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# Disputing Ergonomics. Deconstructing Users. A Queer Perspective on Design.

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Status: Working paper.

In this paper, we investigate body and user representations in design practices, first through a historical perspective on ergonomics, standards and user-centered design, then through two case studies. The first (by Thomas Carpentier, architect) was built upon *queer* and *crip* user representations and questions industrial design and architecture. The second (by Hélène Mourrier, graphic designer), led by an activist agenda, proposes an alternative representation of trans\* bodies, through a queer graphic vocabulary. Both were chosen not only for their ability to undermine if not deconstruct models that could be called 'straight' following Monique Wittig, but also because they exemplify two distinct methodologies of problematization and production: exploring queer ways of designing and investigating ways of designing (with) queer studies.

We will underline how rationalized models of users such as Taylor's, the Gilbreths', Neufert's and Dreyfuss' (Fig. 1) fit in the modern project, but also how they contributed to the quantification, differentiation and the setting of the "normal" bodily pre-requisites to engage with artifacts and spaces. We argue that such a modernist enterprise of human normalization towards industrial standardization might echo what Gayle Rubin has described as heteronormativity. We will develop here the concept of 'queer design,' as a becoming-minor of design.

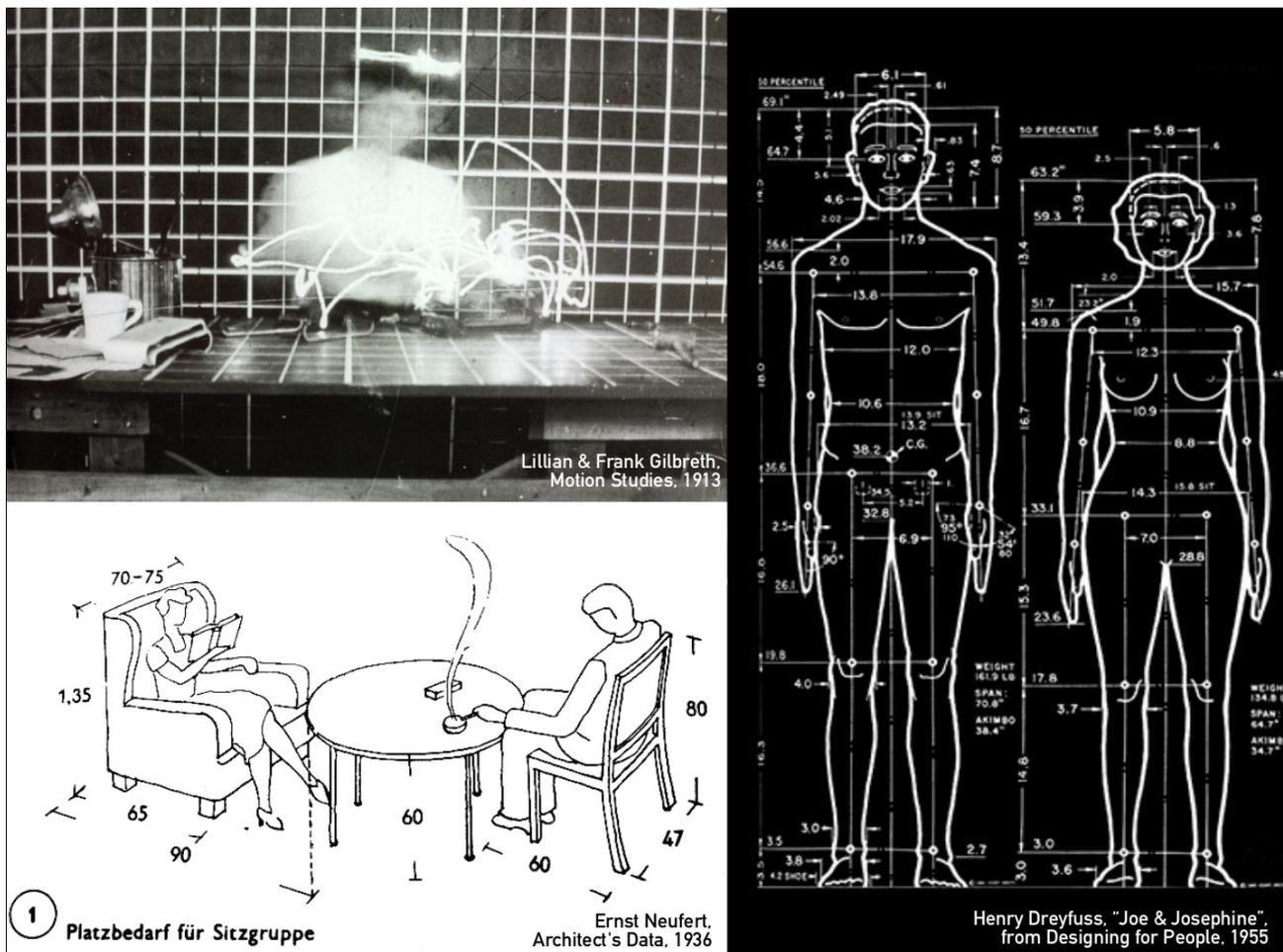


Fig. 1: pictures from the Gilbreths', Neufert's and Dreyfuss' work.

## Engineering users: a modern(ist) project

Following literature (Weber, 1930; Giedion, 1948; Marchand, 1985; Latour, 1991; Brague, 2015), we propose to briefly sum up modernity as a moral enterprise of transcendence relying on scientific / technic / epistemic operations upon the world. As stated by (Giedion, 1948), *“a line leads from the fourteenth century to the present: Oresme - Descartes - Marey - Gilbreth: the theologian-philosopher - the mathematician-philosopher - the physiologist - the production engineer.”*

At the turn of the XXth century, the emergence of mass production and international large-scale trade involved new modes of organization, production, distribution and consumption, and trade partners soon faced the necessity to harmonize their means of production as well as their production itself.

Humans did not escape this will for standardization: Taylor and the Gilbreths studied worker's gestures to optimize their every moves, while the household itself began to be

conceptualized as a domestic factory and the wife as a domestic worker.

To define their role in this process of global harmonization of production and inscribe standardization in the modern project towards the rise of the “New Man”, designers and architects began to propose guidelines, describing bodies that could be the basis of standardized shapes and units.

What Foucault named ‘*Docile bodies*’ are produced through such a process of normalization, by and for the industry. To quote Henry (Dreyfuss, 1955) : “*our job is to make Joe and Josephine compatible with their environment. The process is known as human engineering.*”

As described by Foucault , “*a 'political anatomy', which was also a 'mechanics of power', was being born; it defined how one may have a hold over others' bodies, not only so that they may do what one wishes, but so that they may operate as one wishes, with the techniques, the speed and the efficiency that one determines.*”

About the definition of queer in this article: if we will use queer in its original sense (Oxford Dictionary), “*odd or weird,*” it is to be acknowledged that this paper is situated within the broader “*queer theory,*” i.e. the “*stud[y of] the webs of power and discourse that create and uphold the idea that*” “*social constructs*” are “*descriptors of innate types,*” (Callis, 2012) and specifically the gender binary construction.

## **Case studies**

Before presenting our case studies, let’s note that both Mourrier’s and Carpentier’s works are post-graduation projects. Both of them graduated with honors, which indicates that both of them met the highest educational expectations in their discipline.

### **1. Carpentier: Creeping architecture**

As stated by Carpentier, the project was born out of a feeling that something was to be questioned in the current standardization of housing and “*accessible architecture.*” He aimed to “*question the notion of standard in contemporary architecture*” and “*to reshape its discourses.*” (Carpentier, 2015)

He decided to design an “*anti Neufert,*” an add-on to *Architect's data* (Fig. 2 & 3), which principles and rules remain acclaimed and taught in numerous schools. Convinced that Neufert had been constructing his architectural principles for and from a stereotypical male body, he would base his own standards on ab-normal bodies.

