider some material from her book to do with the novelist Elizabeth Gaskell.

Laqueur’s claims. *Laqueur’s historical claim.* Laqueur tells the plain man, “Scientists before the eighteenth century thought that there was just one sex. They were one sex theorists!” (His claim in my words.)

¹ I may not offer him a much better deal than he was getting in the nineteenth century.

² The French philosopher Gilles Deleuze famously does not accord value to discussion. “D is for Discussed.”

The plain man's obvious objection. Our plain man responds by asking, “How could they think that? Were they stupid? Could they not see the many and large differences in male and female sex organs? Were they all blind? This is surely a false claim about what past scientists thought!” At this stage, the plain man’s target is Laqueur’s history. The plain man thinks that the one sex theory is so obviously false that Laqueur’s claim about scientific history is surely also false.

Rejecting the objection. If we take members of a single sex, their sex organs differ in such qualities as the size of a certain part, the shape, and the colour. What these past scientists did was posit another difference within a single sex, which is unfamiliar to our plain man. There can be “inversions,” if that is the right word – it sounds suitable and is used (Laqueur 1986: 5). So what our plain man would call the female reproductive system³ is actually, for the one sex theorist, a version of the male system but inside-out.⁴ (Inside-out trousers are still trousers, and inside-out sex organs of a sex are still sex organs of that sex.) Where are the testicles in this body? “Those are inside. Science books today call them ‘ovaries.’ For science books today, a pair of testicles is one kind of thing, a pair of ovaries another! The scientists of times past thought that a male’s testicles and a female’s ovaries were instances of the same type of thing. And one term was used for both.”

Thus when faced with evidence that leads the plain man to say, “That is a person of another sex,” the one sex scientist of times past had a way of coping with the evidence, by saying, “this person’s system of sex organs is just an inversion of your system.” And that is a clever move. You probably would not think of it. (“It only seems clever without information about the surrounding context!” I am passing over a historian-scientist who says that.) In light of the move, it is no longer unbelievable that past scientists held the one sex theory, and

³ I alternate between writing of reproductive systems, as textbooks do, and sex organ systems. There may be some issue here, which I am not looking into.

⁴ I began by talking about parts of a reproductive system, but from my reading the notion of being inside-out is applied to some parts and also to whole systems.

excitingly it is not immediately apparent what is wrong with the theory. I wonder whether, for an expert scientist, the task of evaluating it is like something from a nightmare examination – nothing like a normal question.

Laqueur's under-determinism claim. So is there only one sex or are there two or are there more? Let us conveniently confine ourselves to one versus two.

Here is a thesis in response to the clever move:

(Sex theory under-determination thesis) The one sex theory and the two sex theory both cope with the relevant evidence. There is no evidence that determines a winner in this debate.

I shall take this to be Laqueur's position, but I am avoiding some of his claims because I do not wish to raise distracting questions for the plain man and for myself, given this new question: which theory is better?⁵ We are no longer so focused on what happened in the past now.

A question and an omission. *A question.* I wish to make a complaint, but I shall set a scene first because it will be useful later. Let us imagine that our plain man likes to watch a debate. And he has two choices, debate A or debate B:

(A) The earth is flat versus the earth is round.

(B) One sex theory versus two sex theory.

Our plain man thinks there is no contest in debate A: the earth is round – it has been proved round by photographs of the earth, and evidence of travelling in one direction and thereby returning. The flat-earthier has not managed to turn their theory into a serious contender. What

⁵ I am avoiding the invention formulations that preoccupy Stock, which invite certain questions. "The two sexes were invented in the late eighteenth century: did someone make them in a workshop?" "What about the rest of the public? Did they hold the two sex theory, contrary to earlier scientists, or don't they count?" Stock's Laqueur represents them as all one sex theorists (2021: 65). Also there suspiciously is: "If one sex theory was forgotten until recently, does Laqueur count as an inventor?" Maybe there is some reason to prefer invention talk, which I can't quite see at the moment. See footnote 17 for a related issue.

about in debate B? In this case, the plain man would once have said that there is likewise no contest, but information from Laqueur does not allow him to now say that. Our plain man now wants to know: “Is there some piece of evidence a scientist can appeal to and all sensible people who are aware of the evidence give up on the one sex theory?” That is his question. (“The question is subtly changing.” Track changes then, but it is not a big deal, I hope, and sometimes inquiry involves working out better formulations of the main question.)

