REMEDIATING ANATOMICAL IMAGES OF THE HUMAN BODY, EN-GENDERING ANATOMICAL ICONICITY

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Abstract

It has been noticed of late that anatomical representations in any medium have always claimed to depict the actual, living *human body in realistic visual terms. Nonetheless, realism is anything but objective – itself a deeply problematic concept – or value-free. Like in the arts, realism in anatomy is a technique which disavows its epistemic condition by conventional fiat, and traditionally convincingly so. Furthermore, both "realist" anatomical sketches past and present and state-of-the-art medical simulators do not so much contribute to the advancement (and dissemination) of body knowledge as they represent, reproduce and thus tacitly reinforce societal values and understandings as framed within the anatomo-medical discipline. This paper investigates ways in which practices of anatomical representation past and present, in particular the La Specola ceroplastics (as remediated in the* Encyclopedia Anatomica*'s photographs) and contemporary anatomy books, can yield metacognitive insights into western epistemology via the anatomo-medical sciences. The broad feminist framework I have adopted enables a critique of scientific discursive practices, with their en-gendering of situated knowledges deemed, however, universal and thereby rendered iconic.*

Key Words: *anatomical representation, Museo La Specola,* Encyclopedia Anatomica *(Taschen book), twenty-first century anatomy books, gendered anatomical iconicity, remediation*

Setting the (anatomical) stage

> This unique collection of anatomical wax models from the museum "La Specola," which is embedded in the tradition of European thought, gives us great insight into the knowledge and understanding of the anatomy of the human body as it existed at the end of the 18th century. (von Düring 66)

I examine here two categories of western anatomical representations produced in the eighteenth- and early-twenty-first-century, respectively, to study the "insight" they offer us "into the knowledge and understanding of the anatomy of the human body" (von Düring 66) as it has been forged since early modernity. My departure point is the commentary written by neuroanatomist Monika von Düring to the anatomical waxwork collection of Museo La Specola, Florence, as *remediated*[1] in the *Encyclopedia Anatomica*. However, I will try a different tack than von Düring in addressing the metacognitive dimensions of the famed ceroplastics, and argue that investigating anatomical representations against the grain – the grain explicit or implicit in anatomo-medical discursive practices – might generate new understandings of whether (and how) the scientific study of the human body can also yield remarkable metacognitive in-sights into western epistemology itself. In pursuing this topic I

[1] I use *remediation* in Bolter and Grusin's sense: that new communication technologies challenge the condition of their predecessors, even as the latter attempt to reaffirm it, in a logic of refashioning themselves and each other so as to balance the dynamics of immediacy and hypermediacy (Bolter, Grusin 5–15), which also entails "re-mediat[ing] prior modes of social and cultural modes of communication" (Thacker, *Biomedia* 8). As various media have always attempted "to achieve immediacy by ignoring or denying the presence of the medium and the act of mediation" (Bolter, Grusin 11), (re)mediations of the body render it the object of communication as illusionistic representation of immediacy.

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must acknowledge my intellectual indebtedness to feminist critics who draw attention to the western articulation of *the knowing subject* as one that disavows his (*sic*) gendered epistemic formation. In science such cognitive bias, mystified as objectivity, is grounded in the standardisation of objective vision through disembodiment (Haraway 283–5).

Before I embark on the investigation proper, a conceptual detour is in order. Presently, the term *objectivity* is "applied to everything from empirical reliability to procedural correctness to emotional detachment," i.e. non-interventionism, as the negative of particular forms of subjectivity (Daston, Galison 82). According to Evelyn Fox Keller, "extending the feminist critique to the foundations of scientific thought" entails a *re-conceptualisation* of "objectivity as a dialectical process so as to allow for the possibility of distinguishing" between the *objective effort* of science and its *objectivist illusion* of masculinity, autonomy and universality serving critical political functions ("Feminism and Science" 594).

Anatomy has been a discipline pre-eminently ocularcentric since the Renaissance, when, taking the lead of Andreas Vesalius in his *De humani corporis fabrica* (1543), a host of anatomists strove to supplant the Galenic tradition of *auctoritates* – of textuality-grounded anatomical knowledge – with what was to become the enduring tradition of the visual as ocular proof and subsequent recording in "realist" illustration. Furthermore, the early modern *scopophilic* remediation of anatomy could not be disentangled from its *projectile* thrust, explained by Keller as one "associated with a transforming and interventionist touch, with 'taking the object into hand, … trespassing on … the very thing we look at'" (qtd. in Waldby, *Visible Human Project* 55[2]). As a *discipline* (in Foucauldian terms), anatomy has evolved its own epistemic protocols (Thacker, "Technoscientific Body" 326–7; Wilson 63; Harcourt 35–7, 49; Crawford 68–9). Accordingly, anatomy faces, if sometimes failing to fully address, epistemic problems posed by the opacity of its object of study until it has been broken open (Wilson 62; Sawday 1–2, 6–8; Thacker, "Lacerations," "Technoscientific Body" 324–7), in an effort to make sense of "the body" meant to be described and imaged intelligibly and coherently in the book (Waldby, *VHP* 62, "Virtual Anatomy" 92–9).