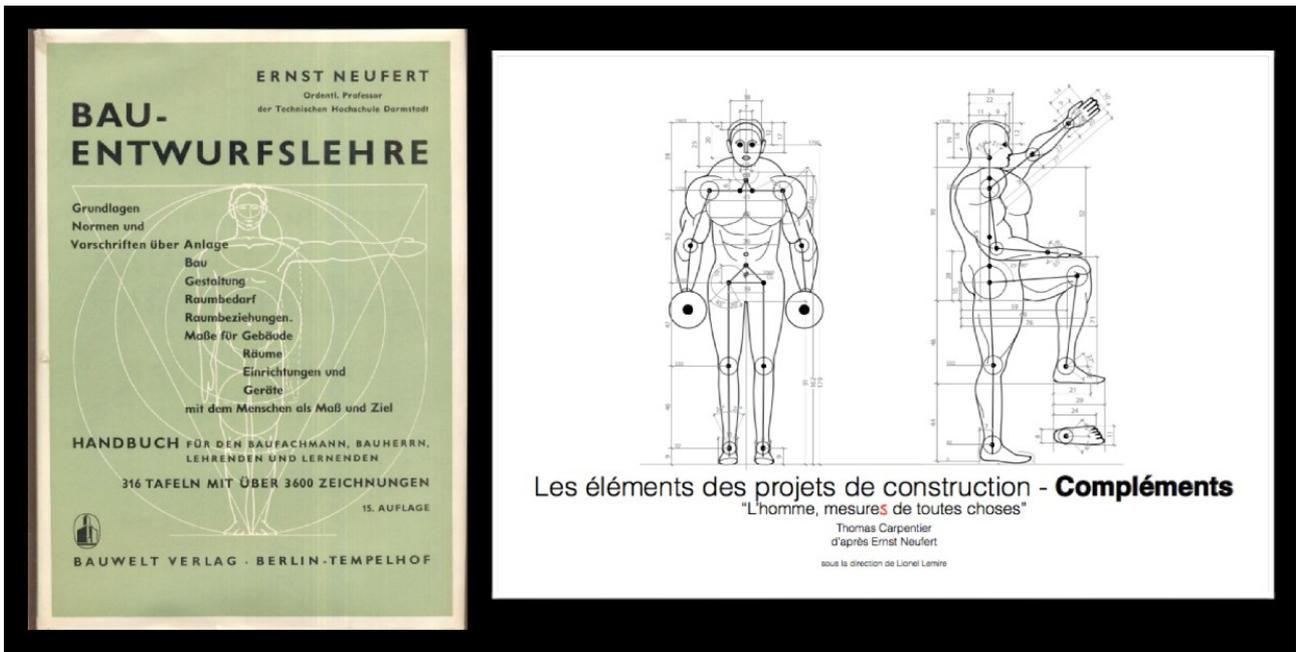


Fig. 2: Covers of Neufert' *Architect Data* and Carpentier' *Add-on*

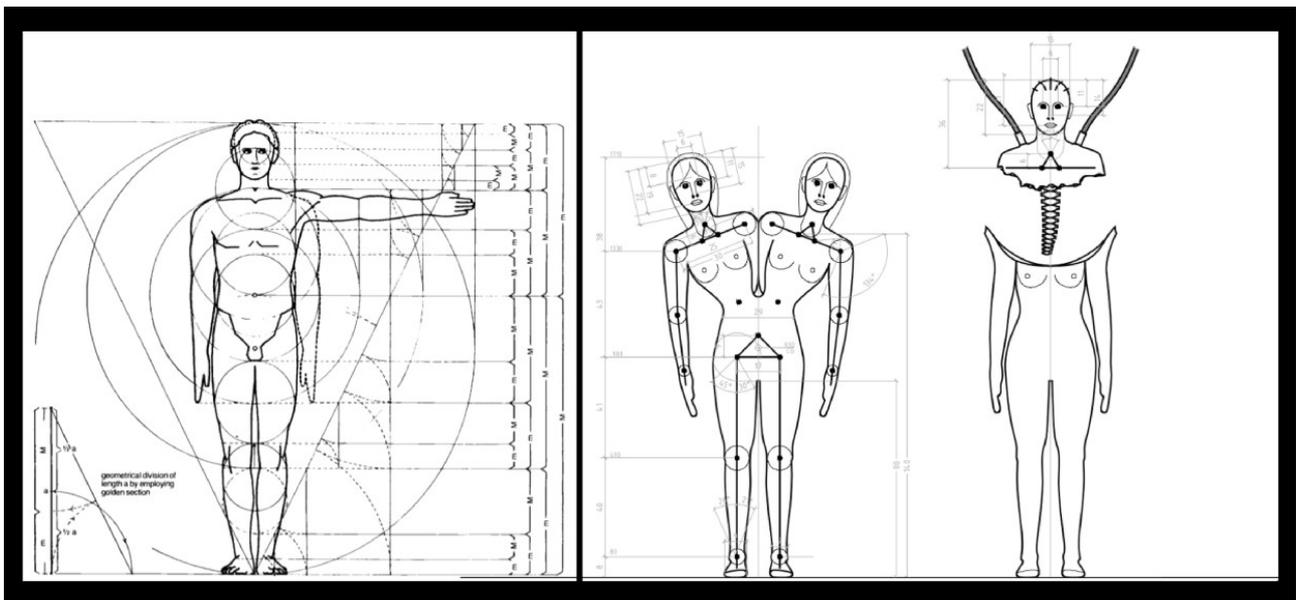


Fig. 3: Left, Neufert' body model, right, Carpentier's.

### Criticizing the modern project: The Architect as Storyteller

Carpentier's first step was to collect unconforming fictional or actual personas, whose particular agency would need a tailored housing solution. He constituted a 7-families card set, with personas sorted as follow: the augmented, the disabled, the out-of-proportions, the self-modified, the perfect, the misbehaved and the eccentric. Carpentier designed tailored rooms or furniture (Fig. 4). He framed Alice in the Ikea Wonderland (Fig. 5), and imagined the interior of the Genie's lamp (Fig. 6).

He then redesigned iconic buildings from the Neufert's era (Fig. 7), as well as “the Dream Home” for a family of fourteen of his characters (Fig. 8).

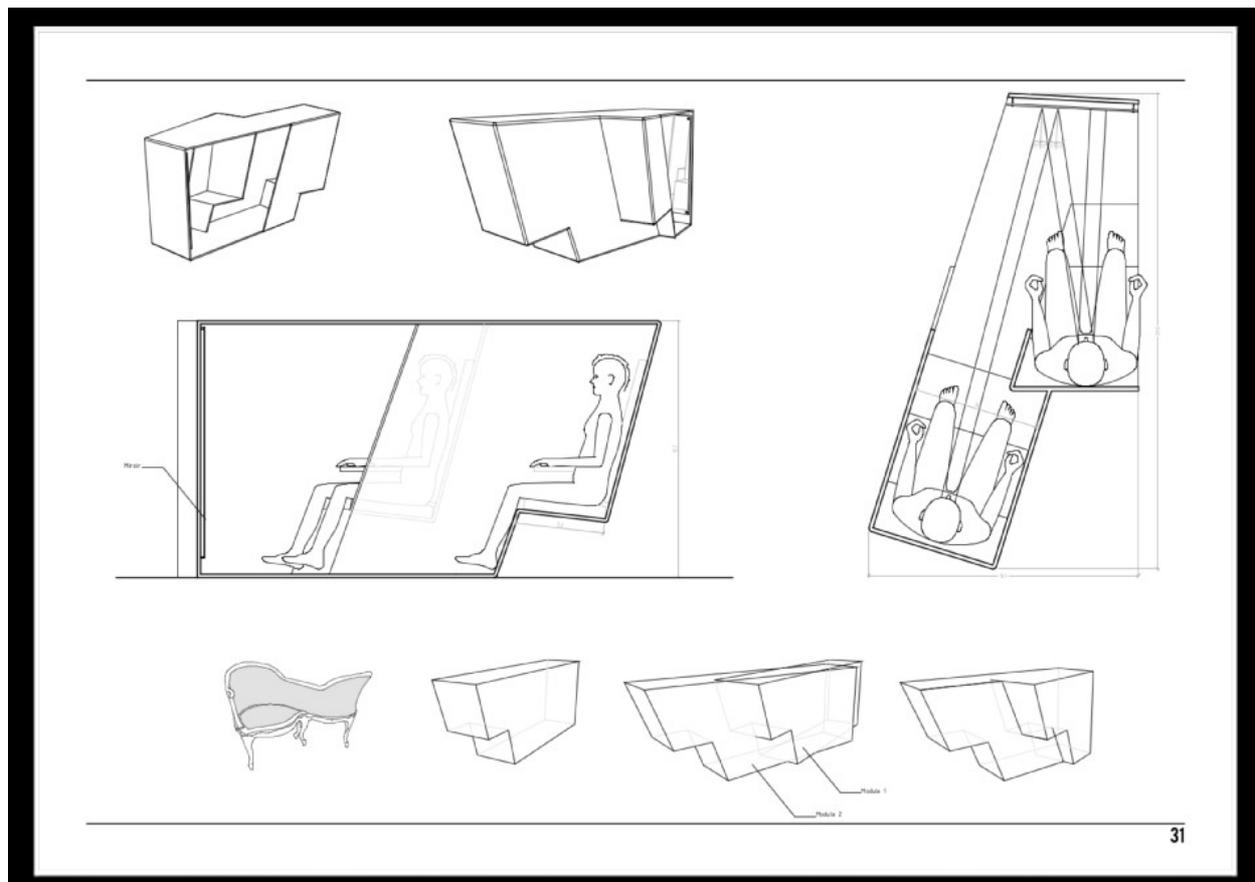


Fig. 4: Tailored furniture : a seat for Narcissus, a seat for Dracula. From *The Architect's data: Add-on*.

