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## An Eighteenth-Century Psychological Experiment<sup>1</sup>

[\*\*Editorial note: this manuscript file will be replaced by a definitive pdf in early 2013\*\*]

[101] The text we have decided to present is an extract from the last of eight Essays published by Jean-Bernard Mérian between 1770 and 1780 in the *Nouveaux Mémoires de l'Académie royale des Sciences et Belles Lettres de Berlin*. In it, Mérian devotes himself to writing the history of the responses to a problem that the Irish surveyor William Molyneux once proposed to John Locke, whose *Essay on Human Understanding* he had just read:

Suppose a Man born blind, and now adult, and taught by his touch to distinguish between a Cube, and a Sphere of the same metal, and nighly of the same bigness, so as to tell, when he felt one and t'other, which is the Cube, which the Sphere. Suppose then the Cube and Sphere placed on a Table, and the Blind Man to be made to see. Quære, Whether by his sight, before he touch'd them, he could now distinguish, and tell, which is the Globe, which the Cube.<sup>2</sup>

Noting the disagreement among the multiple responses put forth over the course of 80 years – by Locke, Leibniz, Berkeley, Condillac, and Diderot, among others –, Mérian proposed his own response, or rather a *solution*, that is, identification of the conditions required if the proposed response was to make the problem disappear: these conditions were those of the realization of an *experiment*.<sup>3</sup>

My task here is to examine these eighty years that separate the statement of a problem that was apparently fully ready to be converted into an experiment, and the actual proposal for this experiment, which Mérian presents as necessary. Why did it not occur to people earlier, to complement the theoretical hypotheses with an experimental verification? I do not intend to participate in the condescending astonishment of the psychologist, who is so confident today that his method is well-founded. On the contrary, I would like to show that what became necessary so much later was not the experiment considered as the verification of speculative hypotheses, but rather a *new kind of experiment*, which I will call an experiment of prescientific psychology invented by the philosopher in order to replace another kind of experiment, an experiment or experience of philosophy – [102] one invented by *empiricist and sensualist philosophy* so as to maintain the coherence of its discourse.

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<sup>1</sup> This text is excerpted from a *diplôme d'études supérieures*, written under the direction of Georges Canguilhem. TN: First published as Alain Grosrichard, 'Une Expérience psychologique au dix-huitième siècle', CpA 2.3 (March 1966), 101-113. Translated by Knox Peden and Peter Hallward.

<sup>2</sup> TN: John Locke cites Molyneux's letter in his *Essay concerning Human Understanding* (book 2, chapter 9, §8, online at <http://www.gutenberg.org/ebooks/10615>). After this summary of the problem, Locke continues: "To which the acute and judicious proposer answers, "Not. For, though he has obtained the experience of how a globe, how a cube affects his touch, yet he has not yet obtained the experience, that what affects his touch so or so, must affect his sight so or so; or that a protuberant angle in the cube, that pressed his hand unequally, shall appear to his eye as it does in the cube." – I agree with this thinking gentleman, whom I am proud to call my friend, in his answer to this problem; and am of opinion that the blind man, at first sight, would not be able with certainty to say which was the globe, which the cube, whilst he only saw them; though he could unerringly name them by his touch, and certainly distinguish them by the difference of their figures felt.'

<sup>3</sup> TN: The French word *expérience* can mean either experiment or experience; here the primary meaning is generally 'experiment', but our translation varies with the context, and readers should keep both meanings in mind throughout.