Such cognitive processing of "the human body" depends on the foundational violence of anatomy[3] in its twofold dimensions. The "socially problematic practice of physical violation" (Harcourt 29; 34, 37–8) through dissection is compounded by the representational violence of the body's simultaneous effacement of particularities (Waldby, *VHP* 57) and objectification (Harcourt 35, 47–8), harnessed to the project of generating the *normative model* for demonstration (Harcourt 38, 42–7; Park 7), yet transcoded in images which represent the anatomical body as either "realistic" or classically beautiful (Harcourt 44–5, 52–3). Thus, anatomy champions a *normative view* of the human body: average sized, relatively young, healthy and socially "neutral" – when until recently most cadavers actually belonged to the marginals (Park 12–16; Cregan 50–2, 61) – as well as male and white, as we shall see. In his provision for selecting normative specimens, Vesalius "invo[ked] [the] most rigorously 'normative' of all antique statues" (Harcourt 42): "It is desirable that the body employed for public dissection be as normal as possible according to its sex and of medium age, so that you may compare other bodies to it, as if to the statue of Policletus" (qtd. in Harcourt 28). In his *Tabulae sceleti et musculorum corporis hominis* (1747), Leiden professor Bernhard Albinus phrased this normative principle similarly: since "skeletons differ from one another, not only as to the age, sex, stature and perfection of the bones, but likewise in the marks of strength, beauty and make of the whole," and since Albinus wished "to shew an example of nature," he therefore "chused to take it from the best pattern of nature," which for him meant presenting a skeleton "of the male sex, of a middle stature, and very well

[2] Henceforth I will abbreviate references to Waldby's *Visible Human Project* as *VHP*.

[3] The feminist critique of the masculinist underpinnings of *science* underscores its violence (Crawford 68–9; Bordo 97–118; Keller, "Secrets" 230, 239).

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proportioned; of the most perfect kind, without any blemish or deformity" (qtd. in Daston, Galison 90). For Albinus anatomical perfection was manifestly male; his follower Samuel Soemmerring later "constructed an 'ideal' – and ideology-laden – female skeleton" (Daston, Galison 90), yet without claiming perfection. Unsurprisingly, in the 1770s, Felice Fontana, the first director La Specola, also articulated the aesthetic programme of its anatomical ceroplastics as idealisation/normalisation: "The interest of the Royal museum demands that the defects be removed and that the works be perfect" so as to obliterate the cadaver's repugnance (qtd. in Ballestriero 227). What are the epistemic ramifications of such normalisation?

The Museo di Storia Naturale La Specola and the *Encyclopaedia Anatomica*

In Vesalian-Galenic fashion, let us proceed in our meta-epistemic investigation from La Specola's representation of the macro-structural foundations of the human body. The *Encyclopaedia Anatomica* introduction to osteology reads:

> The form of the human body, which is genetically determined, is a particular example of the general plan underlying that of all vertebrate animals. As the supporting element in this plan, the skeleton forms the bony framework of our bodies.... [L]ong after death, the age, sex, dietary habits and health or disease of a person can be determined. (von Düring 82)

Notwithstanding the religious-teleological overtones of the "general plan," if the skeleton of a long-deceased person *can* reference her/his sex, then this might presumably explain why the *Encyclopaedia Anatomica* fails to specify in its captions the specimen's sex when showing the whole-body skeleton either upright (XXXI.429/86)[4] or recumbent (XXVI.428/96–7). La Specola's skeletons "are probably male, though it is not always easy to determine their sex" (Ceglia 446) since the wax modellers were indifferent to gendered osteological differences (Ceglia 443). In the Taschen book, bone specimen captions do not mention the sex either, e.g. the hand bones (XXXI.405/108) and the pelvic girdle (XXXI.356/111); nor do myological figure captions do so, whether for whole-body[5] or partial specimens, e.g. the abdominal and foot muscles.[6] Yet bone and muscle size differ inter- (and intra-) sex, as early modern anatomy books, e.g. Felix Platter's *De corporis humani structura et usu* (1583) and Joseph Schmidt's *Spiegel der Anatomy* (*c*. 1650), sporadically illustrated, albeit exclusively for the former case (Stolberg 277, figs. 1–2). At the time, anatomical dimorphism was pre-eminently articulated (in both senses) in pelvic bone differences, harnessed to explaining women's *capacity* for – and later to pressing the *social duty* of – motherhood (Stolberg 275–81, 295–9), coterminous with women's social subordination under heteronormative patriarchy (Hird 21–8, 34–5). Indeed, the *Encyclopaedia Anatomica* also shows pelvic and/or abdominal specimens of either males or females[7] labelled accordingly; they co-occur in the section on urogenital anatomy, not osteology and myology, in the *Encyclopaedia Anatomica*, yet

[4] The bracketed figures identify, in this order, the La Specola room (either in Roman numerals or retaining the Italian names, as are also used in the *Encyclopaedia Anatomica*) and display cabinet (in Arabic numerals) of the waxworks and, separated by a slash, their illustration page(s) in the 2006 *Encyclopaedia Anatomica*. Where the museum location seems less important for the argument, I use only the book initials followed by the page number(s). For readerly convenience, all subsequent references, if occurring in large clusters, will be made in footnotes.

[5] XXV.444/134, 128–9, 135, XXV.442/136, 137, XXX.964/174, DEP.26.960/175, XXIX.957/190, DEP.14.956/191, XXX.958/222, XXIX.959/223, XXX.955/250, XXV.441/251, XXV.443/252, 253.

[6] Respectively XXV.468/180, XXV.469/181, XXV.457/182, XXV.461/183, and XXVI.423/248, XXVI.425/249.

[7] Respectively Ostetricia.990/512, Ostetricia.989/513, XXXI.400/514, XXX.401/515, XXX.827/520, and Ostetricia.1008/528, Ostetricia.1007/531.

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sometimes in different museum rooms.[8] A preliminary conclusion suggests that in overlooking bone structure differences between the genders, La Specola's ceroplastics and their print remediation "giv[e] the male the role of unique anatomical subject, as was indeed common" (Ceglia 443). Maleness thus has become – and remains through interpretative silence – the unmarked signifier of "human" anatomy.

To revert to the *Encyclopaedia Anatomica* captions: Who is responsible for quasi-systematic gender blindness, the male professors who supervised the original creation and labelling of anatomical ceroplastics in the late eighteenth and early nineteenth centuries, the modern La Specola curators, the neuroanatomy professor who provides the explanatory notes to the Taschen edition and/or someone (even something) else?[9] For a tentative answer, I will compare the waxworks' representation of human anatomy with the two-dimensional illustration in twenty-first century anatomy books, yet only after studying how La Specola fashions the anatomical subject.