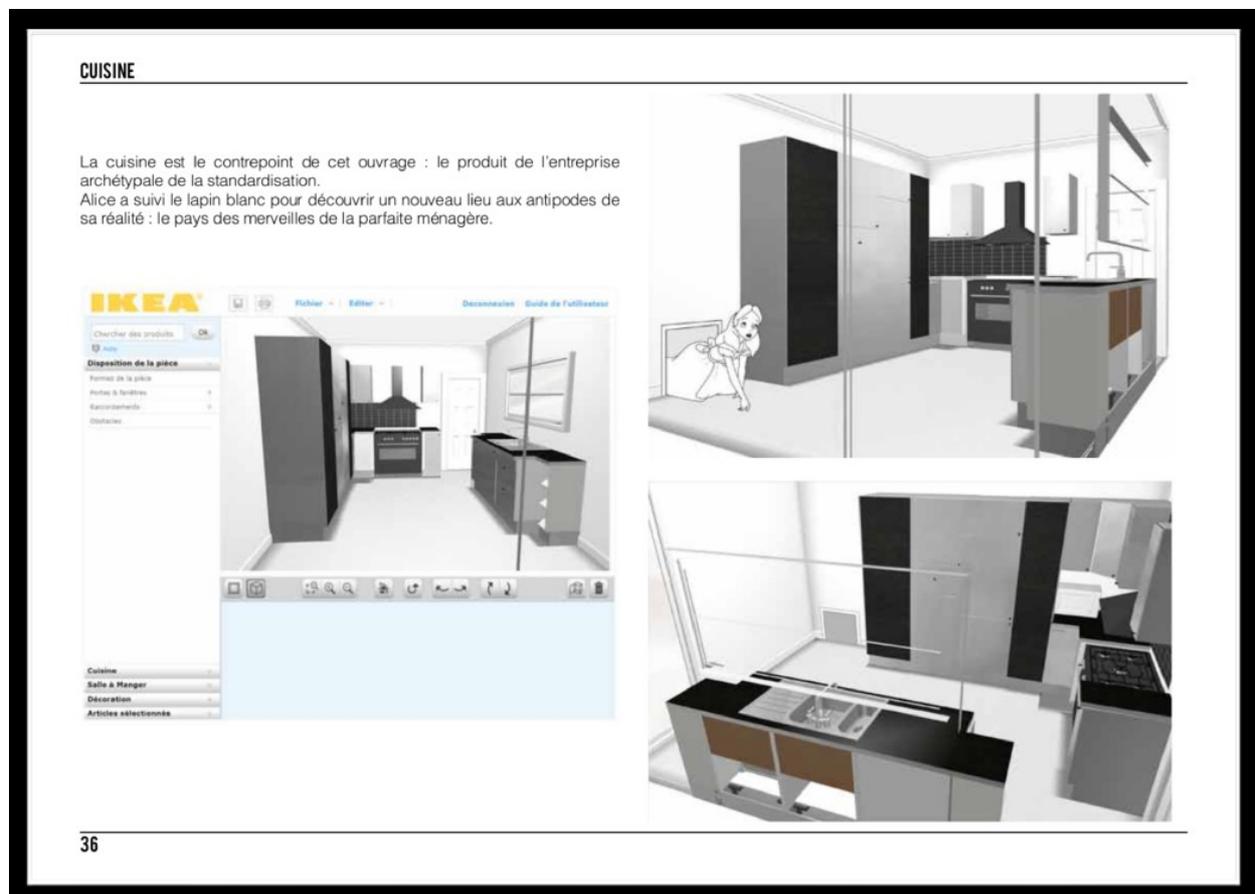
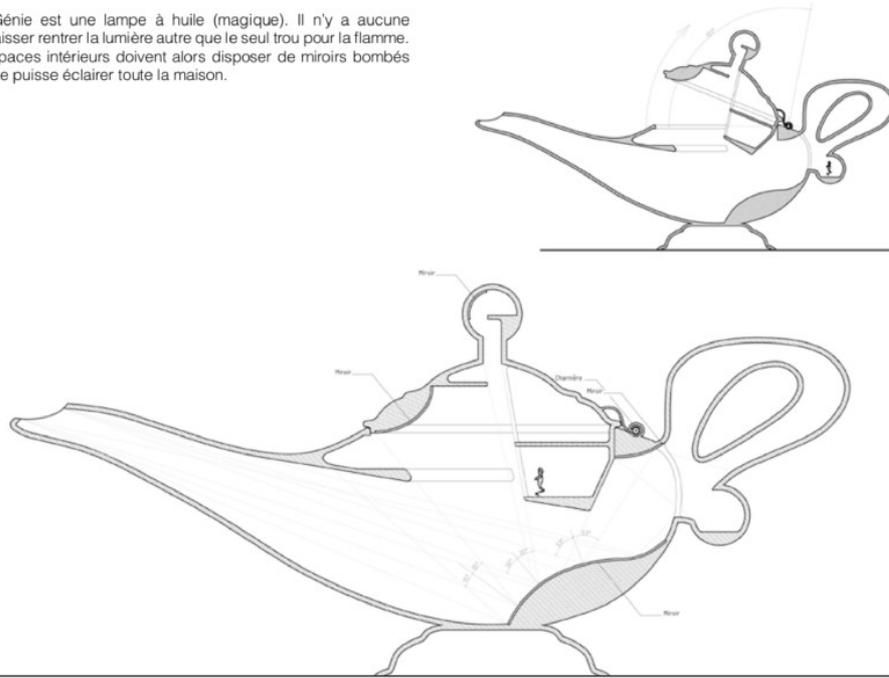


Fig. 5: Alice in the Ikea Wonderlands. From *The Architect's data: Add-on*.

## LUMIERE

La maison du Génie est une lampe à huile (magique). Il n'y a aucune ouverture pour laisser rentrer la lumière autre que le seul trou pour la flamme. Les différents espaces intérieurs doivent alors disposer de miroirs bombés afin que la lumière puisse éclairer toute la maison.

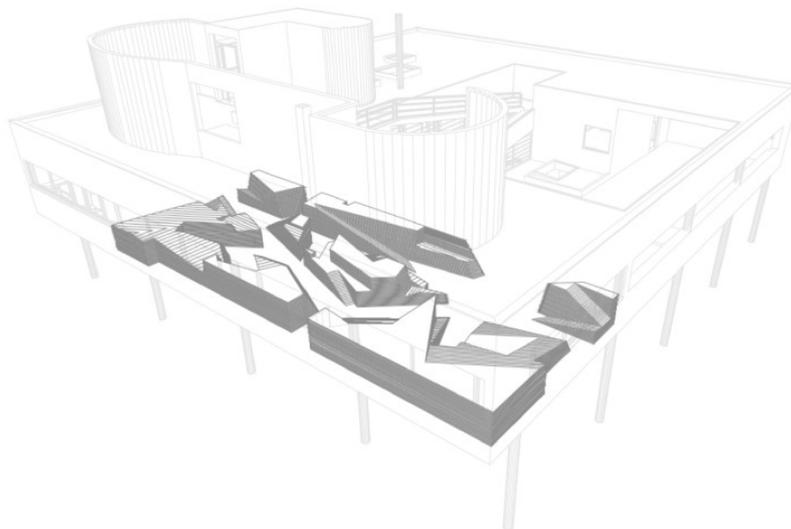


48

Fig. 6: Interior Design for the Genie's lamp. From *The Architect's data: Add-on*.