A complaint: the omission. I have a criticism of Stock. She does not help readers to grasp why one sex theory versus two sex theory is generating excitement. Why would various people, such as this hypothetical plain man and myself, take more interest in this debate than flat versus round earth theory? Stock does not present the way in which, faced with apparent annihilation by the obvious, the one sex theorist saves their theory. She does not present this concept of an inside-out reproductive system. This is what she tells us, with a word cut (a value judgment, now in my appendix):

Females were conceptualised as... only slightly different versions of males, rather than as fundamentally different kinds of human. The ‘boundaries between male and female’ were taken to be ‘of degree and not kind.’ ” (2021: 65)

Where has the clever move gone? It is even captured in “rhyme,” if Stock finds the task of explanation tiresome⁶:

“For those that have the strictest searchers been
Find women are but men turned outside in.” (Cited in Laqueur 1986: 2, written by?)

⁶ She presents more complicated material to do with the development of gender identity theory, by means of the interpretation and reinterpretation of Simone de Beauvoir (2021: 11-12). By the way, the social scientist interested in conceptual change will worry that Stock will not present relevant case study detail. And related to this, Stock comes across as skilled with concepts and words, but the more specific skill that interests some anthropologists and probably some historians is conveying unfamiliar concepts with familiar words that bring troublesome associations (see also Tonkin 1987: 274). It’s a “gift.”

Stock has written a readable “guide” to trans-rights debates, but she omits material I would expect to be there when she discusses Laqueur and which I believe is common knowledge in some departments.

Not just a communicational problem. If we take an old dispute from the history of science and try to produce a rematch, not using our best scientists,⁷ because our best ones have better things to do, the lesser scientists have low incentive to creativity, because what will happen to their clever moves? On what highlights reel, if any, will they appear? Low incentives matter if we lack confidence that an earlier change from one theory to another was genuinely scientifically motivated, rather than caused by other factors. Her “I’m cutting that” decisions are deeper than they look.

(I feel my assessment of Stock is a little harsh. Well, Stock’s work has reached a level where this kind of assessment is near inevitable – it is as if we are examining a house more carefully because there is an option of building a lot more like these, less figuratively works by her and works by others. Stock herself appears to be applying for an important role and the book, though it somehow feels really good in places, is not good for that role. It is an old role: a cult or subculture develops involving absurd-sounding claims, and you are the public intellectual who provides a sensible guide for the totally lost, making concessions where reasonable but not getting carried away with excitement. That role is probably experienced as oppressive in multiple directions, but it also frees researchers up to be adventurous, because you, the public intellectual, will extract the good stuff for a wider readership.⁸)

Disputing the one sex theory. *A second complaint: the expert opinion?* So is there some reason for rejecting the one sex theory which a specialist in sex organs would give?

⁷ Quite a lot turns on “best scientists” here.

⁸ I took the educated man from an essay by F.H. Bradley (1876), which is plausibly a borderline case. Voltaire responds to some counterintuitive claims in his letters on the English nation.

Despite rejecting the theory herself – telling us that over 99% of humans are unambiguously of the male or female sex (2021: 75, sampling issues!) – Stock does not answer this question. Stock objects to certain commitments of Laqueur, such as his theory of the meanings of scientific terms, but the debate can continue without the commitments she targets – indeed, the usual perception is that they impede debate, using the word in a broad sense⁹ (see Fodor 1984: 27). Stock might say, “I have not given the specialist’s answer, because I am not a specialist in the study of sex organs!” But she lists the help of a number of others (2021: 277-278), she has lots of support, she has elite university assistance (from the MIT no less), she presents plenty of facts from biology and medicine, she has asked people about stuff, such as an independent abortion provider (2021: 83), so: has she not asked a sex organ expert what, if anything, is wrong with one sex theory? Perhaps she has asked, but did not get an answer. If so, I think she needs to say so. Of course now, as soon as you contemplate asking, you wonder, “Is it somehow dangerous to ask or give the expert’s answer?”¹⁰ I shall attempt to supply what is missing myself. I warn readers that the result will be a hybrid of Philosophy of Science 101 and some school biology, or mostly those two.¹¹