## I – The Philosophical Experiment, or the Blind Man at the Pillars of Hercules

'The dominion of man, in this little world of his understanding [is] much what the same it is in the great world of physical things...'<sup>4</sup> I would like to read Locke's *Essay* as if it was written in the way that a landowner might tour the fields of his understanding, making an inventory of the properties he has rightfully come to acquire. In constructing his physics, Descartes made man the master and owner of the universe. On one condition, however – that of distinguishing properly between a subject of objectivity on the one hand and a subject of sensible qualities on the other, on pain of losing all right to the certainty of his knowledge. Among the ideas arising from sense, none are exemplary: they can only inform me about myself [*moi*] considered as a composite substance and not about the world such as it is in reality. They have *truth value* – they allow us to construct a science of the external world – only when referred by the subject of objectivity to the eternal truths created by a God, truths recognized as truthful and deposited in the soul like seeds, Descartes says. Or as Locke will read them: 'primitive notions, imprinted and engraved so to speak in our soul, which receives them from the first moments of its existence.'<sup>5</sup> Thus man is only the subject of knowledge, he can only play the role of the *owner* of the world, because he is the *depository* of the truths of an Other.

The *Essay* seeks to establish this: all these ideas – claimed to be innate, deposited by an Other – are *mine*, and mine as a man. In the *Second Treatise on Civil Government*<sup>6</sup>, Locke founded the ownership of land on labour. It is the same in the *Essay on Human Understanding*: on the basis of a natural given or datum delivered by perception, the understanding can, through the labour of reflection, produce all of its ideas, right up to ideas of infinity and of God. [103]

Over the course of an ideal genesis of the psychological subject's ideas in which the two Cartesian subjects are intermingled, the *Essay* produces everything, while declaring that it presupposes nothing. In truth, we can find hidden there the duality of at least two Cartesian functions, if not subjects. The supposedly natural genesis of a psychological subject's knowledge is in fact always finalized [*finalisée*] by a philosophical understanding, in this case that of the *Essay*'s author. The philosopher, purporting to describe the true genesis of knowledge – that is, as soon as he gets serious and *writes* – decrees the genesis of true knowledge. The philosopher is this silent other who pretends to describe [rather than decree] – as when, for instance, he goes out into the world and transforms himself into an educator, and furtively presents his student with a carefully chosen nature.<sup>7</sup> It remains the case that from the frontiers of perception, from what is for a Cartesian most obscure and confused, the discourse of the *Essay* covers little by little, without rupture or leap, the entire domain of Cartesian knowledge, ultimately rejoining the other frontier, that which, facing the divine infinite, limited the domain of Cartesian understanding. Everything is acquired, from what used to be merely on loan. Everything, except the truth value of this everything.

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<sup>4</sup> John Locke, *Essay Concerning Human Understanding*, book 2, chapter 2, §2.

<sup>5</sup> TN: This translates the French version of Locke that Grosrichard appears to rely on here (*Oeuvres de Locke et Leibnitz*, ed. and trans. François Thurot [Paris : F. Didot Frères, 1839]), of the opening lines of Locke's *Essay*, book 1, chapter 1, §1. Locke's original reads: 'primary notions, characters, as it were stamped upon the mind of man; which the soul receives in its very first being, and brings into the world with it.'

<sup>6</sup> Locke, *Second Treatise on Civil Government*, chapter 5, 'On Property.'

<sup>7</sup> Condillac will write in his *Cours d'études*: 'I needed to bring myself close to my student and to put myself totally in his place; I needed to be a child rather than a tutor. I would thus let him play and would play with him, but I would point out to him everything he was doing.'

For this genesis remains ideal precisely insofar as it bases itself on a subject unsullied by experience, a subject through which appear the simple ideas of perception. How will the reader understand this discourse *as true*? How could it be anything other than an opinion for him? The answer is: if he makes it his own. And yet, in order to make it his own, to understand it, he must place himself beneath its words and grasp that for which they are the signs, i.e. ideas: he must return to this *place*, of which the philosopher speaks, and put himself *in the place* of the originary psychological subject. 'All that I can say in favour of the truth of what I propose,' writes Locke (in the same terms that Berkeley, Condillac, and others will later use), 'is that I call upon each to observe and experience it in himself.'<sup>8</sup> This pinnacle [*comble*] of subjectivity is the pinnacle of objectivity. We have here a repetition, in wholly different conditions, of the Cartesian invitation to undertake at least once in one's life the experiment of the *Cogito*.