## VILLA SAVOYE-LE CORBUSIER

David Toole et sa femme se sont installés dans cette villa. Ils ont créé dans leur salon, un paysage où ils peuvent se retrouver, partager des moments ensemble, au même niveau et ce, malgré le handicap de David.



60

Fig. 7: What would happen to the Villa Savoye if David Toole, a dancer born without legs, lived in it? From *The Architect's data: Add-on*.

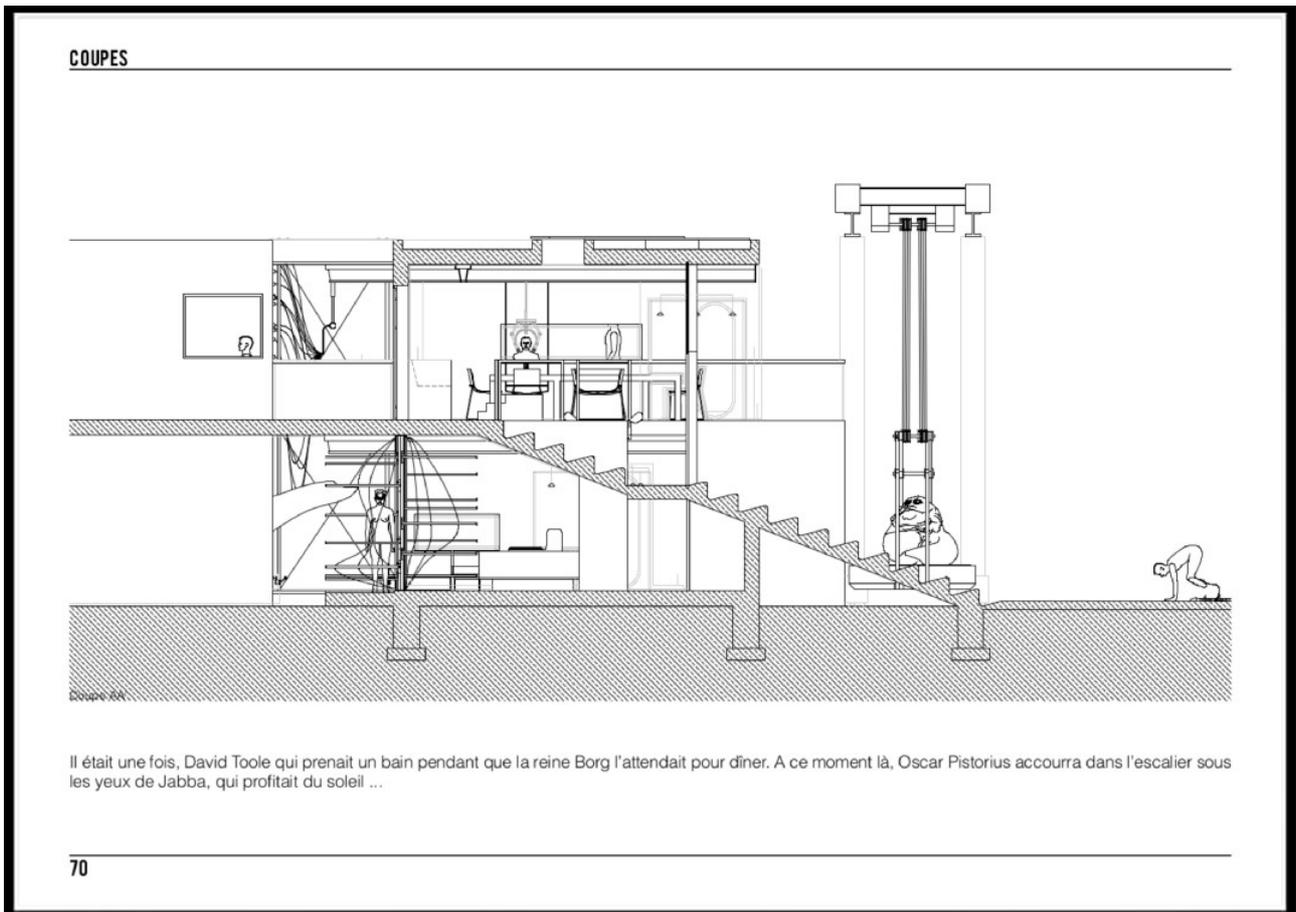


Fig. 8: Designing a “Dream Home” for a “monstruous” family. From *The Architect's data: Add-on*.

### Subverting tools: Playfulness and School Boyish Humor

In their latest version, each design was presented as a serie of boards, assembled as a book and contextualized by a short narrative. On a visual level, it is a direct reappropriation, and even “misuse” of Neufert’s visual vocabulary. As a counterpoint, the textual description suggests a wide variety of activities of, and between, the characters. Some are extracted from their background stories, others are proposed by Carpentier, with what we could call a “school boyish humor:” Jabba the Hutt and Monk engage in sexual intercourse, Paris Hilton wants to show her body to passers-by, Pistorius seems to spend his time running in the stairs, the Borg-Queen has been enslaved by Mrs Arpel to provide and control her house’s electricity...

Carpentier’s card set became a narrative design tool, a playful toolbox generating weird, odd, in short *queer* encounters between characters and architecture. It allowed him to expose the performativity of architectural discursive tools (sketchings, 3D modeling, blueprints, etc. See fig. 9) as they “*produce the phenomena that [they] regulate and constrain.*” (Butler, 1990) His

project—as a branch of Neufert's, just like its title, *Architects' data: add-on* suggests—highlights how “user-figures become a tool through which particular design decisions are made” (Kelly & Matthews, 2014).

### Reshaping Discourses on Norms and Domesticity

His project operates as a critical reflection of a specific paradigm what we would call “the modern regime of truth”, where most architectural products are standardized and globalized. This is exactly how Neufert’s *Architects’ Data* operates: because it provides a widely used conceptual framework for architects to use in design —and data to support it, it legitimizes in return practices and practitioners, which apply standards to production, which growth needed these standards, shaping new practices, etc. This circular relationship establishes a moral scale for design evaluation: “legitimate” design respects the norm. (Fig. 10)

Because Carpentier masters some of the performative tools of the architectural regime of truth, he was able to use them to expose its arbitrariness. By uncovering the fictional nature of Neufert’s standards, and by producing a new narrative, he contests the essentialization and naturalization of norms.



Fig. 9: upper line: 3D model and plans from a residential project; lower line: 3D model and plans for the “Monster Family” home