Ducts and arteries. My guess is that various specialists would regard the one sex theory as “mad.” For example, it involves treating the ovarian artery as the same kind of thing as the vas deferens, a duct which transports sperm from the testicles in ejaculation. What is wrong with that? (I mean treating them as instances of the same kind, not the description of the vas deferens, etc.) You might just be told in a loud voice, “THAT’S NOT AN ARTERY!” That is the reason for rejecting the theory referred to in my abstract. More

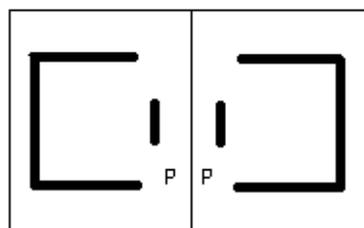
⁹ I am including appeals to observational tests. There is a preconception that philosophers debate whereas scientists observe and prove or refute. Stock could work with a stripped down version of Laqueur’s one-sex-versus-two-sex theory without these commitments she finds disagreeable.

¹⁰ Or from the 2016 referendum, voters were literally interpreted as “ordering” no more experts, so this is the price! Make sure you get those slogans and headlines exactly right.

¹¹ “NO!” Some history: “I am not Anatomist enough to know whether there really is... Like others of her time, Haywood bowed to claims of science to have privileged access to truth.” (1986: 71) It’s like novel material.

politely: please look up the definition of an artery and learn about the vas deferens; it does not count as that kind of thing. There are indeed more general ways in which they are the same kind of thing – the ovarian artery and the vas deferens are both parts of the body – but they cannot be counted as the same in a way which helps one sex theory. So says the objector. They are not both arteries, for example. I will make much use of this example below, and we shall set aside testicles and ovaries and other points of disagreement between the one and two sex theory. (In the past, I suppose the issue would have been approached by starting with the male body and then making sense of the female. So, about the ovarian artery, the expert utters “THAT’S NOT A DUCT!”)

An analogy. An analogy will be helpful for understanding the response “THAT’S NOT AN ARTERY,” in the form of a story, with a diagram. This is going to be very slow for some people, but it is hard to write for the space between very quick learners, who only need the tip of the iceberg, and slower learners, so I assume the safest thing is to go slow. Imagine that I teach at a large cylindrical building called University Place, at the University of Manchester, and I find that in one room the desks are arranged in a U shape, apart from one, the teacher’s desk, or seminar giver’s desk. The desks in a neighbouring room have a comparable arrangement and there is symmetry between the two rooms. Below is a diagram representing the situation, with the dark thick lines representing desks, the thin straight lines representing walls, and the little P representing a phone in a room¹²:



¹² Its thin lines don’t count as walls, unlike the other thin lines. “How do I get in and out?”

Now imagine that my teaching begins at 9 am on a particular day each week, Tuesday let us say, in the room represented as to the left in the diagram. Before teaching, I keep using the phone in the allocated room to call a certain logic lecturer and ask odd questions about logic. One day the phone is gone and a vacuum cleaner is there near where the phone used to be. There are some resemblances between the vacuum cleaner and the phone. The phone had a cord. The vacuum cleaner has a tube into which dust and dirt is sucked. Cord and tube – not so different. The phone had a receiver, if that is the right term. The vacuum cleaner has a rectangular piece with brushes, “the floor tool” it is called. Receiver and floor tool – not so different.¹³ Now I want to ask questions to that logic lecturer! And the vacuum cleaner is close to where the phone used to be, so I might take the rectangular floor tool and put it near to my ear and mouth. But it doesn’t work as a phone. Also the vacuum cleaner’s tube is larger than the phone cord. I might be tempted to refer to the vacuum cleaner tube as “the phone cord” and refer to the rectangular floor tool as “the phone receiver,” but I shall have to come to terms with the fact that this is just something different, which should probably be reflected in the terminology – to literally, or almost literally, come to terms with this! (End of story.) There is symmetry between the two rooms, but if you pay attention to function, the vacuum cleaner in this room and the phone in the other room are just significantly different! Note: function is the decisive criterion for classification by kind here, rather than other differences, such as the thinness of the phone cord versus the larger radius of the vacuum cleaner tube (Laqueur 1986: 31). Similarly, the ovarian artery and the vas deferens are just different in function, probably vastly different to some specialists. (It may sound as if I am making a fool of the one sex theorist, but the prioritization of classification by function was most probably