We were brought up in the domain of opinion, and according to chance: against this inevitably contingent experience that has always been our imposed lot, it is necessary to institute an experience that is my own. This exemplary experience requires a genuine experimentation of myself by myself. [104] The natural within me is only given if I search for it. It is not easy to attain a transparency to myself that would not be a mirage, or to touch a firm ground that would not be a basis for prejudice.

And yet, prejudice, the primary mirage, is situated at the very level of this perception that one considers a natural given. It is here that Molyneux's *problem* arises, not really for the philosopher, but for the common man who alone hesitates over the response [to the problem] because he does not see that the unity of his perception is constituted by a judgment. This is a problem, then, with a didactic value. The error of the non-philosopher is unavoidable. If I say 'I see a globe' (whereas I ought to say 'I judge that the coloured surface that I see indicates a globe that I could touch'), it is because my awareness of this judgment disappears beneath a habit whose unlimited power to deceive me has been rendered necessary by the demands of survival. In a world governed by the principles of mechanism, the only objective knowledge is knowledge by *touch*; touch alone immediately provides me with access to the 'primary qualities' of things. But if in order to *know* objectively it is necessary to enter into contact with bodies, this contact may be fatal to my body: the demand for objectivity is at the same time the threat of death. Here the veracity of touch, the sense of succession and contact, finds its limit here from the point of view of life. What compensates for this limit is *sight*, in itself the least objective sense, but the one that grasps the whole [*atteint l'ensemble*] and that can 'touch bodies at a distance.' All my knowledge of the world is elaborated on a ground that is already *constructed*. To go beyond this, in search of the simple elements constitutive of my perception, is thus to break with the judgment that allows me to survive, and to shatter the unity of my self [*moi*]. However, I must undertake this transgression if I want to know, and move forward in a domain wherein I can always say *I [Je]* without any longer having to say *me [moi]*.<sup>9</sup>

This is a necessary enterprise if I want to own my knowledge and be responsible for my experience from its origins. But is it possible? Yes, in principle: it is possible to reach this extreme frontier in myself, this thin line where the impact of more or less tiny solid entities that come from the outside to strike my senses gives rise to a sensation and a simple idea, *because the soul is one*, a unity that is at once sensitive and reasonable.

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<sup>8</sup> TN: Grosrichard's citation appears to combine two passages from Locke's *Essay*, taken from *Oeuvres de Locke et Leibnitz*, ed. Thurot, 40. In the original, the first passage (*Essay*, book 1, chapter 3, §25) reads: 'All that I shall say for the principles I proceed on is, that I can only appeal to men's own unprejudiced experience and observation whether they be true or not'; and the second (*Essay*, book 2, chapter 1, §1) reads: '[...] for which I shall appeal to every one's own observation and experience.'

<sup>9</sup> TN: the French reads: '*Pourtant, je dois entreprendre cette transgression si Je veux connaître, et m'avancer dans un domaine où Je peux toujours dire Je sans pouvoir plus dire moi.*'

As a result, the subject is in principle responsible for all of his knowledge. And this is why the coordination of sensations coming from five sources that have nothing in common and provide five series of heterogeneous ideas is the doing of a judgment. The unity of perception is thought as a system of signs, not grounded in nature as it seems, but instituted.

If this transgression is possible, with a physiological-philosophical theory justifying it in principle, how might it be realizable? It can be realised by a kind of experimentation that, this time, is specifically scientific – and it is here that we find the real [105] function of Molyneux's problem.<sup>10</sup> I say a scientific kind of experiment because Molyneux proposes an *instrument* of experimentation or experience [*d'expérience*], one constructed according to theoretical criteria: the blind man; a *laboratory* – the understanding – in which everything is eliminated or neutralized that is not pertinent to the object of research, the pure sensations of sight; a qualified *experimenter*, the philosopher.

