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dans

Ed. Eduardo Kac

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Embodying the chimera : toward a phenobiotechnological subjectivity

" Chacun d'eux portait sur son dos une énorme Chimère "
Baudelaire , *Le Spleen de Paris* , VI .

From monster to chimera

Until the end of the seventeenth century, the monstrous body has a mythological function : as a sign from irate gods , the monster (C.Kapler 1980) is not malformed like Oedipus' twisted foot/fate ; it is a prodigious creature whose corporal formation endows it with superior power . However , one should make a clear difference between fabulous monsters , whose corporal hybridisation still remains paradoxical , and biological monsters studied as early as Hippocrates , *Of generation* , X-I , and Aristotle , *Of the generation of animals* , Book IV. Greek mythology holds fabulous monsters whose human bodies have been recomposed with animal attributes such as wings , serpents and boar tusks for Steno and Euryale , transformed by Athena owing to Medusa's jealousy ; Medusa , lover of Poseidon and expecting his child , is in her turn transformed by Athena ; as with the sentence handed out to the Sirens , losing or disfiguring its human body defines the fabulous monster as a fall .On the contrary , the chimera is born with a triple animal body , « a sort of multiform and polycephalous beast uniting multiple forms in one body » .(Plato , *The Republic* , 588c) : lion-headed and dragon-tailed on the body of a goat . Yet specific unity is not maintained , as in the incorporation to Cerberus of three dog heads , serpents along his back and of a dragon tail. Cerberus remains a dog when a chimera represents three juxtaposed species . The chimera is a malefic creature whose next of kin are Echidna (half snake , half nymph) , Geryon , the three-bodied giant , Medusa (serpent-haired and stony-eyed) , Scylla (six claws , mouths and heads , and the roar of a lion) as well as the Sphynx endowed with a maiden's head and breasts , lion claws , and a dragon tail on a dog's body .

Bellerophon , queen Sthenebea's would-be lover was exposed to her husband as he spurned her . The king then ordered him to rid the country of Chimera , a fabulous creature born from the monstrous giant Typhon and the viper-bodied nymph Echidna , and who was , according to Homer (*Illiad* VI,179), lion from up front , dragon from the back and goat in the middle. The breach of the laws of hospitality here rests on the adulterous desire felt by the queen for Bellerophon who , in her eyes , had the bad taste of refusing her . The queen was scared by this representation of an object of desire refusing itself to whom desires it . Bellerophon owes his confrontation to Chimera's body to this impossible "corps-à-corps". All hold his death as certain , but the fabulous creature gives him the opportunity of an initiatic trial . Bellerophon is the child of Poseidon and the queen of Ephyra ; he owes his name to his murder of Belleros , tyrant of Corynth , which freed the town . With the help of a gift from the goddess Athena , he manages to tame the winged horse Pegasus. Then , zeroing in on the monster , he makes a nosedive : Chimera spews flames in defence , but

Bellerophon seals its mouth with a leaden ball that melts under the heat , and stifles it to death .

Admittedly , the chimera can be used as a scapegoat as opposed to the unicorn , an emblem of purity and virginity in the Middle Ages . Yet the unicorn is a fabulous animal whose corporal coherence makes it appealing , the equine body not being too remote from the deerhead bearing its sole horn . The chimera is a mixture of species - lion , goat and dragon , that inverts the natural order by producing a paradoxical being . It is not an internal metamorphosis of the body , but a complex body . It is not a denegation of the body form as much as an interrogation , through its presence , on the constitution and the origin of corporal identity . The chimera is not a hybrid in the sense that a mule is the hybrid of a donkey and a mare .

In ridding Corynth of Chimera , the mythical body of the semi-god triumphs over the chimerical body through the mastery of fire . Sexuality lies at the heart of the chimerical body insofar as Echidna may be Typhon's sister . The body of the semi-god (armed , it must be said , by Athena , daughter of Zeus whose limbs were temporarily bound by a triumphant Typhon before his destruction by the king of gods) refuses adultery and slays the incestuous daughter Chimera . Morals end up untainted , but the paradigm is set . As Françoise Duvignaud stresses it : " The beast always lies close , reminder of a former order . Witness Typhon , monster amongst monsters , whom Gaia to no avail summons as a final attempt of mind perversion . Zeus , ever the bright spark , eventually destroys Typhon , but not before the latter , in a monstrous mating with Echidna , has begotten a progeny that will become the scourge of the centuries to come : Chimera , the Sphynx , Medusa and Scylla ." (F. Duvignaud , 1981, 21) .