To understand the position of La Specola in the history of early modern anatomical representation, let us first briefly examine the earliest modern anatomy book, Charles Estienne's *De dissectione partium corporis humani* (1545), whose publication was much delayed – and thus postdated Vesalius's *Fabrica* (1543) – only because of its undue acknowledgement of the collaborating anatomist, Éstienne de la Rivière. *De dissectione*'s representations of exclusively *reproductive female anatomy* (in Book 3) reinforce the masculine stereotype of utero-centric womanhood, which here, however, is not simply articulated through the female models' salacious poses, but transpires from the history of illustration production. To cut costs, for the illustration of Books 2 and 3 Estienne had his artist, François Jollat, "recycle" images appropriated from early prints, where the middle of the original woodblock was replaced with an anatomical insert drawn by Rivière (Talvacchia 163–4). Book 3, devoted to "reproductive" anatomy, remediated Giovanni Jacopo Caraglio's engravings in *Gli amori degli dei* ("The Loves of the Gods," 1527), done after the erotic drawings commissioned by Roman printer Baviero di Carocci of Bologna, aka Baviera, from Perino del Vaga and Rosso Fiorentino; the illustrations themselves alluded to a series of prints (1524) by engraver Marcantonio Raimondi after Giulio Romano's drawings, known as *I Modi* ("The Positions"), which depicted contemporary Roman courtesans engaged in sexual acts with their clients (Talvacchia 1–21). Such cross-genre remediation in *De dissectione* may explain in part the relatively tiny anatomical representation proper, which renders such illustrations unsuitable for the *study* of anatomy; nevertheless, the voyeuristic *mise-en-scène* of certain plates in Books 2 and 3 implicates that the anatomist's gaze can also shed light on the "curiosity" of both male-qua-human criminality and female procreative capacity framed as sexual promiscuity in the Venus/courtesan posture of the female model. Thus, anatomy has a story to tell beyond the biological physicality purportedly revealed by the anatomist travestied as Goddess Anatomia, herself a cross-dressed travesty of Apollo. Anatomy such as legitimised in Estienne's illustrations subtly proffers knowledge of humankind, not just of the

[8] Respectively XXX and Ostetricia, the latter also for models of the male pelvis showing the penis, in the gender-"specific" specimens; room XXXI displays the gender-blind, yet also gender-specific (male), bone specimens.

[9] The Taschen edition fails to mention to what extent its captions follow the museum's; the same also concerns the current labelling of La Specola's displays, though we know that the "layout of the anatomical collection is still more or less as it was conceived by Felice Fontana" (Ceglia 433). Nevertheless, the dust jacket bio of Professor von Düring reads: "Her concise medical explanations help to guide both the expert and the general reader through this graphic encyclopaedia of anatomy," which suggests modern labelling. We may assume that the Latin plate captions and the Latin section titles in the *Encyclopaedia Anatomica* follow the practice of anatomical jargon past (i.e. also La Specola's original labelling) and present. Interestingly, there is sometimes a certain degree of inconsistency in focus between the Latin and the English captions, as well as between the latter and the German and French ones, perhaps also attributable to the translators.

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human body, yet in doing so it permits the twenty-first-century readers – aware of their only partially objective, situated knowledges (Haraway) to glimpse one metacognitive avenue afforded by anatomy: how the West constructs its local knowledge as universal and subsequently idealises it in gendered icons through a masculine practice consistent with the other patriarchal discursive practices.

Unlike Vesalius's *Fabrica* yet like Estienne's *De dissectione*, La Specola displays certain whole-body wax specimens in erotically charged recumbent positions, always on fine silk tasselled sheets, if somewhat crumpled (*EA* 73–9, 274–5) and now tattered (*EA* 393, 322–3). Such mise-en-scène implies the lively activity of the bodies lying thereon, reminiscent of Vesalius's framing of morphology to reveal function (Harcourt 47–9). Here, though, male specimens no less than the famous "anatomical Venuses"[10] share a position that not only belies the fact of death and dissection, in Vesalian tradition, but may also intimate post-coital repose (XXX.447/503, XXVII.627/284). The whole-body male specimens showing the veins (XXV.526/314–15) and arteries (XXV.446/260–1, 255, 305, XXV.445/466–7, 288–9) lie in poses intended for the viewer's convenience, whereas the male specimens showing the superficial veins and lymphatic vessels (XXVIII.740/320–1, 316–17), sections of the vascular system (DEP.15.11/274–5) and the lymphatic system (XXVII.646/322–3, 329) rest in advertent poses, recumbent (the first), like the anatomical Venuses, and with widely open eyes (the other two), unlike the Venuses with their half-closed eyes. Furthermore, the visceral specimens which show the young men asleep[11] use androgynous models (XXIX.755/425) whose serene faces suggest "effeminacy" in spite of the visibility of their genitals (XXX.447/503). Do we encounter here a certain representational fluidity of gendered faces, more ready cultural acceptance of intersex conditions than nowadays, and/or unintended gendered signification (both process and outcome)? Ceglia suggests we should rather "rethink the representative dichotomy of the Specola: not man-woman, but active-passive" (444).

On the other hand, like Estienne, La Specola poises all *whole-body female specimens* – for exclusively gynaecological uses,[12] to reflect the cultural construction of the (useful) female body (Ceglia 417, 441, 444–5; Stephens, "Venus" 134–5, 140) – lying languidly for the scientific, yet also titillatingly erotic, even voyeuristic, benefit of the beholder. No wonder their name, anatomical *Venuses*, echoes the allegorisation convention at work in the nude genre since Giorgione. Nevertheless, as Elizabeth Stephens ("Venus" 134–5) shows, such waxworks had been displayed to the *general* public in western Europe since 1719 and were crucial at the time "in facilitating this growing public acceptance of anatomy by providing a space for its popularisation" (133). In doing so, they may also have familiarised the viewers with the anatomical gaze as the would-be ubiquitous omnipotent gaze of science democratically imparted to everyone invited to the sometimes sadistic spectacle[13]:

> Despite a lack of archival documentation regarding audience numbers or composition for these exhibitions (which makes their level of popularity difficult to ascertain), given that tours of anatomical Venuses in commercial exhibition spaces began in the early 1700s, and that the first permanent

[10] Ostreticia.968/73–9, XXIX.745/332–3, 267, XXIX.747/340–1, XXIX.746/474–5. The name was bestowed on such reclining statues in the nineteenth century by analogy with the ancient Greek *Venus de Medici* (Ballestriero 230).