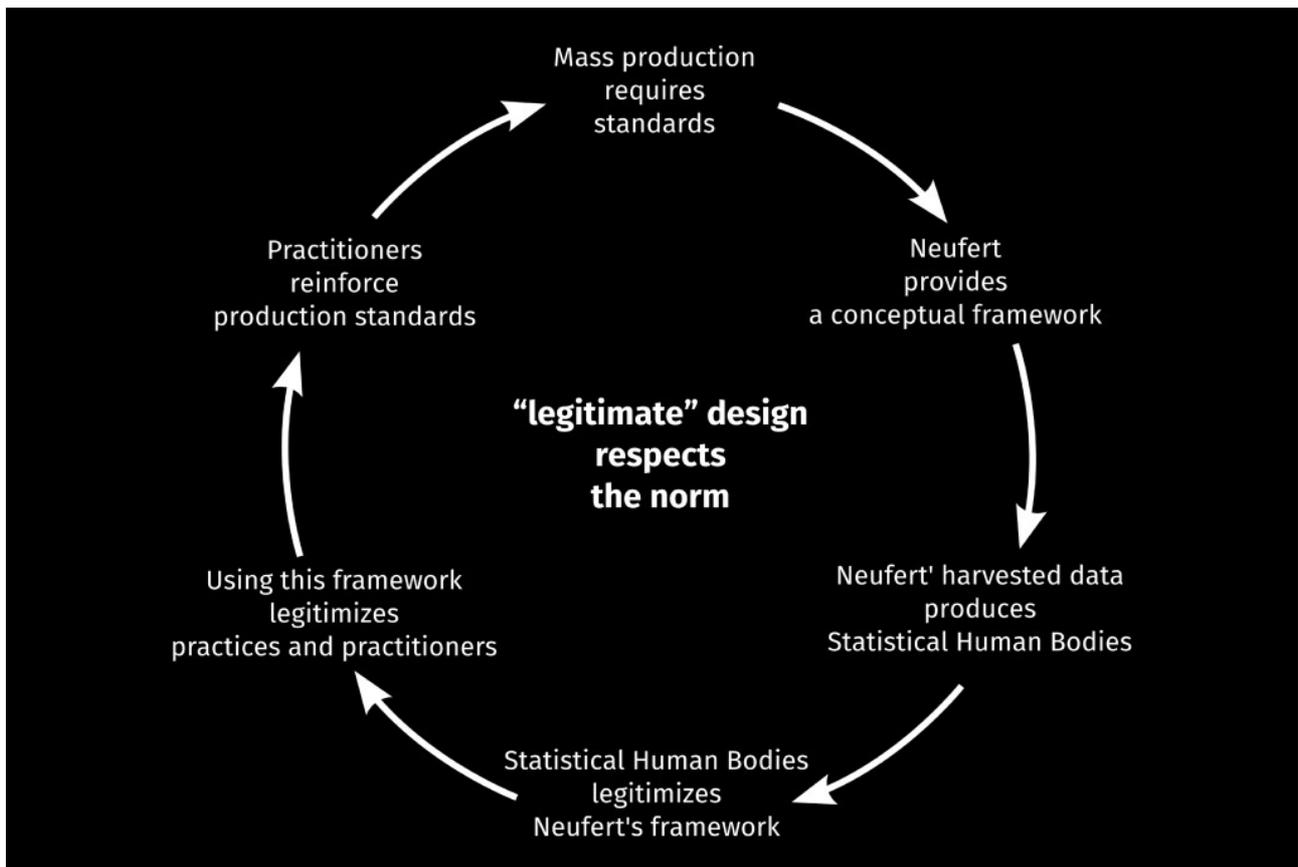


Fig. 10: Of design and the naturalization of norms.

It also appears that Carpentier mostly met gender studies through practice. Which produced an unexpected approach to domesticity. Far from designing spaces covering the full spectrum of domestic activities, his architectures mostly serve leisure and narrative purposes. Instead of picturing nuclear families, he exposes individual or communal lifestyles of cyborg-ish (Haraway, 1991) characters. In short, his reflection upon architecture opens up perspectives on a “*posthuman domesticity*” whereas traditional or moral domestic practices tend to disappear, at the profit of “*uses to be invented*”.

On a broader scope, when reshaping normative architecture around extravagant characters, Carpentier is both queering (“*appropriating a representation for one’s own purposes, forcing it to signify differently*”) and crippling (“*reveal(ing) able-bodied assumptions and exclusionary effects*”), “*expos(ing) the arbitrary delineation between normal and defective and the negative social ramifications of attempts to homogenize humanity*” (Sandahl, 2003). However, therein lies the rub: queering and crippling are tools of resistance for oppressed communities. One can therefore question the legitimacy of their use in this context. Should anyone theatricalize people as characters? Should bodies, usually invisibilized by stigma, be “*put on a pedestal*”,

therefore deprived of their right to manage their own visibility?

### **De-scripting users and bodies**

To give a few elements of answer to these questions, we first need to mention Carpentier's claim of "*tenderness for the monsters*," for the characters he worked with. As stated by Haraway (1991), "*monsters have always defined the limits of community in Western imaginations*"—here community is redefined as encompassing them. Carpentier's project wasn't so much about proposing or producing a more inclusive architecture, as sensitizing himself and others to the necessary care for otherness, actual users and the ways they relate, in the design process.

Carpentier's process of deconstruction doesn't produce standards, while allowing the proliferation of scripts. It exposes that inhabiting practices, understood as particular habits shaping available spaces, are enacted in / by architectural propositions. The presence of "anomal" (Canguilhem, 1991 [1966]) characters, in the words of Canguilhem - that is to say escaping customs and habitus - incite to rethink the moral agenda of modern architecture (centered around the "bourgeois family" (Clarisse, 2004)) and make visible the relational agency of bodies, design and the natural world.

## **2. Mourrier: Designing (with) queer theory**

Our second case-study is H el ene Mourrier's "Trans/Formations" booklets, designed for OUTrans, as she was completing her postgraduate degree in Scientific Illustration at  cole Sup erieure des Arts et Industries Graphiques (ESAIG). This degree is appointed by the Piti -Salp tri re hospital and partly supervised by practitioners who guarantee the acquisition of specific and valid scientific knowledge. The terminal project must be achieved in an actual professional context to fulfill the school's requirements for graduation.

### **2.1. Project motivations**

As H el ene Mourrier was completing her 1st-year internship in a transgender support organization, she realized that "*all the discourses, all the scientific and medical knowledge about transidentity were voiced by the medical profession.*" (Fig. 11) "[She] did not have to look any further: [her] degree project was to focus on the trans genital surgical procedures." (Mourrier, 2014) During the second year of the postgraduate course, Mourrier chose to work with and for OUTrans: a self-directed support organisation actively involved in the field of trans

healthcare. The organization works mainly about trans healthcare issues. H el ene Mourrier joined in 2010, and offered the organization to design information booklets about gender-reassignment surgical procedures intended for trans people (Fig. 12).

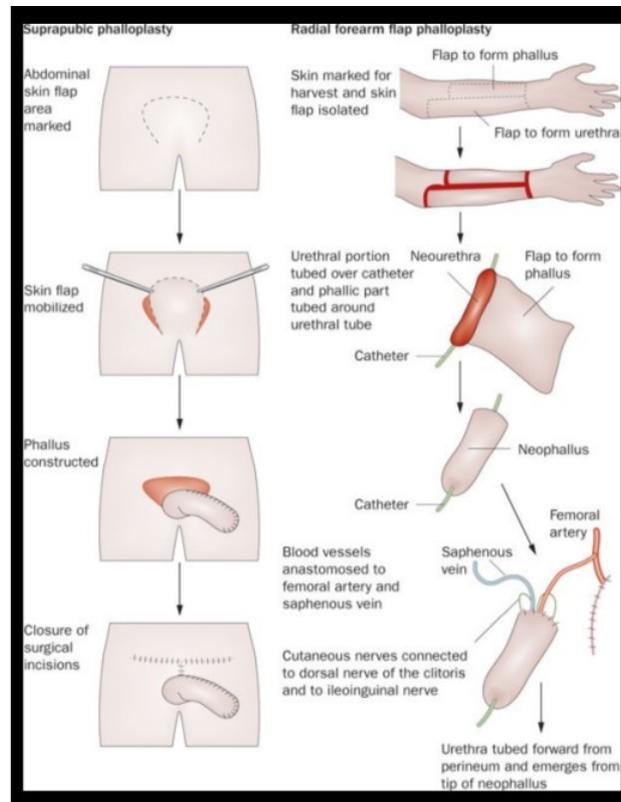


Fig. 11: Phalloplasty - 'Gender Reassignment Surgery, an Overview', in *Urology*, (8), 2011.

## 2.2. Reclaiming design methods: the Activist as Designer

### The design methodological matrix as a critical tool

Design education in France mostly relies on officially appointed reference documents precisely setting a matrix for design practice and defining goals, skills, ethics and methods.

(Minist re de l'Enseignement Sup rieur et de la Recherche, 1996a, 1996b, 2012)

Mourrier followed a simple though operating methodology based on this matrix she nurtured with her OTrans activist's position. This led her to develop a graphic system supporting her political, moral, ethical agenda while meeting the educational expectations. Her graphic system is based on a geometric modular grid where the core module is an inverted isosceles right triangle (Fig. 13), a shape that refers to the markings of homosexuals in concentration camps (Fig. 14), which reversal is a literal interpretation of the queer use of inversion and re-appropriation of the stigma, as already efficiently used by *AIDS Coalition To Unleash Power (ACT-UP)* since the late 80's.