'Suppose a man born blind!' – this is a strange statement, whereby the author imposes an empty form in which a place is marked for the subject to seek his origin, to which an imperative summons him. Put yourself in the place of the man born blind, who regains sight and rediscovers what you see truly [*en vérité*]. Molyneux's born-blind man is not a concept from pathological physiology, for the very reason that physiology did not have its own concepts back then. For the surgeon who operates on cataracts, the only theoretical reference at his disposal to help him reflect on his practice was Locke's empiricism: the born-blind adult is an adult whose understanding is perfectly developed, but incomplete, marked by obscure blotches. The operation [that removes a cataract] is the opening of a window. By the same token, the philosophy of knowledge does not need any confirmation in 'real' experiences or experiments. On the contrary, to take at face value the declarations of a blind person and the observations of the surgeon would amount to a lack of rigour. The real blind person does not know what he should see, and what's more what he will see will be immediately obscured since he will have to transmit it in the terms of common language to an observer, who quite often is not a philosopher. Not to mention that to wait for a surgeon to provide a subject for the experiment would condemn us to wait for the opportunity to arise, one that is relatively rare and difficult to repeat.

Why select from the world a subject already overrun by prejudices, when we can build one in ourselves, in the ideal space of the understanding? That way we can retain only what is essential, and eliminate the contingent. The born-blind man regaining sight is an instrument constructed in light of an experiment of the philosophy of knowledge, and, as in chemistry when we produce a body that only exists in nature in a composite state, this instrument is destined to *produce* a pure sensation, which is to say the other side [*l'envers*] of a simple idea. The results of this experiment in the understanding do not have to be communicated in language since they apply in the domain that is beneath language. Here more than at any other moment of analysis, everyone must advance *alone* within oneself in the quest for truth: 'It would be useless to multiply the testimonies [...]. It's up to the philosopher to descend within himself, and to draw the truth from the bottom of the pit.'<sup>11</sup> [106]

There is no place in Locke's empiricism for an experimental psychology in the sense that we usually understand it, even prescientifically. If so many years passed before Molyneux's proposal could demand an experimental realization, this is because it was posited within the space of a philosophy of experience [*expérience*], in all senses of the word. The understanding must have the same authority [*empire*] over its ideas that

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<sup>10</sup> As Mérian will write, the man who is born blind and regains his sight stands at the Pillars of Hercules of sensation.

<sup>11</sup> Mérian, paraphrasing Berkeley.

man has over the external world in experimental physics: this is why, within its world, the understanding constructs its techniques and instruments from experience.

I would like to note here that such a situation is only possible due to an essential equivocation, which bears on the concept of *sense* [*sens*]. For Locke's empiricism, a sense is nothing but the fine grate against which the external world strikes, in the form of bits, grains, dust, and mist.<sup>12</sup> Struck, this grate transmits the impression to the soul where it becomes sensation and is combined with others via judgment. A sense is never thought of as an organ of the senses, as inserted in an indivisible organic totality that makes normal perception possible, because to think the unity of perception as organic perception, it is necessary to think of a power other than the reasonable soul that unifies by judging: the power of life. Faced with a text from the surgeon William Cheselden<sup>13</sup> in which the reactions of born-blind patient to his cataract removal are related in detail, contemporaries did not *read*, in the panic of the patient, a perception that restructures itself with the scarring of the wounded *eye*, but only the astonishment of an *understanding*, and the long time it takes to acquire the habit of governing a territory newly annexed to its empire. This blind man did not surprise his contemporaries; he was, after all, only the crude realization of the pure blind man posited by Molyneux. [107]

## II – The Soul of the Beast and the Soul of Man, or the Impossible Experiment

Undertaking an analysis of the understanding beyond perception, empiricist philosophy justifies itself on the basis of a philosophical psychophysiology, one that is complicit with this philosophy insofar as it has no domain of its own: its domain is the underside [*l'envers*] of philosophy's, and it contents itself with saying *the same thing* in different terms. For reason, what is beneath the self is not opaque. Perception is a mirror that reflects back to the non-philosophical subject the image of a constituted self, which he believes to be originally *one* – it is a mirror that the philosopher must go through, however. The soul is responsible [for all that it perceives], right up to the place where it opens up, through the machinery of the body, to the external world.