[11] Also asleep appears to be the whole-body male specimen showing the lymphatic system (XXVIII.739/338–8, 342–3).

[12] An exception is the Parisian anatomical Venus (on tour in the U.K. in 1844), likely modelled to show female anatomy in its entirety (Stephens, "Venus" n. 16).

[13] See Abraham Chovet's advertising pamphlet for his 1733 anatomical Venus demonstration tour: "As this Figure is chiefly calculated to demonstrate the Circulation of the Blood ... and the Nourishment of the Child while in the Womb, it was absolutely necessary that it should represent ... a Woman gone eight Months with Child, chained down upon a Table, supposed to be open'd alive" (qtd. in Stephens, "Venus" 136).

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> anatomical collections emerged in the middle of that century, the exhibition of anatomical Venuses might be seen to have played an important role in cultivating a taste for such spectacles. (Stephens, "Venus" 133)

Who were the beneficiaries of taste formation through such *spectacles*, though not exclusively of waxworks and/of anatomical Venuses?

> [T]he burghers of that time were both enlightened and interested. A dissection was regarded and experienced as a special public occasion which one not only attended but paid to attend. The promoters for their part likewise strove to satisfy the curiosity and sensationalism of the visitor, for which spectacular displays were particularly suitable. (von Düring 67)

While, indeed, since the mid-sixteenth century public anatomies were becoming more and more fashionable, was everyone in Florence and elsewhere "enlightened" – and in what sense? "Interested" – in what? Furthermore, could everyone *afford* the entrance fee to a public dissection to "satisfy" their "curiosity" and thirst for "sensationalism"? Weren't such burghers rather the more affluent townspeople?[14] Wasn't gender also important? True, Vesalius's frontispiece depicts a motley crowd of both sexes and all ages and social stations. Yet, the Paduans who actually attended Vesalius's public anatomies were "respected citizens," university professors and medical students (Crawford 69). Could the frontispiece rather represent an *idealised*, democratically diverse audience – notwithstanding the image's polemical allegory (Wilson 71–2) and efforts to forge a hierarchically ordered, strictly controlled community of beholders (Crawford 70)? Bartholomeus Dolendo's engraving of Leiden's *theatrum anatomicum* (1609) after Jan Cornelisz Woudanus's drawing (Helguera 9) features a mostly male and affluent public;[15] despite its underlying religious and epistemological *nosce te ipsum* allegory,[16] the image depicts the spectators of public anatomies more realistically than Vesalius's frontispiece does.

In its heyday, La Specola was praised for "its richness, composure and elegance," which made it the Mecca for "those who study anatomy, [who] will take pleasure in finding numerous parts of the body here reproduced in wax" by Clemente Susini and his fellow modellers, with an accuracy unmatched by "the anatomical works of Ercole Lelli and [Giovanni] Manzolini in Bologna or [Marie-Catherine] Bihéron in Paris" (Adolph Murray, 1780, qtd. in Ceglia 431). The waxworks' "consummate elegance and clarity" added to their "great accuracy, according to nature itself, and as the figures by [anatomists] Haller, Albinus, Meckel, Zinn, Neubauer and others show" (Murray, qtd. in Ceglia 431). Anatomically accurate ceroplastics owed a great deal to the fine arts either directly by reproducing classical poses (e.g. écorché 955/Sala XXX :: Apollo Belvedere; Venus de' Medici) or indirectly by

[14] In 1733, Londoners had to pay a five shilling entrance fee to Chovet's display of the naturalistic-looking machine that demonstrated foetal blood circulation from and to the mother. When the La Specola Museum was opened to the general public in February 1775, the first of its kind to do so (Riva 216), its admission policy provided for separate visitation hours for the upper and the lower classes, the latter "provided they were cleanly clothed" (qtd. in Poggesi 6). Earlier in the century "several museums exhibiting human wax models to the public were ... opened in central Europe, France and Britain, mostly for profit," following surgeon Guillaume Desnoües's lead: Desnoües (1650–1735) had opened ceroplastics museums in Paris and London for the paying public "to learn anatomy while avoiding the horror of dissection" (Riva 213). The undated cover illustration for "Signor Sarti's *The Celebrated Florentine Anatomical Venus: Together With Numerous Smaller Models of Special Interest to Ladies, Showing the Marvellous Mechanism of the Human Body*" (Stephens, "Bodily Interior" Fig. 2), exhibited in London in the 1840s, indicates different visitation days for the two genders (of a bourgeois public), only two for women as opposed to four for men, for the charge of one shilling.

[15] They are Leiden's "senators and rectors of the university and burgomasters and aldermen along with medical students and faculty," with the paying public filling the back benches (Helguera 10).

[16] Presented "as a universal signifier of the human body," the *dissection body* confronting the beholder in the anatomy theatre elicits an eerie moment of doubly estranging "auto-voyeurism" (Thacker, "Technoscientific Body" 327).

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quoting two-dimensional anatomical illustrations (écorché 964/Sala XXX :: Albinus's 1747 *Tabulae sceleti et musculorum corporis humani* (Ceglia n. 21, 441–2).