The color palette using nearly a dozen shades of pink (pale, dark, colored, see Fig. 15) that

contrast slightly with pale yellow, green and blue, brings back the presence of the flesh (Fig. 16). Shades and contrasts are not used to mimic volume, as in conventional painting techniques, but rather suggest the body parts' non-homogenous pigmentation, especially genitalia's. This extensive palette of pink is a graphic attempt to re-sexualize the transitioning bodies, from which any reference to any erotic activity has been eventually discarded as they were turned into a biomedical subject. As Mourrier bluntly states, "*the trans bodies are also bodies for fucking*": "*the choice of pastel colors is a transcription of the sensitive and erogenous value of the sexual areas in question.*" (Mourrier, 2014)

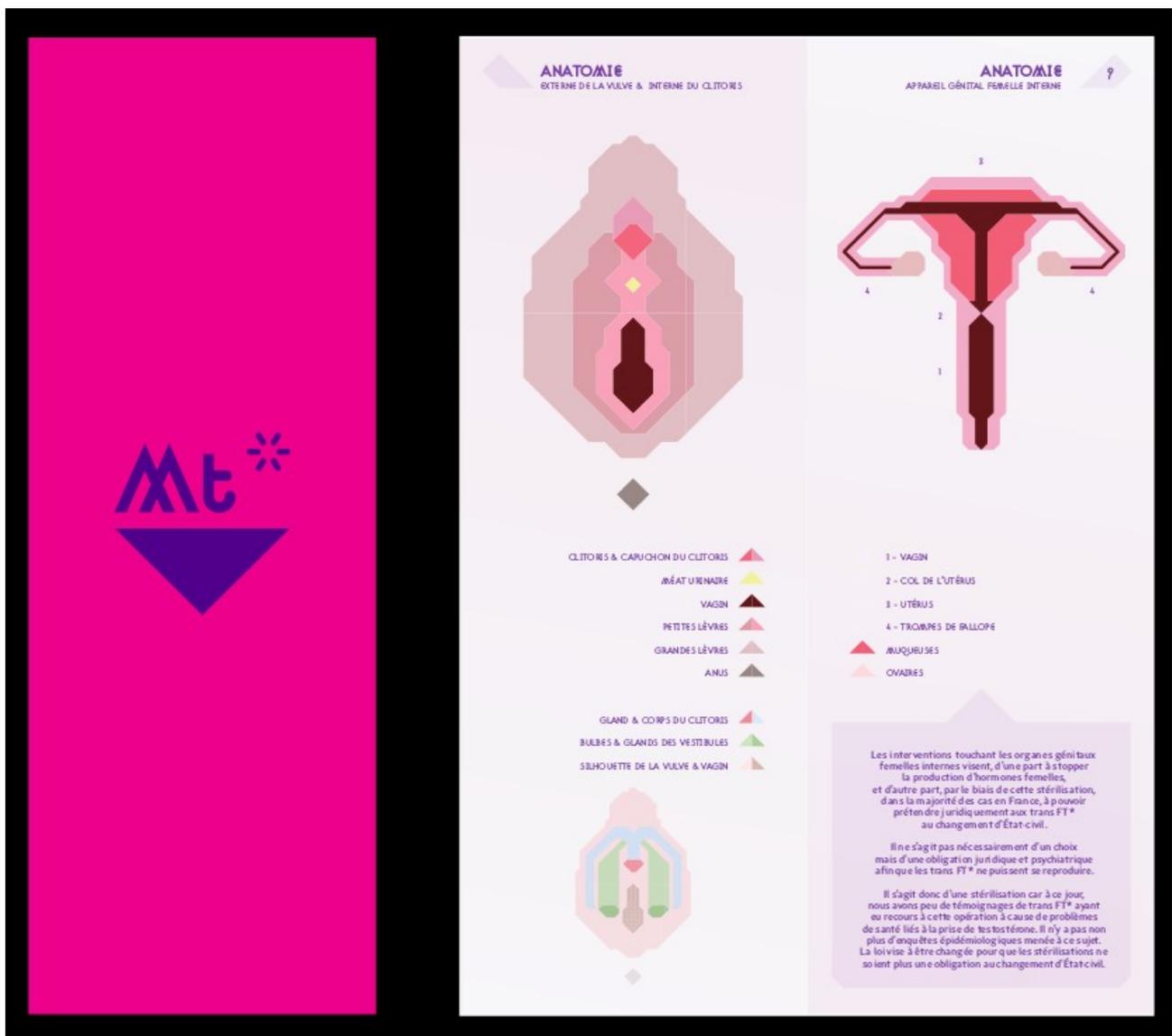


Fig. 12: MT\* booklet, front cover / FT\* booklet, excerpt from inner pages, H el ene Mourrier / OUtans 2011-2013.

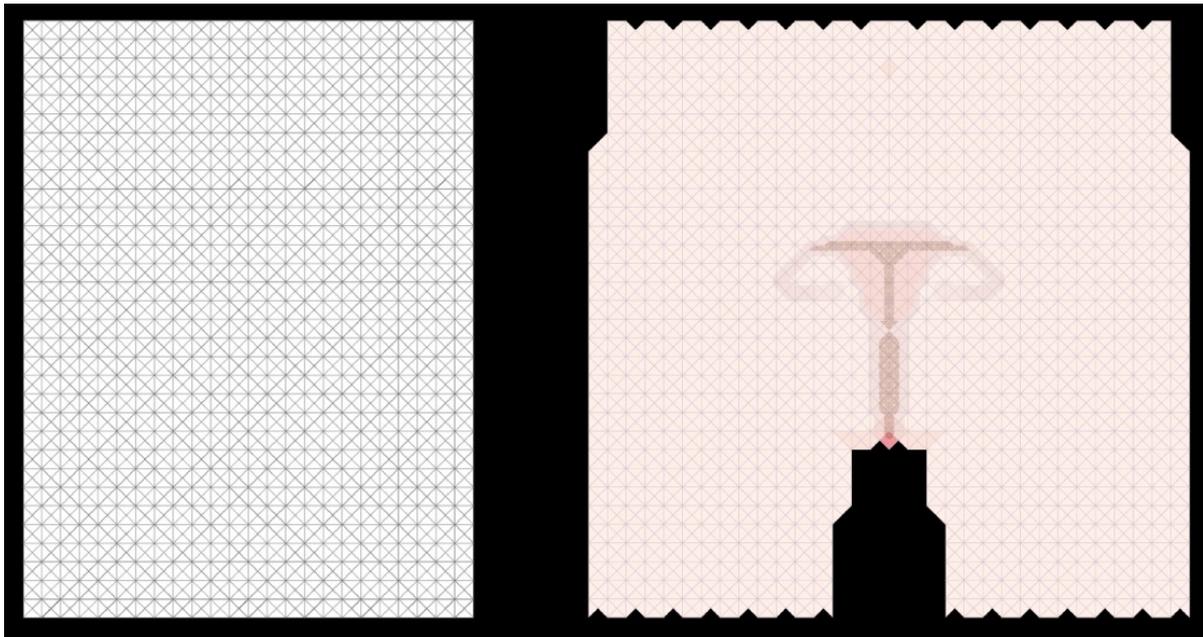


Fig. 13: From a modular grid based on duplicated triangles...to a coronal plane of the pelvis. By H el ene Mourrier 2011-2013.