¹³ Someone might say, “They are very different,” but I think there is some significant similarity which means a person without much knowledge, someone unfamiliar with our technology say, might try using them in the same way.

the outcome of hard-won battles. By the way, I do not wish to suggest one reproductive system is associated with cleaning.)

Making a possible objection actual. *Decisive puzzle dreams.* Stock says that there might be more puzzles for a certain theory over a certain other theory. That would justify us in favouring the theory which suffers from fewer puzzles (2021: 68). This is a familiar point about theory evaluation in general. It is used to block the claim that all scientific theories are equal, but without claiming that a theory which scores better with puzzle-solving is closer to capturing reality in itself. Theory 3 succeeded theory 2, which succeeded theory 1, but the list of things referred to in theory 3 (its ontology) has more in common with theory 1, yet we still think theory 2 is better than theory 1, because it suffers from less puzzles (see Kuhn 1996).

Now with Laqueur and associated researchers, although you can sense a general philosophy in the background, their minds seem focused on such things as old anatomical diagrams with barely legible labels. (I think these diagrams help explain the difference in fame.) So it would be good for Stock to relate the general point to the more specific research area. And here is an obvious worry: puzzle counting helps in some areas, such as flat earth versus round earth theory, but does not help enough in scientific sex theorization: here they are roughly equal, or the leading brands of theory are. Stock casts two sex theory as *the* scientific one. The question the reader and historian wants to know is: what are the puzzles which favour two sex theory over one sex theory? Stock conceives the possibility of decisive puzzles here and for all we know they exist, but what are they? An analogy: imagine a student e-mails an essay plan for the specific question “Is the one sex theory as good

scientifically as the two sex theory?” but the plan is merely the sentence “Introduction, main body, conclusion.” The objection Stock outlines is comparably empty.¹⁴

Filling in the detail? Here is a suggestion for filling in the detail of the objection that one sex theory faces more puzzles. Consider these two propositions:

- (1) Given the high importance of symmetry, I have to count the vas deferens and the ovarian artery as of the same type, in a way that supports the one sex theory.
- (2) Given the definition of an artery, what is called “the ovarian artery” is indeed an artery but what is called “the vas deferens” is not an artery.

It seems that a proposition has to go and that the one sex theorist has to get rid of proposition (2), whereas the two sex theorist must say, “Downgrade the importance of symmetry.” At this point, the two sex theorist asserts that one sex theory suffers from more puzzles than two sex theory. Downgrading the importance of symmetry is easy to do, compared to what the one sex theorist has to do. With this suggestion, we have a little more detail than Stock provides. Above is a puzzle and we have a more specific sense of where the decisive puzzles we are looking for are: in this direction. That is my attempt to help Stock. But I am not convinced that focusing in this direction will greatly help her case.

Getting rid of (2)? What is involved in getting rid of proposition (2)? There are various ways of doing so, but I shall merely consider a single and very crude attempt by the one sex theorist. Here is a definition of an artery: an elastic blood vessel that transfers blood away from the heart. The proposal is to change the definition of “artery” along the following lines:

¹⁴ This was a student’s idea. But I think the plan is not that empty for me, because I wonder whether I need a conclusion. Correspondingly, perhaps a researcher somewhere has forgotten, “There are puzzles.” By the way, Stock herself has a final piece of advice “Use less academic (high) theory, more academic data” (2021: 271), which sounds the same at first glance as what I am saying here about her text, but it is actually different from my claim: “Your general idea taken from high theory is vacuously good; concrete realization please.”

(Artery redefinition outline) An artery is an elastic blood vessel that transfers blood away from the heart, unless it has features _____ in which case it is also an artery.