Regarding the readership of the *Encyclopaedia Anatomica*, the figures may be inferred from the book's availability across Europe[17] and Northern America, including the possibility of purchase on Amazon. The major contributor to the book commends familiarisation with La Specola's ceroplastics – via the book – as still inherently useful today:

> In this presentation, the Florentine collection is for the first time [in 1999] made available to a wider readership in the form of a complete edition of colored illustrations. Even today it is of practical use. It offers both to the interested layman [*sic*] and to the medical student a variety of interesting experiences. The latter can test his [*sic*] anatomical knowledge by naming the various structures depicted,[18] and will further recognize misinterpretations based upon the scientific knowledge of the time.... (von Düring 67)

What range of "interesting experiences" does von Düring contemplate for the exclusively *male* lay readers and medical students her pronouns imply? Is voyeurism one of them, especially on seeing the anatomical Venuses displayed – exclusively in supine positions – in rosewood and Venetian glass cases, like Snow White in her glass coffin? If voyeurism belongs in the likely experiences fuelled by La Specola's Venuses, is it the same in kind and degree for audiences now and in the 1770s when Clemente Susini modelled, with the aid of Giuseppe Ferrini, the *clastic* (viz. dismantable) "Venus de' Medici"[19] – deliberately a re-purposed remediation of Uffizi's Hellenistic copy of the fourth-century B.C.E. *Venus* (Ceglia 435–7)?[20]

To revert to the La Specola production of anatomical knowledge as documented in the *Encyclopaedia Anatomica*, several aspects are noteworthy. Some of La Specola's specimens bypass the implicit convention which silently standardises the models' age. Indeed, all female specimens are very young so as to be potentially pregnant, as the "Venere medicea" is,[21] apart from demonstrating *utero-centric* (Ceglia 445) female anatomy. By contrast, the male specimens, especially of the head,[22] cover a more comprehensive age span. It is also exclusively in the male case that androgynous figures of very young men[23] appear: La Specola has no (cultural) room for a "masculinised" woman.

Another salient aspect concerns the presentation of gendered body parts and organs.[24] Typically, such gender sensitivity relates to reproduction, yet it also includes, by extrapolation, newborn specimens.[25] Depending on actual availability, even foetuses (in homunculus form) may be gendered and displayed side by side (Ostetricia.994/571,

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[17] The Taschen book, which I purchased in Bucharest in 2007, was still available in the La Specola gift shop when I visited the museum in 2011.

[18] The original didactic purpose of the waxes worked through an ingenious system comprised of a two-dimensional watercolour of the model (now hanging above) with numbers keyed to a descriptive list placed in the drawer beneath each cabinet (Ceglia 433; Maerker 261).

[19] So identified in the museum's first inventory of 1775 (Ceglia 437, 441).

[20] Ballestriero notes that "the Italian anatomical Venuses express an idealization of the death agony of a young, beautiful woman, thereby capturing the essence of Eros and Thanatos"; anatomical Venuses offer "entertainment with the excuse of education" (231).

[21] Ostetricia.968/79, 73, 74, 75, 76, 77, 78. All the female subjects of early modern anatomy books are represented as young pregnant women often in the *gravida* pose, which naturalises pictorially the societal imperative for women under Christian patriarchy.

[22] *EA* 287, 290, 291, 292, 293, 326 351, 374–5, 377, 401, 427, 434, 436, 437, 448, 449, 450, 452, 453, 575.

[23] XXVIII.709/390, 408; XXIX.755/425; XXX.447/392, 503.

[24] An interest in "the microfunctions of [body] constituent parts, each part to be classified in an overall taxonomic structure" (Hird 21–2) emerged particularly prominently during the Enlightenment, the age of anatomical waxworks.

[25] E.g., "external genital organs of a female infant" (Ostetricia.1010/529); caption identification of testes' position (XXX.779/511); visible penis (DEP.5/559).

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Ostetricia.993/572). Nevertheless, the clearly male specimens (XXX.846/510, Ostetricia.998/566, Ostetricia.995/567) and gender-"invisible" specimens[26] prevail by far.

Surprisingly, Monika von Düring never mentions the implicit patriarchal male-qua-human convention of La Specola's anatomical representation – in a book for the general public. The default maleness of most "human" specimens with gender-"silent" captions is manifest pictorially either overtly, through the presence of the penis (XXIX.833/336) and facial hair,[27] or indirectly, often apparent only to the alert reader who contrasts it with the visibly female counterparts, e.g. mouth or hand.[28] However, is the upper specimen of the skull section (XXVIII.689/373) androgynous or female? In certain cases, the lay reader may confidently assume the visceral specimen's maleness even though the waxwork resorts to a visual trick: the reflection of abdominal skin[29] or a silk sheet fold (XXX.777/480) to cover the genitals. Such genital visibility I've been concerned with dangerously *replicates*, in my approach, the anatomical outlook then as now, yet precisely the persistent interest in genital visibility in twentieth-century discursive practices from psychoanalysis to sex identification at birth also *enables* my critique of why the *Encyclopaedia Anatomica* commentator overlooks its role as an *ideologically biased* "signifier of sex," in Myra Hird's terms (20–2).

How should we understand the modern commentator's obliteration of the gender silencing traditionally operated by the anatomo-medical sciences? Von Düring oscillates between gender-inclusive and gender-biased nouns and pronouns when she refers to the *Encyclopaedia Anatomica*'s readers. Yet the professor is oblivious to gender matters even where the museum exhibits male and female specimens side by side (metaphorically, if not spatially), such as the female specimens showing the lymphatic system at thoracico-abdominal level,[30] and abdominal viscera and lymphatic vessels.[31] Nor does she comment on the fact that only the "medical Venus" can be dismantled through sequential lid and organ removal to show the multi-layered thoracico-abdominal interior, with the necessarily pregnant womb. I construe such silences as a complex case of *violence of representation* (Armstrong, Tennenhouse 1–26) in *en-gendering* (de Lauretis 240) – i.e. gendered production of – the knower/subject position as male and the known/object position as female or feminised (viz. penetrable visually and epistemically). In overlooking modernity's patriarchal epistemology as apparent in anatomical representations, not only is von Düring oblivious of recent contemporary critique of the patriarchal underpinnings of western cognitive-scientific pursuits and overall epistemology, but through her silences she *replicates* the very ideology of (early) modern science.