By adopting this technique given by Zeus , the sublunar world can hope to hold sway over the impurity and the malignancy of the chimerical body which cannot last or reproduce , not only because of its incestuous origin , but also because its make-up is heterogeneous .

According to the science historian Jean-Louis Fischer , it is as late as " 1830 that Geoffroy Saint-Hilaire gives the science of monsters its name of teratology . As an object of science , the monster becomes an object of comparison , of reflection in the field of embryology as well as in the elaboration of the transformist theories that preceded the theories of evolution ." (J.L Fischer , 1991 , 38) . Bellerophon's victory soon is a prodigy no more ; it sets the study of chimeras at the heart of the technical domination without which man cannot be held as the peer of a God . The chimera is a trial to initiate man to the dark side of creation : there is no creation without anomaly , there are no creatures without monsters , no whole bodies without mixed bodies .

The chimerical body raises the problem of identity . How can or must one be such a body , at the same time a lion , a dragon and a goat ? A monster is its body flaw , which is to say it sends us back to natural anomalies .

From aesthetic to biotechnological chimera

Art (G. Lascault , 1973) started representing the chimera by transforming its mythological dimension into the real-life chimera of performative body-art . This shift shows how the chimera does not exclusively ride our backs , as Baudelaire wrote , but is incorporated following a modification of the artist's body . This modification of the body may be construed as a dispersal of the body , as in Annette Messager's " Chimères 1982-1983" : interlocking and juxtaposing twisted and blown up images of selected body parts , she proposes new representations of the body and the lived

body's image . This baconisation of corporal matter stands as the confirmation of the freudian , castrating interpretation of Medusa's beheading (S. Freud ,(1922) , 1940) : this symbol of horror deconstructs corporal structure without achieving the chimerisation of the body itself . As Bernard Lafargue (1998 , 43) underlines it : " Exit the body-artist who messianically set free Adam and Eve's unblemished and divine bodies ; enters the demiurgic artist who shapes himself to his own image ." Morphing provides carnal Art (e.g Orlan's) with a reincarnation by reshaping the body more in its materiality than in its forms . The chimerical form depends on the qualitative modification of the matter . Chimerisation goes further than a mere morphing as hybridisation produces a new body .

From chimera to biotechnological clone

A chimera is an organism composed of two sorts of cells with different genetic origins , stemming from two different zygotes . Nature generates some without human intervention . Vegetal chimeras , called periclones , are made of interlocking tissues with genetically different structures ; such can be the apple-tree , the maple or the sansevieria . Human chimeras are the result of chromosomal anomalies : thus the dizygote twin , whose sibling is usually still-born , is transfused with hematopoietic tissue (bone-marrow) from the latter , harbouring in this way two blood populations of different groups . The human chimera therefore is not the intermediate body of a Prometheus , a Faust or a Frankenstein . " Isn't modern man , already promethean and faustian , also becoming frankensteinian ?" as Dominique Lecourt asks about these three myths of human excessiveness . The imaginary relations that biological sciences have with the nature of the human body hold up the changed body in the perspective of evil . Science may have sold its soul to the devil by preferring genetic immortality to human condition . Unlike the chimera's body , metamorphosis does not uphold the double biological way : it only transforms the form of the body , even if the hero's soul is damned : Prometheus is gnawed by his fault , Faust is sold to the devil and Frankenstein is haunted by his origins . The metamorphosis is not a metanoia , which is to say a conversion enabling the soul to turn away forever from the shadows in the cave to follow the stages of a dialectic ascending towards Truth . The changed body , as opposed to the chimerical body , means to deal away with otherness when it remains inside it to give it identity . Metamorphosis is a failed chimera . The chimera upholds the Same and the Other within a unique double body ; for the chimera is double : not a Doctor Jekyll and Mister Hyde , but a biological being whose double identity is always identifiable whenever identity alternation is necessary in the case of a split personality . Jacqueline Carroy (Carroy , 1993) has shown how many historical affinities the myth of split personality had with the science vs. occultism schism that motivated many scientists at the end of the XIXth century . The biological chimera rests upon what Olivier Pourquié calls , in his presentation of Nicole Le Douarin's works , a " substitution of homologous territories" rather than upon the parallelism of complementary identities . The chimerical body contains both quail cells and chicken cells ; " the embryo chimera obtained in this way develops normally and the quail cells that compose the neural tube as well as the derivatives of the neural ridge that migrate from the neural folds can be identified through Feulgen-Rosszenbeck 's nuclear colouring " (Pourquié , 1995 , 42) . Identifying the cells stemming from the transplant can be done whatever the state of differentiation of the cells . Fusion is incomplete for the chimera as it maintains the

Different within the Same . One needs to follow the migration of the different within a unit without the latter to disappear : each is tell-tale of the other .