The aim is to fill in the missing details so that the *vas deferens* qualifies and nothing else does, apart from the things that qualified pre-redefinition, such as the pulmonary artery and the ovarian artery. I guess that is going to sound mad to some medical researchers, or not proper science. “Not proper science”: let’s look into that.

No exception? Here are some considerations against exception making:

- (i) We should favour a simple definition over a complicated one, whenever we can.
- (ii) We should avoid making ad hoc exceptions to save a theory, whenever we can.
- (iii) We should maximize the “naturalness” of a theory’s ontology (roughly the naturalness of the entities and qualities we refer to).

Each of these considerations requires clarification. I shall focus slightly more on (i), because it reveals a positive of one sex theory, which is important for understanding it, but consideration (ii) looks the most troubling given our scientific culture.

Regarding (i), the question arises as to what is simple and what is complicated? Intuitively, a definition of the form “An artery is anything that has features A, B, C” is less complicated than “An artery either has features A, B, C, or features X, Y, Z.” That disjunctive form is more complicated. And so, our revised definition is more complicated. Its “unless” turns into a disjunction. Now I am going to make a series of slightly dodgy moves – I have a sprinkling of sympathy for Stock, because it is difficult to avoid these in this topic at this stage of its development.¹⁵ I shall take the following as capturing our intuitive understanding:

¹⁵ “Though ADULT is itself a vague and historically vexed concept...” (2021: 152) – I would like to read an article by Stock on that, in the style she is using here. And “very modestly sized...” – if she does not give a semantic analysis, there is a risk that a category-crossing one will occur and the source of inspiration will not be cited (2021: 74). “And *w* specifies a world, a context of evaluation...”

(Intuitive complexity assessment) A definition is more complicated than a competing definition if, and only if, it involves more disjunctions. There is a disjunction every time there is a use of “or.”

I don't believe this exactly captures how we intuitively (or ordinarily) judge what is more complicated with definitions. But it is convenient here: for quickly establishing a contrast with an alternative understanding. According to it, a theory always has some concepts which are undefined and you can put these together to build other concepts. They are the primitives, the atomic concepts, the basic building blocks. The alternative understanding is this:

(Atomic complexity assessment) A definition is more complicated than a competing one if, and only if, it introduces more undefined concepts.

The underlying idea is: if you add an undefined concept, the list of atomic concepts is affected, and that is complicated, because you will end up saying that at a fundamental level of reality, or the most fundamental level given your theory, there is E1, E2, E3, and all the other items corresponding to the concepts on your earlier list but also this extra thing. “Reality is more complicated than we thought: it has this other fundamental thing, which can combine with the familiar fundamental things, to compose less fundamental things.”¹⁶ Given this alternative, there is no reason to say that our artery redefinition outline is more complicated. It is if you use Intuitive Complexity Assessment, but not if you use Atomic Complexity Assessment. And the two sex theory is probably more complicated overall when using the atomic assessment. That is unsurprising when you think about it. The rival is the one sex theory, after all! It is working with a smaller foundation of basic concepts. (Note: it has more going for it than mere symmetry.)

¹⁶ This assumes that the conceptually primitive coincides with the metaphysically primitive, that there cannot be primitive bachelors, as a seminar giver once said. But I think the positive comes through.

So what about considerations (ii) and (iii)? I shall present these very briefly. An ad hoc exception occurs when a scientist has a theory, there is some evidence which does not fit with the theory, and an exception is introduced to a definition or some other component of the theory, but with no explanation apart from that it saves the theory. That looks to be what the one sex theorist is doing in our case. To save the one sex theory against the claim “THAT’S NOT AN ARTERY,” we just revise the definition of an artery to include that type of sperm duct. The one sex theorist faces a worry: why is this not an ad hoc exception, or else why is an ad hoc exception acceptable in this context? I don’t know how to help the one sex theorist here. It could become weird, and from different directions. Pressing the worry further: are there other sperm ducts and why not include them? (Much more weird: Laqueur writes, “...a sovereign organ, the ovary, ruled over the reproductive processes that made women what they were.” 1986: 29. Eccentric scientist: “The local sovereign decrees that an exception will be made: the vas deferens is also an ovarian artery.”)