Fashioning the anatomical subject at the turn of the millennium

To better understand the politic (and political) explanatory silences of the *Encyclopaedia Anatomica* regarding the male-qua-human conceit, I will briefly point to the cognitive patterns discernable in certain twenty-first century anatomo-medical practices.

Recent British and American anatomy books which can also be browsed online are particularly cogent to my argument in view of their illustrations' easy availability, despite the

[26] The umbilical cord often obscures the foetus's genitals (Ostetricia.1016/539, Ostetricia.1014/540, Ostetricia.1014/541, Ostetricia.974/550, DEP.3/553, DEP.6/554, DEP.7/555, DEP.8/556, Ostetricia.975/561, Ostetricia.996/568, Ostetricia.970/570, Ostetricia.992/573, Ostetricia.991/574). There are also gender-"invisible" infant specimens (Ostetricia.973/562, Ostetricia.999/563).

[27] XXVIII.707/574, 401; Gaetano Zumbo's male head models, 13, 18, 345, Zumbo room.D1/348.

[28] Respectively XXVIII.709/390–1 (cf. Venus, Ostetricia.968/72, 267) and XXIX.750/201, XXVIII.784/439 (cf. Venus, Ostetricia.968/73)

[29] XXX.837/481, XXX.791/483, XXX.794/485, XXX.842/486, XXX.836/489, XXX.840/490, XXX.901/506.

[30] XXIX.745/332–3, XXIX.747/340–1, cf. male XXVII.646/320–1, XXVIII.739/338–9.

[31] XXIX.746/474–5 ("superficial" organs), cf. XXVII.646/322–3 (male "deep" organs). The two whole-body specimens seem complementary.

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necessarily superficial, incomplete previewing options. In Robert Winston's *Body: An Amazing Tour of Human Anatomy* (2005), illustrations of the "human" being in the table of contents, like on pages 7–8, are *implicitly* male at least through the traditional association of men with active postures, unlike the *explicitly* male image which demonstrates types of sections used in anatomical illustration (p. 6). In *The Concise Human Body Book* (2009) by Steve Parker, adapted from his *The Human Body Book* (2007), the illustrations are implicitly male (front cover; frontispiece; pp. 13–14). While the introductory image to the cardiovascular system depicts a male outline, the one for the nervous system is female; the endocrine system image is depicted female, with a male insert bearing the sole *gender caption* here (p. 15). Isn't such prevailing dis-identification of the sex of the model shown in various pictures consistent with traditional male-qua-human anatomical representations? To this day, the mere inclusion of women in scientific studies does not forestall the working assumption that "the male body typically represent[s] the normal human; the female body has traditionally been studied as a deviation from that norm" (Schiebinger 1172; see Johnson 146, 150–6; Moore, Clarke 62).

Furthermore, Parker's final chapter in *The Concise Human Body Book*, "Reproduction and Life Cycle," maintains the traditional Christian teleological view of the genital system as reproductive in purpose. Ironically, the male-then-female-genitals approach replicates the convoluted history of the Greek term for womb, *hystera* (thence the modern "hysteria"):

> The Greek word for uterus in its neuter form is cognate with *hysteron*, what comes after or behind, signaling the assignment of the female organs to secondary place, a relegation that is consolidated through the order in which the sexual and reproductive organs are described in anatomy treatises. The effect of this anatomical and philosophical subordination is simultaneously to construct a homology and to disavow it. (Harvey 83)

Irigaray's rhetorical questions on how the masculine Christian imaginary crystallised in the God-the-Father metaphor may indicate "the sex which is hidden within and beyond all discourse," including the scientific one, remain just as salient nowadays: "Is there or is there not a dominant discourse purporting to be universal and neutral from the point of view of sexual difference?" ("Subject of Science" 77–8).

What do recent anatomy book *covers* signpost pictorially by showing very young and reassuringly healthy-looking models? An Internet search reveals that the cover illustrations of various American editions switch between genders and races, typically black and white, with the other races glaringly absent. Is this a progressive move towards anatomical objectivity or rather the backlash of white patriarchy? In McKinley and O'Loughlin's *Human Anatomy*, the 3rd edition (2011) cover features a static *black man* with a demanding gaze, the 2nd edition (2009) an over-the-shoulder view of the écorché of a *black woman* (with the face not skinned), eyes closed, and the 1st edition (2005) a *black male athlete* seen from behind.[32] Marieb and Mitchell's *Human Anatomy and Physiology Laboratory Manual*, designed to accompany regular anatomy and physiology books, depicts on its 10th edition (2011) cover a well-tanned *Caucasian male* gymnast performing on the pommel horse; its 8th edition (2008) shows a *Caucasian female* swimmer. Marieb and Hoehn's *Human Anatomy and Physiology*'s 8th edition (2009) features a well-tanned *Caucasian male* swimmer about to dive; the 9th edition (2012) has a *Caucasian female* handball player and the 7th edition (2006) a *black*

[32] Beyond the cover, the book illustration (2008 ed.) purportedly envisages gender sightedness: both in the contents and introducing the text proper, chapter 1 ("A First Look at Anatomy") shows a Caucasian woman with Hispanic features, yet chapters 13 ("Surface Anatomy") and 18 ("Autonomic Nervous System") show Caucasian men.

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female tennis player.[33] Exceptionally eloquent black-and-white-race cover images! All these anatomy books are aimed at students and instructors rather than a general public, with Amazon prices exceeding $100 even for new *paperbacks*.