In 1728, the same year of Cheselden's account, David Boullier,<sup>14</sup> making use of the structural analogy between the human body and that of animals, declared that animals have a soul, and added: 'What man is in certain respects animals are in their entirety.' He thereby demarcated, by making the animal a *level* of man, a domain in which the reflexive analysis of the understanding could no longer reach: that of the 'sensitive' soul, separate from the reasonable soul that is given to man alone.<sup>15</sup> Around 1670 Thomas Willis had distinguished between the sensitive and the reasonable soul, but it remained a matter of two functions of one and the same soul. The introduction, so to speak, of the animal into man establishes, we believe, the very possibility of psychology itself. Although it doesn't yet have its name, psychology now has its object, at least, a phenomenon in the sense that Newton understands it, and one that can serve as a basis for a psychophysiology of perception. It is precisely because the animal is only a certain level of man within man that one can, by coming back through reflexive analysis within man to the natural level of perception, make a psychology of the animal. And, in return, by anatomizing the animal and experimenting on it (which is not possible with man), one can develop a psychophysiology of perception that would not

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<sup>12</sup> This theory of *sense* (e.g., the retina) will endure, right up to a period in which, alongside it and without contradicting it, a new theory of the *organ* of sense (the eye) will be developed: see for example Louis de Jaucourt's articles in the *Encyclopédie*.

<sup>13</sup> William Cheselden, *Philosophical Transactions* number 402 (1728).

<sup>14</sup> David Boullier, *Essai sur l'âme des bêtes* (1728).

<sup>15</sup> Here of course one thinks of Leibniz's phrase: 'we are empirical in three quarters of our actions.'

simply be the underside of a philosophy of the reasonable soul, but that would nevertheless be applicable to man: man and animal [now] mutually hold the truth of each other [*l'homme et l'animal sont vérité mutuellement l'un de l'autre*].<sup>16</sup> [108]

Full experimentation confined to the interior of the understanding thus loses its justification. The theory of the sensitive soul leads, with Charles Bonnet for example, to a fibrillary theory of sensation, which ought to allow us to account physiologically for the harmony of a perception independent of judgment. From now on, I *see a globe*, and it is not by a forgotten judgment, but by a certain arrangement of fibres in my brain at the very outset of my life, and a resonance among these fibres, through which they acquire a permanent constitution. How then might we come to know the pure sensation of each sense? Psychology and physiology complement one another here in a surprising way. Bonnet writes: 'We do not know what the Soul itself is: but we do know that ideas are attached to the play of certain fibres: we can therefore *reason* about fibres because we *see* these fibres.'<sup>17</sup> In this way reflexive psychological analysis gives physiology its bearings in an undifferentiated fibrillary substance; and in return physiology, because it uses the microscope to compose these groups of fibres that correspond to the degrees of elaboration and differentiation of ideas, enables us to *see* the fibres that must correspond to pure sensation, i.e. to the simplest forms of sensation: it is the *microscope* that becomes the instrument of experimental psychology. From now on it is no longer reflexive analysis that provides physiology with something simple to explain: instead physiology provides the simple element to psychology. On the basis of what the physiology of fibres provides for it, psychology can extrapolate and lead analysis beyond a perception that is always already constituted for it.