Yet the model of the chimerical body belongs to a contemporary fantasy , that of development biology .Winkler created the first vegetal chimeras in 1907 : these heteroplastic grafts consisted in pairing cells from two different species without their respective hereditary potentials being modified . The chimera must not transmit its somatic state as long as one does not tinker with germinal cells. Nonetheless , experimental embryology raises the issue of induction in its use of lesion and transplantation techniques . (Prochiantz , 1988 , 16) .

The chimera's transplanted body

At the beginning of the XXth century , the scientific model of the chimerical body allowed to show the transplanted body as the representation of the modern subject . Through transplants , he was enabled to step into the technical possibility of building his own body while giving it an identity . It is curious to note that chimerical biology was born as Mathieu Jaboulay or Alexis Carrel (1873-1944) were attempting their first grafts , respectively in 1906 and 1908 . For any transplanted patient remains the problem of the tolerance of the chimerical body . In this respect , Professor Cabrol prophesies " By 2015 ,it would be good for this tolerance to be obtained in all cases , in the wake of the transplant , for the receiving organism to accept two sorts of organs , its own and those transplanted . - But that's what was formerly called chimerism ! - Indeed ! In Ancient Greece the chimera was a fabulous animal showing the characteristics of different species , e.g a human torso on a horse's body for centaurs . Understanding the mechanisms of tolerance would be an undeniable breakthrough on the way to the complete success of transplants , sparing the host the drawbacks of an immunodepressing treatment and the liability of chronic rejection leading to the progressive destruction of the transplant ." (Cabrol , 1995 , 148) .The host must incorporate the Other to his own identity in order to live on .He never wholly becomes a chimera because of the technological contribution of an organ alien to the body per se . This technological contribution keeps the transplant within the frame of the mechanical body . As David Le Breton , the body sociologist , makes it clear : " Whenever symbolism deserts the body , there indeed remains of the latter but a set of wheels , a technical organisation of interchangeable functions ." (Le Breton , 1993 , 274-275) .If this objectisation of the body does have a part in ending the incarnate man of christianism , it also points to a new relation of the subject to living matter . Transfiguration of the body defines a mode of incarnation which is subjective , and not metaphysical anymore : only the subject now wants to go beyond his body by defining it as a complex network of elements grafted together .

In Michel Tibon-Cornillot's eyes , " chimerical animals , vegetals or bacteria herald the engineering of a new biological nature in which one can decipher anew an order of purposes which , in some way , have replaced the old providential ends that had carefully been expelled from the world . The emergence of these new beings , transgenotes and chimeras , is set within such violent anthropocentrism that their presence really would not be a problem .(Tibon-Cornillot , 1992 , 232) . For all that , these new "rational-imaginary" objects are not virtual objects . They belong to the biological compatibilities allowed by nature even if not produced by nature itself along the course of its evolution . Even if chimeras depend mostly on scientific production , they stem from man's understanding of life's mechanisms .

The legitimacy of this production should not be questioned . Like Max Marcuzzi , one can of course see "artificial bodies " in these productions , and assert that " Teratology is biology in its widest form , and ontology in its strictest form ; but above all , what with the lack of an absolute reference or harmony -whether divine or natural , that could be held as an objective and constant norm ,there is no other norm left but the individual from which to decide what is or is not an aberration , and thus also to decide what makes the body , and what form it can have ." (M . Marcuzzi , 1996 , 176-177) . Chromosomal aberrations and anomalies are however an essential dimension of living matter . The sciences of life have always studied these counter-models in order to understand the reverse effect of nature's mirror through the two-way mirror of experience and experiment . What makes the chimera topical is not fashion as much as the definition of a new world , that of the natural man whose essence is material to the point of coercing the body , fitting it with prostheses and grafts .

Must man be a transgenic chimera ?

The transgenic chimera embodies a utopian body within which we could be both one and the other , masculine and feminine . The use of biotechnologies feeds the illusion of an uncastrated body . Patrick Baudry , a sociologist , understands the yearning to abolish all limitations as a figure of the " body extreme " (P . Baudry , 1991 , 1996) in that stepping over these limitations would entail the body's disappearance . Yet from the point of view of the sciences of life , this extremisation of the relation to the self accomplishes itself through mutation . Individual use of his body resulting from an ideological conjunction of liberalism and biology empowers the subject of our time to transform the state , but also the nature of his body .