And regarding (iii), the charge is that our one sex theorist introduces an unnatural concept, by having a concept which covers arteries, in our pre-revision sense, and the vas deferens and no more. (A gerrymandered concept like that of a-moon-or-Arctic-frog.) But the experience of it as more unnatural probably reflects our contemporary emphasis on function. The difference in function means they should not be grouped together. For the one sex theorist, location is important in grouping things together, and the vas deferens is occupying a location which is occupied by the male counterpart of the ovarian artery. (There’s a detailed and troubling ancient description of sex organs inverting, Laqueur 1986: 5. I once knew a plumber who conveyed, “All these words, I’m about doing stuff”!) The contemporary scientist or medic’s sense of natural is the result of our acceptance of function-first theories, including the modern scientific two sex theory, and consequent adjustments, and is not useful as a way of evaluating the two rival theories. The one sex theorist can say, “Try my theory,

making appropriate adjustments elsewhere, and you will soon have a different sense of natural and unnatural groupings.”

I have given a glimpse into what is going to happen when you look into the details. A live skilled one sex theorist is going to challenge the two sex theorist, instead of just saying, “That’s a difficult puzzle. The course of history was right!” The one sex theory still seems mad, or crazy, if that is a better word, or far-fetched. Laqueur helpfully reminds us: women get pregnant, men do not. But we have considered a very crude revision, and the one sex theorist can still give it some support. There are a lot of other points where the theories collide. I suspect it will be tight overall between the rival theories, rather than a large and transparent victory. My knowledge is too limited and the perspective of sex organ specialists has not been conveyed, but at the moment I share Laqueur’s under-determinism thesis in relation to this particular debate. A slightly misleading slogan for this is: the sexes are socially constructed. The point it is trying to communicate is: good scientific practice on its own does not force inquirers to posit a specific number of sexes. Thus you might get one scientifically respectable community positing one sex, and another such community positing two.¹⁷

Stock’s long-term position? I want to introduce another character for communicating points, whom I shall name Libex. Here are two views, a bit vague owing to “lots”:

¹⁷ Here is a circular representation, not far from the book. Stage 1: under the heading of “The sexes are socially constructed,” you decide to discuss Laqueur, focusing on invention – the two sexes were invented in such and such a time – because that seems more like “construction.” Stage 2: you argue that Laqueur is wrong to depict scientific theory choices as determined by wider non-scientific factors in the culture, such as ideals of femininity. (Stage 2 over.) Now someone asks you, “Why did you focus on invention interpretations, because they make Laqueur easier to knock down?” And you might say: “Well, if he meant under-determinism, he should not have talked of social construction.” But suppose he has pressures to use this term where loosely plausible, for example his book sells, he gets backing from a community of other researchers, etc. The objector says, “So in your interpretive decisions in stage 1, you are already assuming that the researcher has a reasonable amount of autonomy from such non-scientific pressures, rather than the fact of scientific autonomy simply being the conclusion of your argument in stage 2.” But I too am usually drawn to “internal” history, I should say.

(One sex scientific view) An institution today can rightly claim to be scientific and do lots of natural science research which aims to justify one sex theory.

(Two sex scientific view) An institution today can rightly claim to be scientific and do lots of natural science research which aims to justify two sex theory.

At the moment Stock rejects the first view. Libex thinks the long term direction of this debate is: Stock will accept both views. Her institution, Stock College say, will depend on two sex theory and do research defending that, and another institution will do research on one sex theory, Laqueur College say. “Maybe one sex theory is better, maybe two sex theory, but neither is bad enough to be outside the boundaries of contemporary scientific research,” thinks Libex. He would even interpret Stock as communicating, “Back off, Laqueur! This is my space for my science.” But Laqueur is not trying to force people to accept one sex theory, though he might be encouraging scientific “rematches.” From the scene setting earlier, the plain man is interested – but he is usually only understood by essayistic intuition.