Setting out from the pure sensations of each sense, at the level from which all judgment is excluded, the genesis of knowledge can thus only be the transformation of sensations by themselves. In declaring that Locke is unfaithful to his own principles since he implicitly admits an innateness of the faculties of understanding and an unconscious judgment that unifies perception, Condillac aims to treat these faculties themselves as a degree of transformation of sensation: the whole genesis of the understanding is conducted on the basis of a primary matter that is sensation, and by means of a motor principle which is that of pleasure and pain. The coordinated perception of a world – for the animal as for the human – is the result of a *natural education: natural* since it's a matter of a natural given, naturally transformed by natural operations; but *education*, in which touch is the educator of the other senses (and not the *instructor*, as it is for Locke or even Berkeley), in making a multiplicity of *I* refer back to the same *self* [*moi*]. [109]

In this way an opacity henceforth prohibits the understanding, as it experiments within itself on its origins, from pushing the analysis all the way down to the level of the simple. For to dissect the understanding in order to satisfy the requirements of founding knowledge and mastering its authority or empire would no longer suggest the (necessary but reversible) undoing of a judgment, but rather the denial of oneself as living.

### III The Necessary and Rediscovered Experiment

Faced with this opacity that threatens the understanding's authority over itself, philosophy invents a technique that allows it to obtain the equivalent of Molyneux's

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<sup>16</sup> Condillac will write in the *Traité des animaux* [*Treatise on Animals*, 1755]: 'If animals feel, they feel as we do', and: 'It would not be very interesting to know what animals are, if this were not means to know better what we are.'

<sup>17</sup> Bonnet, *Essai de Psychologie*, 1754.

experiment, with the conditions that accompany it: the determination and limitation of variables, and theoretical knowledge of the instrument.

Two paths are thus presented. The first option is to produce an experimental model of the origin, knowing full well that it is now a matter of a fiction, but one by means of which we can speak of what lies beneath [*l'en-deça*] language: this is a fiction because the philosopher can no longer content himself with a genesis of knowledge within the space of a reasonable soul, because his genesis must produce not only an understanding, but a knowing *man*. A motionless block of marble in human form is substituted for Locke's blank slate.

By according touch<sup>18</sup> to his statue, by finally transforming the marble into skin that can touch itself, Condillac also gives it both life and consciousness of itself. Thus begins this education that transforms the diversity of sensations into the unity of perception, the senses into sense organs: the retina into an *eye* that can turn, whose lens can swell, whose lid can close. Yet it is remarkable that when Condillac, criticizing Cheselden, proposes a philosophically experimental use of the cured blind man [*l'aveugle opéré*] in order to respond to Molyneux, he defines, in order to make the experiment convincing, conditions that tend to refer the cured blind man back to a model of the blind man that can be ideally situated in the development of the *Treatise on Sensations*. He does this by *imitating* the fictive through [110] tricks [*artifices*] that might be undertaken in the real: 'A sure means of making experiments capable of dissipating all doubts would be to enclose in a glass box a blind person who has just had his cataracts removed.' The tighter one makes this glass cage, the more one neutralizes the sense of touch. And yet, what is this glass cage that progressively entraps (and Condillac sets no limit on its tightening) the cured blind man, if not an attempt to rediscover the state of the statue at the moment when he is given sight? The glass has the rigidity of stone, but it is transparent. Motionless, covered over with skin of glass, the subject of the Condillacian experiment is reduced to a pure sensory retina, the place where the man who turns himself to stone intersects with the statue that we bring to life.

Diderot follows a different path. Instead of producing, like Condillac or Bonnet,<sup>19</sup> a fiction that opens what is beneath language to the language of the philosopher (and that, if an experiment is necessary, replaces the real blind man in the space of fiction), Diderot opts to question without experimental tricks those in whom nature obliterated a sense at birth, but that human effort has been able to restore. This is in part Diderot's enterprise in the *Letter on the Blind*. But this is to ask the subject to articulate in common language what is beneath its level, the level of the normal man's perception (the perception that remains the point of reference). It would then be necessary to ensure that the subject of the experiment, that the *blind man, be a philosopher* and to educate him accordingly, reversing Molyneux's imperative to philosophers: make yourselves blind! No longer capable of finding the born-blind man in himself, the philosopher, in order to neutralize the other subjectivity he needs, in order to see through it the visible in its purity, must make the blind man a philosopher, which is to say, thoroughly aware of the gaps in his experience and master of his language.