To be sure , bioethical laws do now put a ban on human transgenesis because of the immorality there would be to fiddle with our hereditary genetic patrimony , but for how long ? Therefore all in vitro interventions should create nothing other than mosaic chimeras in order to ensure life through a therapeutic modification of the somatic cells with no definitive intervention on the seminal cells . Positive eugenism is thus proscribed , returning the human transgenetic chimera to the position of literary object ; yet negative eugenism does surround us : anyone will admit that eliminating genetic diseases when selecting embryos for in vitro fecundation is very convenient to avoid abortion , or having to raise a seriously handicapped child . Anomalies are eliminated from the start , thus recomposing the human chimera through the purification of the quality of its patrimony .

At the beginning of our century , metamorphosis turns into a mode and a fashion of change of appearance , all too often confused with a change of being . Truism triumphs but the analogy with the human body remains dominant . By betting on all possibilities one does loosen the notion of being without asking the fundamental questions on the implementation of transgenesis . The relative failure of gene therapies (Academy of Sciences , report n° 36 , 1996) is still the tree that hides the new forests sheltering new vegetal and animal species . (F. Gros , ed , 1993) . Discarding the human body is less an ecstasy than a final parting from one's initial genetic patrimony . Is not the wish to end the castration imposed by our genetic identity an acknowledgement of our species' self-loathing , or the evidence of our forgetfulness of the genetic mutations inflicted on the children of Tchernobyl or Hiroshima ? The human body will become a genetic chimera when , like animals and vegetals , man has finally replaced the myth of Genesis and the Fall by that of

transgenesis . In the 1946 second preface to his 1931 novel " Brave new world " , A. Huxley described this revolution in the following terms : " The truly revolutionary revolution will take place , not in the outside world , but in the soul and flesh of human beings ." (Huxley , 1946 , 12) . Abyssinia now is this transgenetic revolution in which "I" is biologically someone other . Individual body change is not enough anymore ; a change of species would be in order .

If the XVIIIth century was the century of the transvestite , and the end of the XIXth century that of the hermaphrodite (N . Chatelet , 2002) , as Michel Foucault said in 1980 , we still need to find out what the theme of the chimera heralds in its pervasion of the end of the XXth century . Under the conditions described by the philosopher , the human chimera would not leave the choice of his sex to the individual . It would be the logical consequence of the ideological link instituted by biopower between sex and truth : having a real sex is not understood by the human chimera as the reduction of social sex to biological sex . Truth reaches here its biological acme by offering both sexes into one , the couple incarnated into a sole genetic unit . Having become transgenic , man will have no more choice : science will decide upon the validity of his body , health or economy once more being used as alibis . By committing itself to transgenesis , transgenetic research has become a national priority , which comes down to asking M. Foucault's initial question : " Do we really need a real sex ?" (M. Foucault (1980), 1994 , IV ,116) . The chimera may be the last figure of a real sex , biotechnologically engineered as a whole , providing at last the negation of castration through the demiurgic integrity of creation. But suppose man becomes transgenetic , will the chimera be enough for him not to flee incarnation anymore ?

To everyone their chimera

The body has become a sign of identity (D. Le Breton , 2002) where it once was but a modality of social appearance and surface . Appearance is out , being incarnate is in . The refusal of dualism is not as much expressed by a wish to bid the natural body goodbye as by the creation of a body of one's own . (B . Andrieu , 2000) . Through a body of his own , the subject can model form , but also matter itself : marking the body is the first mode of this subjectisation of the body , and genetic manipulation offers the possibility of shaping a humanised matter . Identity is building itself a cultural form through technological means . The cult of the body not only develops freedom of the self (E . Perrin , 1986) , it has also become self-cultivation and self-culture (B. Andrieu , 1994) . If the capitalist system carries on maintaining subjectivity within the indefinite dividuation of the body by renewing its merchandisation , the consumer is tempted to consume himself in this circulation .