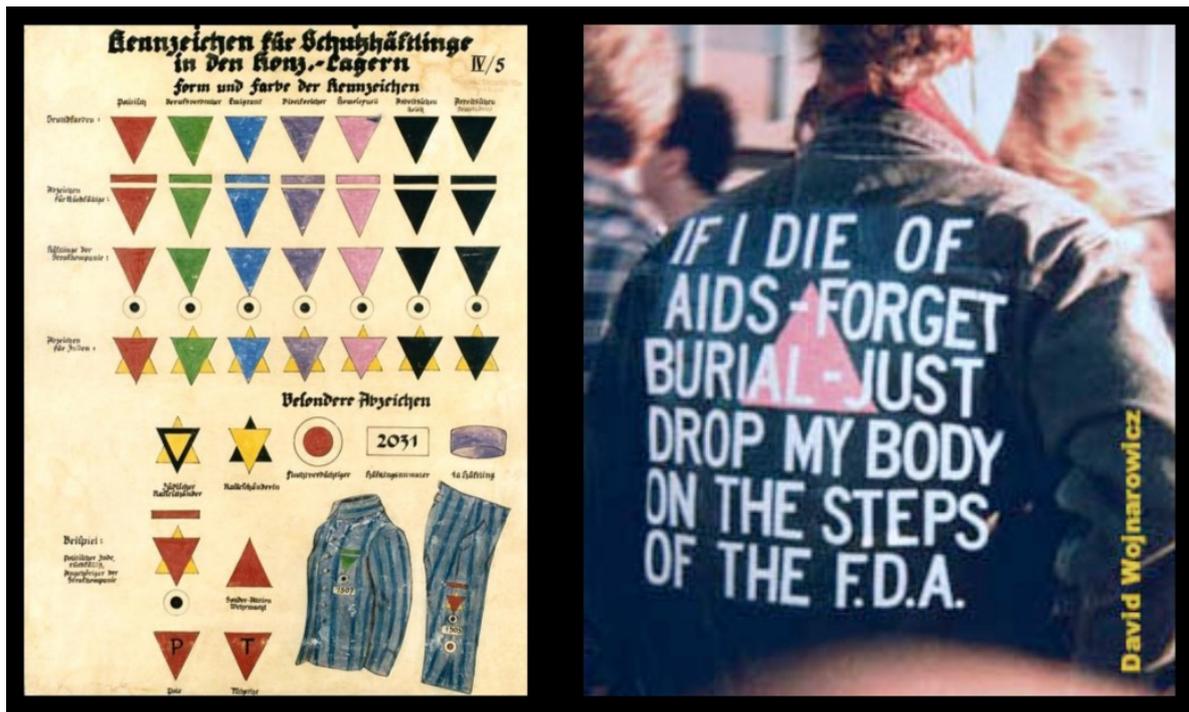


Fig. 14: Inverting the Stigma: From the nazi marking system to homosexual activism.



Fig. 15: Trans/Formations : color chart. By H el ene Mourrier.

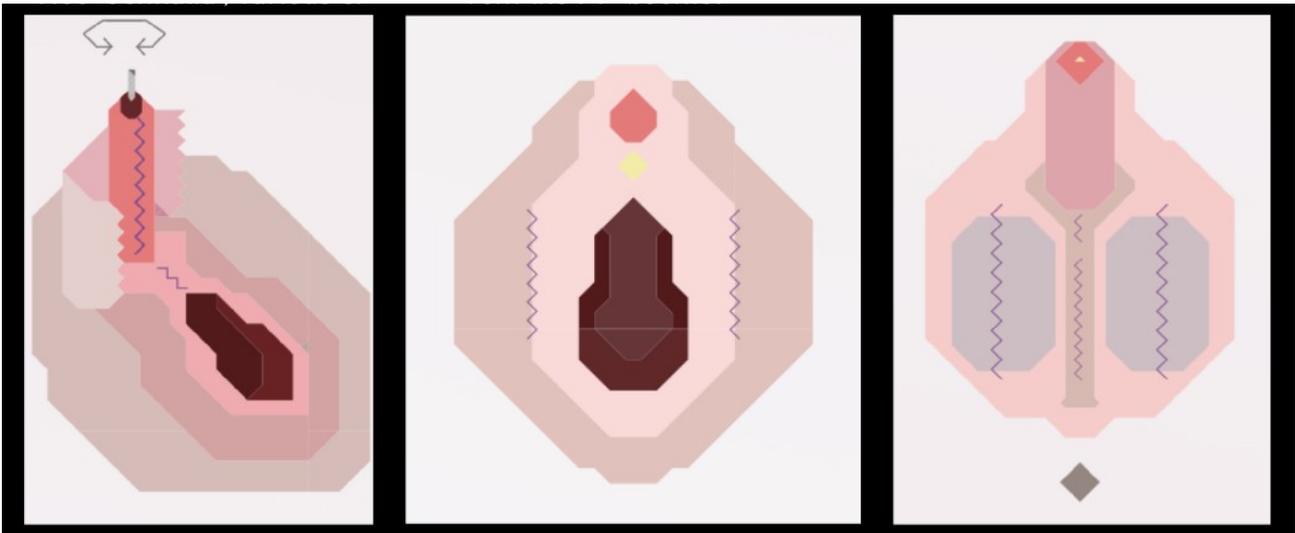


Fig. 16: Resexualizing medical bodies. 'Neo-Genitalia', various excerpts from the FT\* booklet.

### Challenging hegemonic discourses and representations

The graphic language of H el ene Mourrier has made visible the trans activist framework, influenced by concepts coined by Butler or Haraway, through an artificial system of representations, detached from any canonical mimesis. It produces mutating shapes parodying the standardized codes of visual information, de-naturalising (Butler, 1990) the biomedical sciences representations. "*The anatomical parts [composing and recomposing themselves] at will*" are playing down surgical procedures themselves .

Mourrier offers visual tools for permanent construction to transitioning bodies, bodies evading the figures of the ideal gendered body; a sort of graphic tangram "*without genesis, but [...] without end*" (Haraway, 1991).

It is notable that the graphic system designed by H el ene Mourrier does not consist in highjacking or reappropriation.

By addressing her ethical responsibility as a designer from her activist perspective, Mourrier has chosen to refute what is refutable, if not 'repudiable' here: namely the representational standards (the *Canon* of her discipline, see Fig. 17), which say nothing about the truth of the biomedical surgery, but set a normative and naturalizing body-representation system which is hereby challenged by the queer/trans bodies-in-progress. We argue that Mourrier actually deterritorialized her discipline and reterritorialized it in her trans-activist context. She disrupted the set of medical power relations (a absolute and hegemonic biomedical knowledge) and actualized them in a confrontation to political, legal, linguistic, visual contents. These booklets are somehow trans in their own way: a hybrid discourse, without hierarchy, without separation between disciplines and knowledge, "*a true monster,*" (Foucault

1970 : 61) a “parodic proliferation” of statements “ [depriving] hegemonic culture and its critics of the claim to naturalized or essentialist gender identities.”(Butler 1990 : 176)

As such, we argue that Mourrier's project can be understood as an assemblage:

*“a multiplicity that contains a large number of heterogeneous terms and that establishes links, relationships with each other, through different ages, genders, reigns, natures. Thus the only unit of the assemblage is to co-operate: it is a symbiosis, a “sympathy”. What matters are never filiations, but alliances and alloys.”*

Through the alliances and alloys of a heterogeneous set of signs and discourses, OUTrans and Mourrier have been producing “strategies of relations of forces supporting, and supported by, types of knowledge” (Foucault, 1980: 196), i.e.: a queer apparatus [dispositif] engaging in a relation of forces with a normative apparatus.

Systematically engaging design tools in a critical perspective, Mourrier opens a breach for a “teratology”, in the words of Foucault, of legal and biomedical knowledge. (Fig. 18)

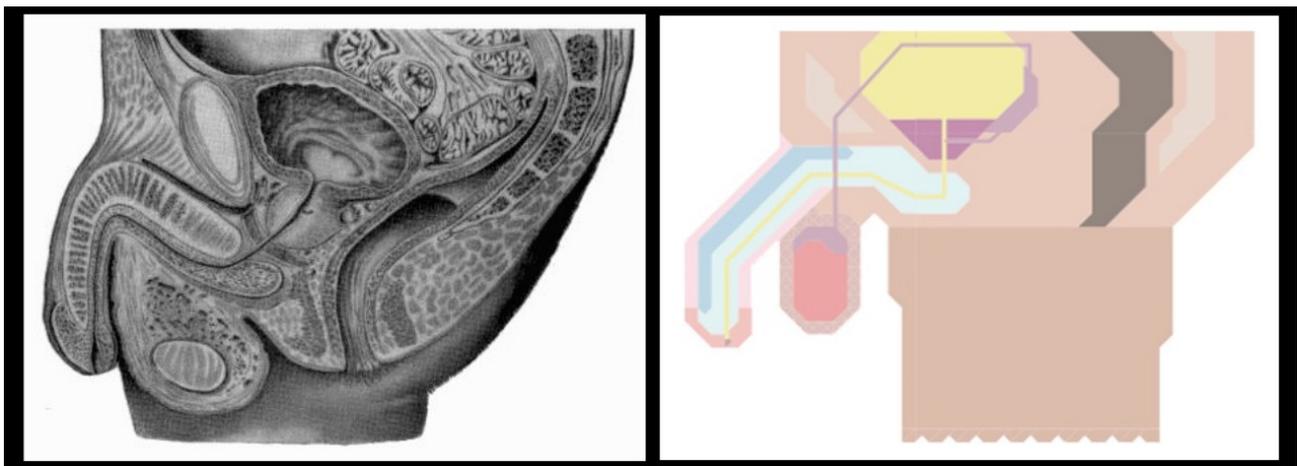


Fig. 17: Refuting the Canon. Left: Male pelvis, sagittal plane, Johannes Sobotta, 1904 . Right: Male pelvis, sagittal plane, Hélène Mourrier, 2011