On the other hand, cover illustrations which use images obtained with the aid of, or which stylise them to resemble, state-of-the-art medical imaging technology indicate an even more insidious aspect of the persistent human-qua-male-anatomy conceit. Apart from experts, who are *not* the target readership, though they may act as instructors, who can tell the gender of the model on the cover of Marieb, Wilhelm and Mallatt's *Human Anatomy*'s 7th edition (2013)? The illustration echoes, in its purgation of overt gender reference in the cervical vertebrae X-ray-like image, the cervical MRI cover image of the 5th edition (2007). Can we prove irrefutably, or do we merely allege, an invisible gender "continuity" of these two cover images with the cover illustration of the 6th edition (2010) which they sandwich, simply because the latter features a languorously posing *Caucasian woman* with her backbone *X-ray highlighted*? Do we even bother to ask the question of the model's gender?

In this connection, it is worth wondering whether (m)any viewers pause to ask the question of the model's gender when they watch film series like *House M.D.* that deploy CG animations based on actual MRI scans to offer a glimpse of the patient's internal body "troubled" by one ailment or another. The issue is all the more urgent to address as such 3-D CG animations derived from clinical MRI data are not confined to the popular film industry. The complex animation technique originates, in fact, in the medical/IT academic community and aims to improve communication with patients; in its demonstration phase, it may use the male "prototype" as the "natural" choice, as happens in John McGhee's conference video on the topic. Dr McGhee is one of the University of Dundee research members in the "Visinvis" project (<www.visinvis.org>) intended to help healthcare professionals visualise the invisible side of the human body; the video shows a Caucasian male torso (00:39–40; 00:49–51), presumably belonging to the patient whose MRI data McGhee processed into this 3-D CG animation. Though not so intended, can McGhee's demonstration *de-doxify* (Hutcheon), viz. defamiliarise, the public and medical consensus about what counts as *illustrative* of human anatomy, or is it rather an instance of postmodernist self-contradiction and complicity with – i.e. "complicitous critique" (Hutcheon) of – the inherited grand narratives which postmodernism otherwise critiques?

To prove that my critique is not merely contentious, let's look at the logo and icon of an outstanding biomedical learning and training device, the Visible Human Project produced by the U.S. National Library of Medicine, after a necessary contextualisation. The Visible Humans, Male and Female, are *datasets* totalling respectively 15GB and 40GB, whose digitised images were obtained through both quasi-realistic medical imaging techniques and photography of the actual cadavers in both fresh condition and also before and after cryogenic slicing. The images were archived into a virtual anatomical atlas "designed to serve as a reference for the study of human anatomy, ... as a set of common public domain data for testing medical imaging algorithms, and ... as a test bed and model for the construction of network accessible image libraries" (<http://www.nlm.nih.gov/pubs/factsheets/visible_human.html>). Not only have the VHP's many applications (<http://www.nlm.nih.gov/research/visible/applications.html>; Thacker, "Lacerations") removed any physical-emotional inconveniences traditionally encountered by medical students, but they constitute virtually inexhaustible visual and training devices for "educational, diagnostic, treatment planning, virtual reality, artistic, mathematical, and industrial uses" by the NLM's "nearly 2,000

[33] See also the various edition covers of Marieb and Hoehn's *Human Anatomy and Physiology* available in the National Library of Australia (<http://trove.nla.gov.au/work/6192455?q&l-format=Audio+book>).

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licensees in 48 countries" (<http://www.nlm.nih.gov/pubs/factsheets/visible_human.html>; see Waldby, *VHP* 16–17).

The long-term goal of the VHP as envisaged by the NLM is "to produce a system of knowledge structures that will transparently link visual knowledge forms to symbolic knowledge formats such as the names of body parts" (http://www.nlm.nih.gov/research/visible). Indeed, medical schools and teaching hospitals use simulators to give the students and staff a "real" feel of the body with the aid of built-in VHP applications. Nonetheless, only the pelvic simulator – for gynaecological/obstetrical examination – uses the VF dataset for its model, while the ideally gender-inclusive minimally invasive surgical simulator uses, at least in part, the VM dataset (Johnson 142). The case indicates how state-of-the-art devices designed in the age of feminist awareness and multiculturalism still replicate the traditional gendered anatomical outlook by having "gendered understandings of the body built into" them (144) which "simultaneously represent and reproduce" society's "underlying values and understandings" (146) as *legitimate*.

Yet *is* what we see in the VHP (MRI, CT and anatomical images) what its designers originally got? Such avowed immediacy of perception and cognition as the VHP's – to "*transparently* link visual knowledge forms to symbolic knowledge formats" – dangerously disavows the impossibility of epistemic and representational transparency (Slatman 107–8). To begin with, some critics have noticed that underpinning the VHP is the *epistemic format* of computer-assisted medical imaging (Lisa Cartwright; Thacker, "Lacerations"; Daston 106–8). Arguably, this skews cognition to a *cyborgian* condition which also captured in Paul Virilio's philosophical notion of "the splitting of viewpoint" (60), i.e. "the sharing of perception of the environment between the animate (the living subject) and the inanimate (the object, the seeing machine)." Besides, whose cadavers were scanned for the NLM project? The first cadaver – anonymised on the VHP webpage, in accordance with a long-standing anatomical tradition, yet identified by name in the CBS news broadcast of the VM release on 28 November 1994 (<http://collab.nlm.nih.gov/webcastsandvideos/visiblehumanvideos/visiblehumanvideos.htm>) – belonged to a convicted criminal, 39-year-old Joseph Paul Jernigan, who had donated his body to science. However, the 59-year-old woman whose cadaver was imaged as the VF (released in November 1995) has remained an anonymous "Maryland housewife" about whom we know only the death cause and circumstances of cadaver donation (Waldby, *VHP* 1, 13, 56). These Caucasian cadavers were later joined by that of yet another anonymous, if premenopausal, woman (Johnson 145). After the public release of Adam and Eve, as the VM and VF are dubbed both within and without the VHP (Waldby, *VHP* 21),[34] the NLM also planned to image an infant or foetus. Had the plan been pursued, the Visible Humans would have become "the Visible Family [as] a viable reproductive unit" (Cartwright, qtd. in Waldby, *VHP* 18). To the irony of Lisa Cartwright's remark I would add my own: that such a new, secularised yet salvific Holy Family would still have featured Joseph – what an uncanny name coincidence! – as the more valuable member than the nameless woman in tracing human genealogy and/as worth, on the pattern of the Tree of Jesse, which traces Jesus's Davidic genealogy through his *non*-father Joseph (Matt 1.1–18) all the way back to Adam (Lk 3.23–38).