Within this mainstream liberal ideology , a body of one's own is held as an individual body in which we should only delight . Such consumerist hedonism satisfies the human body up to the excesses of obesity and high-risk behaviours ; this quest for the " body extreme " (op.cit.) pushes adolescents towards the risk of an identity crisis which places the subject at the heart of an absence of social landmarks and of collective rituals which he has to make up for . He is pushed into his own body to unseal and mark his existence : each anatomical element becomes a " dividual " by which he thinks he can identify himself . The market orchestrates this division by subverting the subjective signification of a corporal practice (such as surfing) , and turning it into a collective mode of identification : the subjective mediator becomes a collective medium .The " adulescent"'s " corpocidal " behaviours are sustained , for he

must tire himself out through addiction , dependence and repetition within an indefinite progression of satisfaction : the enhanced part of the body is hypertrophied through the pleasure it provides . Intensity keeps everyone within the frame of an aesthetics and an aesthesiology they believe to have defined personally .

A body having become itself , the individual can also subjectise it by personalising it rather than withdrawing into individualism . Corporal decoration fits into the pattern of expression when subjectisation wants to incarnate the subject in the very matter of the body . Being is not an essence , either exterior or transcendental to the subject . Sartre managed to reduce human essence as a whole to existence : I am , I am but my actions . Existentialism was to find privileged modes in feminism and " corporism " . The gender and the modes of their incarnation drew every man and woman into an identity struggle for the acknowledgement of corporal existence . Being carnal consisted in directly incarnating one's existence through identity intensification as well as cultural exaltation . The cult of the body has been superseded by its culture and cultivation . The latter create their corporal values in the subject's very matter : his sex and sexuality , his actions , his genes or his brain . Liberation of the body has led to an intense yearning for the incarnation of a chimerical body .

By using both biology and phenomenology , our notion of the incarnation of the subject or that of the incarnate brain is similar to Francisco Varela's founding work : By suggesting to start from the "lived body " to account for cognition , the notion of incarnation no longer has the dualistic meaning of christian tradition . Spirit is now present through the body that produces it . According to F . Varela , a compromise should now be reached , studying cognition neither as the reconstitution of a preordained exterior world (realism) , nor as the projection of a preordained interior world (idealism) , but as an incarnate action . " in using the word "incarnate " , the author would like to stress two points : first , cognition depends on the types of experiences stemming from having a body endowed with various senso-motor capacities ; secondly ,these individual senso-motor capacities themselves fall into a larger biological , psychological and cultural context ." (F . Varela , 1993 , 234).

Let us find the link between biology and phenomenology which M. Merleau-Ponty long looked for : enaction shows how cognitive structures emerge from the recurring senso-motor schemes that guide action through perception . The phenobiotechnology of subjectivity is not the new unified science , but an interknowledge : everyone wants an incarnate body .

A phenobiotechnological subject

The wish for a chimerical body is now only limited by technobiological fantasy . Deciding that a wholly bio-artificial body might not be compatible with bioethical norms and laws would be to forget the biosubjective lived ensured by the progress of technological medicine . The individual interest of one human being invoking his right to live in a decent body would legitimate research on artificial life . Supposing we could shape our body according to our wishes , would that be enough to abolish this object/subject relation , to incarnate the subject fully ? For the body , as a living subjectivity , always is of such temporality and spatiality that no content can ever reduce it . By changing his body and making it as close to his wishes as he can ,

the biotechnological being would like to change biological time , not as much to stop or stretch it as to live our biological time intensely as a biosubjective movement . By shaping the matter of his body , the subject not only forms himself , he also gets information about the movement of his flesh . By changing his body , the subject finds himself to be moving , yearning for movement , and mobile . Rather than to construct himself in order to reach some functional or aesthetic ideal , the moving subject would like , in the extreme , to modify himself endlessly .

Given that the body is no more natural , or at least that the individual and social representation of the body defines it as entirely cultural and technical ,we can deconstruct and reconstruct the body endlessly . The body as a whole and some parts of the brain are already replaceable , like parts in a technobiological Meccano . Mechanisation of the living must nonetheless be functional in its artificiality , as shows J.L Nancy's text " The intruder " about his transplant . Our mental attachment to subjectivity maintains us in this imaginary unity of the self , of the body proper that produces the illusion of mental independence from our biological state . Whether the grafted person , or anyone undergoing a first functional operation , we all find out that our given body gets worn , falls ill , changes with age , and is degraded by time . By changing the body , we could stop this biological temporality either by slowing down the ageing process , or by making up for the defects of time by a spatial renewal of the body .

Conclusion

Through the creation of new species , and within the human species , of bioselected individuals such as Baby Adam , changing the body is now less virtual than feasible using somatechniques .There remains for a specific alibi to be found . These changes not only imply biological consequences , but also social ones . The changes in family relations , intercourse , and the relation to one's body are given a legitimacy by genomic sciences .

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