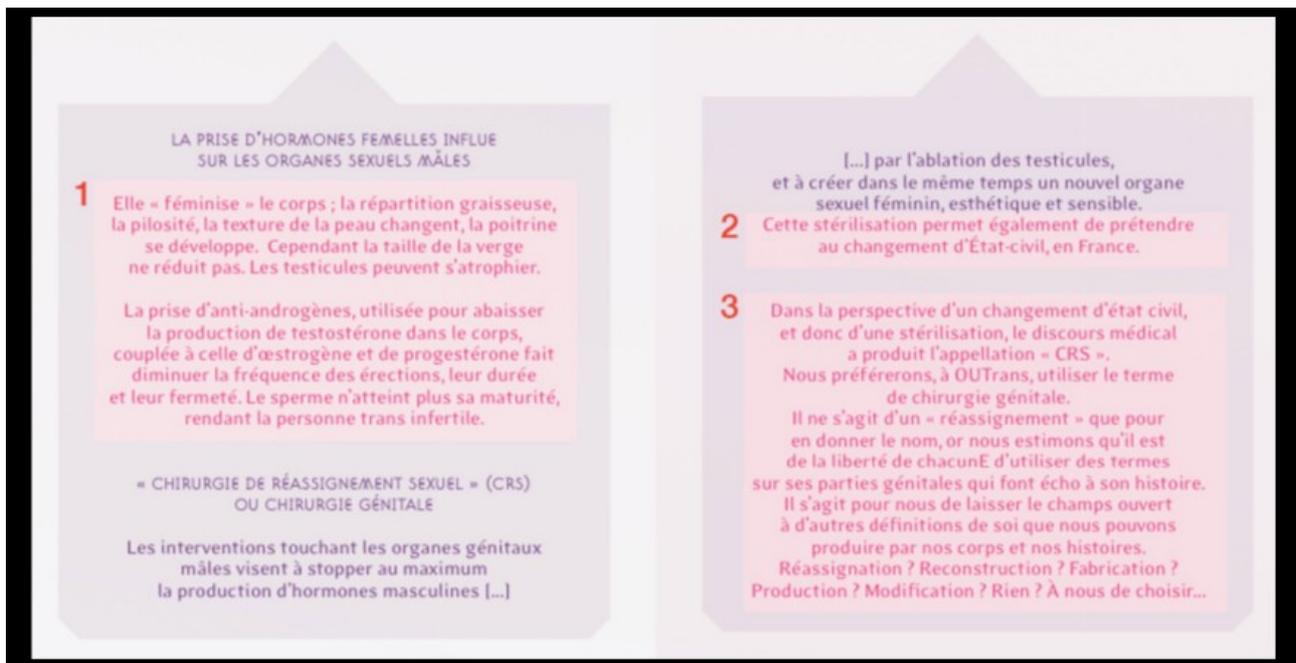


Fig. 18: The point 1 is a technical description of the effects of antiandrogens (medical discourse). The point 2 is a succinct memo about the required conditions for a change of civil registration for trans people (legal discourse). The point 3 is a critical / theoretical statement addressing the articulation between science, laws and self-representation (political discourse). This illustrates how a “true monster” in Foucault' sense was born from this design project. Excerpt from OUTrans Booklets, 2011-2013.

## How we might live: A Queer Utopia for Design?

### 1. Towards a Queer Design Matrix ?

Could a queer matrix be theorized for design? Should a queer design matrix be established as a method, or a posture? We argue that, instead, queer theory offers a radical approach to design and its practitioners.

Mourrier and Carpentier propose an anti-authoritarian approach to design. They encourage design to produce situated apparatuses, that may or may not be incompatible with mass production. Their projects highlight methods to engage design in a reflective and performative critique that embraces a queer framework following two different perspectives.

### 2. Design methods and tools: queer critique, queer empowering

While Carpentier is engaging in a performative critique of design as a discursive apparatus of normalization, Mourrier is trying to rouse graphic design and its methodological matrix from being an agent of essentialization.

In both cases, the designers aim at 1/ defining dynamics within relations of power, especially

in hegemonic discursive apparatuses (i.e. school, medical profession, etc.), 2/ unveiling the performative property of any discourse of truth, 3/ producing operating resistances (displacements of signifying elements, de-naturalization of hegemonic discourses, production of new discourses on a « counter-performative » mode).

In *Architect's Data: Add-On*, Carpentier gathers a vast range of hegemonic representational tools (from technical diagrams to computer-aided design sketches) to dramatize the signifying representations and discourses of his profession (Butler, 1990), and operate a critical parody, a drag of architecture as a regime of truth over bodies and uses.

As for Mourrier, she identifies her practice as a realm of “*rigor, faithful to the truth of science, ambitioning to participate in the understanding of a system or scientific data*”. She keeps in mind that graphic design is technically and historically linked to the production of any regime of truth, and therefore any regime of power. A strong ethic of the care has been leading Mourrier to relate “*her attachment to a gentle approach to bodies, experiences, speeches and their modes of existence*” to “*her working and reflective attitudes, and “her methodological and creative choices*” (Kazi-Tani, 2015).

We argue that, this care for her practice and its potential power and responsibility has helped her displace graphic design from a hegemonic discursive regime to a “minor” one, offering the trans community a counter-apparatus of subjectivation.

### **3. A Becoming-Minor of design**

The most decisive quality of Mourrier and Carpentier's work is an ability to capture and recondition the potency of a technical, aesthetic and semantic apparatus, usually dependant of an hegemonic power.

Furthermore, this reflective, ethical and moral capacity is a fundamental part of what we call the “design matrix”. We believe it is important to underline that Carpentier and Mourrier's project, somehow, precisely conform to the educative institution expectations, which in return validates their design approach. Thus, the critical dimension of each of these projects is neither transgressive, nor subversive, but quite literally “radical” (from the latin *radix*, “root”), as it is situated at the roots of the historical “social agency” of design.

The strength of Carpentier and Mourrier's propositions is to highlight “*the effects of power which are linked with knowledge, competence, and qualification: struggles against the privileges of knowledge. But they are also an opposition against secrecy, deformation, and mystifying representations imposed on people*” (Foucault, 1982: 781). With Foucault, we argue

that this way of designing, lying in the dominant matrix of design, nevertheless questions “*the way in which knowledge circulates and functions, its relations to power. In short, the ‘régime du savoir.’*” (1982: 781.)

This re-conditioning operates on a “minor” mode, taking the shape of a “design drag” in Carpentier’s project, and of a furtive displacement, if not a decentring, in Mourrier’s. Through exhibitions and publications, they join the mainstream apparatus of Power/Knowledge (Foucault, 1980), but not without having them experienced “*the gap that separates*” this queer approach of design “*from this or that axiom constituting a redundant majority*” (Deleuze & Guattari, 1987: 469).

We precedently pointed out that, Carpentier reclaimed a critical posture towards the discursive tools of his profession. In Mourrier’s case, no critical position is engaged in a performative mode: still, if she doesn’t call her practice “critical”, she throws into crisis (i.e. a critical state) the hegemonic mode of graphic design practice with all of her professional tools.

We argue that this never-named-displacement may constitute a “Becoming-Minor” (Deleuze & Guattari, 1987; Eribon, 2003) of design, as it “[does not aim] at creating ‘a set defined in relation to the majority,’ but to produce a movement that may also affect what the minority departs and deflects, that may be driven and amended by the Becoming” (Eribon, 2003). Furthermore, as stated in (Deleuze and Guattari, 1986), “minor no longer designates specific literatures but the revolutionary conditions for every literature within the heart of what is called great (or established) literature.”

This is particularly the case in Mourrier’s project: every time her booklets are produced, read or distributed, they undermine the larger assemblage they fit in, they empower and visibilize trans\* people. Because it exists not only as a project or a set of hypothesis, but became a tool for a community, it positions queerness as “revolutionary conditions” inside the graphic design community.

In a moment when hegemonic expressions of design seem to “*consider all minor variations as gaps integrable in homogeneous and constant sub-systems, themselves derivable from the major or standard system*” (Sibertin-Blanc, 2003 [our translation]), it seems fertile to support modes of mobilizing design (i.e. make it mobile) toward its Becoming-Minor.

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