[34] ADAM is also the acronym of the *Animated Dissection of Anatomy for Medicine* programs based on the VHP archive, e.g. *A.D.A.M. Interactive Anatomy* (1997); *The Nine Month Miracle*, A.D.A.M. Software Inc. (1995) – currently included in the online *A.D.A.M.: Inside Out* (<http://www.adameducation.com/ADAMvideo/AIO/vid-aio-9-month-miracle.html>) – furthers the traditional essentialist conceptualisation pre-eminently of the female body (and sex organs) as meant for reproduction (Moore, Clarke 71, 85) by calling the "family album's" virtual "parents" Adam and Eve.

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I have already alluded to the popularity of the Visible Male in virtual applications,[35] with the attendant always already "natural" synecdochical substitution of *human* for *male* in labelling, despite the higher resolution of the Visible Female dataset (Waldby, *VHP* 15, 17). It is time I returned to the NLM projects webpage (<http://www.nlm.nih.gov/digitalprojects.html>) and its link to the VHP homepage. Though appropriately rendered through double recourse to medical imaging technology intertwined with a Vesalian écorché – framed sculpturally like some early modern anatomical illustrations (Vesalius 465, 478, 559) – and progressive pixellation, the VHP logo features the generic *human* icon (<http://library.med.utah.edu/WebPath/HISTHTML/ANATOMY/ANATOMY.html>) as recognisably *male* through both arm musculature (and facial bones) and adlocutionary gesture. Similarly, the VHP webpage icon uses a colour cryosection through the Visible Male thorax (<http://www.nlm.nih.gov/research/visible/photos.html>). The Visible Female recedes into invisibility!

Nor are the VHP and twenty-first century anatomy book illustration an exceptional case of how the hegemonic discourse of patriarchy shapes cognitive pursuits and scientific practices nowadays. Emily Martin has compared anatomical descriptions of destruction–regeneration *processes* – the stomach and uterus lining; egg and sperm production – in the 1980s ("Medical Metaphors"), as well as educated vs. under-educated women's descriptions of menstruation ("Science," "Medical Metaphors"). Her studies demonstrate that masculinist science inoculates us from an early school age with positive images about male anatomy and physiology – with inherently "masculine" traits – and negative images about the female ones, as well as being silent over similarities of a "feminine" sort which would jeopardise the androcentric heteronormative model (Hird 36–43) and the logic of industrial capitalism (Turner 25) alike.

To conclude, my overview of contemporary anatomy books reveals remediated continuities with traditional anatomical representations, such as La Specola's waxworks, which stress heteronormativity, describe/prescribe that the female body be regarded as reproductive rather than simply sexual, and then reduce it to this "representative"[36] function. Even where a politically correct agenda seemingly drives anatomical textbook authors/illustrators and project managers, long-ingrained assumptions about the human body elide it with maleness and whiteness, the West's unmarked categories, although the cadavers – but for modern donation – typically belong to the socially marginal, a marked category. Such metacognitive insights yielded by anatomical projects past and present endorse Luce Irigaray's famous conclusion, in *Speculum* and *This Sex Which Is Not One*, about the

[35] Two application projects masterminded by the NLM, AnatLine and the AnatQuest Project (<http://www.nlm.nih.gov/research/visible>), acknowledge using images from the VM dataset, although the latter project did not use to (<http://anatquest.nlm.nih.gov/Anatline/GenInfo/index.html> as of 17 May 2011; <http://anatquest.nlm.nih.gov> as of 8 Sept. 2014, with due acknowledgement). The University of Pittsburgh's Edgwarp-3D software presents in its online demo the VM without as much as acknowledging this, even though it also introduces a VF application – to study the embryo (<http://staff.psc.edu/awetzel/vhimages.html>)! The University of Hamburg's SEP also uses the VM for its online demo with no acknowledgement (<http://wwwcg.in.tum.de/teaching/theses/finished-topics/visualizing-the-visible-human.html>). Conversely, the University of Michigan now uses only the VF for its online demos, if focused on the (reproductive!) pelvis (<http://vhp.med.umich.edu/ movie.html>).

[36] I use "representative" here in its twofold sense as analysed by Spivak for "representation." Depicting the anatomical subject pictorially shows *Darstellung* ("representation" as image), viz. the likeness of the body or body parts, collapsing into *Vertretung* ("representation" by proxy), viz. the re-morphing of the specimen into a normative anatomical figure. This tallies with Spivak: "the staging of the world in representation – its scene of writing, its *Darstellung* – dissimulates the choice of and need for 'heroes,' paternal proxies, agents of power – *Vertretung*" (279). For the resilience of male representativeness, see the prominent title of La Cochetière and Montassier, even though the study proper is less gender-biased through the use of either plural nouns (175) or /-human/ pronouns (179).

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"hom(m)o-sexual" logic of western epistemology, i.e. the privileging of masculine "sameness-unto-itself" to ground identity and knowledge (meta)physically. They also tally with feminist critique of the masculinisation of science (Irigaray, "Subject of Science"; Keller, "Feminism and Science," "Gender/Science System," "Secrets"; Martin, "Science," "Medical Metaphors"; Haraway; Hird) and epistemology (Bordo; de Lauretis; Nagl-Docekal), and generally of the globalisation of *hegemonic* western cognitive and epistemic models (Moore, Clarke),[37] once the power of, and control over, definition has been wrested by the western scientific *male*stream (Nagl-Docekal 60).

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[37] Yet see Nagl-Docekal's critique of some feminists' elision of certain hegemonic epistemological models of modernity with western epistemology at large or western ways of thinking, e.g. defining reason exclusively in terms of modern scientific rationality.

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