I am not persuaded by most of what Libex says. Probably Stock’s long-term position will be that scientific history is vindicatory, to borrow a description (Williams 2000). The development of history vindicates (i.e., justifies) focusing on or assuming the two sex theory. Here is a fleshing out¹⁸ of this thought: “If a scientific theory is dominant, the default position should be: it is better science; that is the best explanation for how it achieved dominance. But it is acceptable for us to be moved by historical research away from that default position, given appropriate evidence. However, when we actually look into the history of these sex theories, a historian’s claim that the two sex theory’s dominance was achieved or sustained by non-scientific factors, such as aesthetic ideals in a culture, is too weakly justified to move us from our default position. Thus it is a waste of time to direct our best scientists to partake

¹⁸ I borrow the description but not the concept. I think this fleshing out fits better with the use of “vindicates”: for justifications under conditions where there is a question of guilt.

in “science battle rematches” – some scientists trying their best for one theory, which lost its dominant place, and some trying their best for another theory, which became dominant. These scientists have better things to do, because history already vindicates working with the dominant theory. And if reliable and competent but lesser scientists try this, a stalemate is unsurprising. They just don’t have the creativity to get beyond stalemate, to produce something which leads a lot of scientists to say, ‘This is the way forward in this area.’ ” Given this outlook, Stock won’t be moved by my effort to examine a puzzle and my claim that one sex theory is not so bad. “It is to be expected with a minimally competent player for that side.” (But there is a different explanation for stalemate if we run a science rematch with today’s so-called lesser scientists. To repeat: what will happen to their clever moves? Omitted from encyclopaedias and textbooks and popular Stocklike books! Why bother trying to overcome a stalemate then? The scientists on either side have no incentive to go beyond ordinary competence, so the result is stalemate.)

Double-checking. “Can I count on Stock’s book apart from the section on Laqueur?” You have to double-check almost everything.¹⁹ For example, what is the relationship of Elizabeth Gaskell’s novel *Cranford* to trans-rights debates? “Stock’s book tells me the novel involves a polite use of ‘gender’ as a way of referring to the biological sexes?” (2021: 38) Having read the novel, that is not what comes to my mind first. The most noticeable material for the average reader interested in trans-rights is passed over in silence, and it’s big in comparison. I think you cannot use Stock’s book as if it will provide you with the basic

¹⁹ Is that the argument form (see 2021: 262)? Let’s give priority to not attributing logical errors and try this. P1. If people used to think black women weren’t women, then trans women must be women. P2. People used to think black women weren’t women. Conclusion: trans women must be women. P1 is not stated. It is quite strange to me. We could give up on the reconstruction, but could the rationale for P1 be: because people did not know where black women’s female sexual organs were located and when they found out they rightly said (or just decreed), “They’re women too,” and all trans women have female sexual organs located in that place as well, so they must be women too? This is also strange. A strange model may nevertheless help track inferential transitions.

knowledge an okay student would take from a mainstream trans-rights course. (Gaskell – polite use of gender; Laqueur – female skeleton? I thought the history of skeletons and the definition of women was Londa Schiebinger.²⁰)

Can the lecturer use Stock’s book for rare information? I think they can but it is not easy. Guided by Stock, you open the novel, you replace the polite word “gender” with the word “sex,” expecting no change in meaning, and then you say, “O.” Then you can go looking for further information.

Appendix

The material on atomic complexity assessment led me to conceive a historical proposal of interest. Laqueur’s text suggests that taking the male as one’s starting point for conceiving the female was a result of prejudice (1986: 5, 33). The female body was viewed as an “imperfect” variant on the male body (Stock 2021: 65). But was taking the male as the starting point because of the value of systematization and more progress was being made by doing that? A proposal: the loud claims of women being imperfect variations were just a kind of theatre, like sports entertainment wrestling (or at least that is a preconception). There were some angelic mathematicians, say, and the medic was forced, in the public drama of ancient intellectuals, into the bad guy role.

I anticipate the question: “How can you make this analogy: serious science with sports entertainment wrestling?” I have been asked analogous questions after offering football analogies. I am not sure how best to respond to this kind of question. I shall try to ape the distinguished anthropologist Marilyn Strathern’s writing, which I know better: “In making an analogy with something, one wishes to take some associations with the thing and

²⁰ “J.S. Mill’s moral arguments... were unable to sway Comte.” (1986: 69) Did he laugh at them?

leave behind others – an analogy involves partial connections – and that allows many things from seemingly remote contexts to serve as apt analogies.”

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