Inasmuch as the history of Molyneux's problem allows us to clarify its origins, experimental psychology is the set of techniques that philosophy invents to retain mastery of this space of the understanding, which became transparent solely on

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<sup>18</sup> Which, in an eighteenth century context, means inextricably both touch in the strict sense, and coenaesthesia.

<sup>19</sup> His fibrillar theory forces Bonnet to invent an 'automaton', the sole model possible at the origin. 'Let us not even attempt to study Children [...]. Children are hardly born before their senses open at once to a large number of different impressions. There results a sequence of movements and a combination of ideas that it is impossible to follow and untangle.'

condition of undoing [*dénouer*] its judgments. In a sense, such an experimental psychology figures as an enterprise of philosophy against a scientific psychology that might seek to become independent [of philosophy]. The threat of psychology's separation from philosophy is experienced by [111] the latter as a tragedy.<sup>20</sup> Why? We still won't be able to answer this question, once we have discerned, in Mérian's project, those legitimate and honest satisfactions that the philosophy of the eighteenth century still dreamed of drawing from a knowledge of man's nature – but we will be able to imagine the tragedy in the form of an allegory: the tragedy of a philosophy that watches its child separate from it, and yield to the seductive discourse of the barbarians.

But let us return to its happy *discourse*, which organizes a world with so much confidence.

#### IV – Mérian's Seminar

With Diderot, the question of experimentation on man was posited in technical terms: how might we reproduce, with a real subject provided by surgery, the ideal conditions of experimentation in the understanding? This is a question that can be asked another way: *how might we experiment on a living man [le vivant] without killing him?* In the case of Molyneux's problem, surgery procured for philosophy a subject who, duly prepared, could more or less satisfy Molyneux's ideal conditions.

But here an objection arises, one founded on the recent observations of physiologists and surgeons, one that Diderot probably wasn't familiar with but that Mérian raises: no one who is born *absolutely* blind is *operable*. It follows then that surgery can no longer provide the subject of the experiment for philosophy. It is up to philosophy entirely to invent its experimentation, to *fabricate* its blind man. What we read in Mérian are the techniques of fabrication of this subject of the experiment. The technical problem then becomes a philosophical problem, that of the *right or legality [droit]* of this experiment: *How do we experiment on man without negating or denying him?* However, Mérian eloquently shows that, in positing the necessity of such an experimentation, sensualist philosophy provides its justification *at the same time*. [112]

To render children artificially – but provisionally – blind is not to negate man, it is merely to go against an idea of man born from a popular prejudice, a prejudice that makes of man an essence, and in that sense not perfectible.

On the contrary, man is perfectible: for sensualism, this alone distinguishes man from animal. But it is precisely because there is no rupture in man between animal and reason, between nature and the possibility of exceeding it, that the prejudice so easily takes hold – the prejudice that confuses in a single essence the imperfectability of the animal and the always possible progress of reason.

The progress of man is considered [*pensé*] in economic terms. Instead of passively receiving from nature what it wastefully provides, the art of men can, by experimenting on nature and knowing its laws, predict it, direct it, impose an order on it, and maximise what it yields. Advances in the techniques of production are not considered as a refusal of nature, but as the maximum utilization of nature, on the basis of our scientific knowledge of it.

Natural production, in man, concerns the ideas of a perception that is at one with the goals of life. And man perfects himself because he is the product of the rational utilization of what is in him by nature. He cannot change this nature, the five senses reunited in perception, or increase its capital. But he can increase the yield and at the same time the quality of the product. It is not a question then of perfecting each [individual] sense, but of adjusting or developing perception, of mastering it by

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<sup>20</sup> The expression is Georges Canguilhem's.



knowing its laws, which is to say, of perfecting the use of each sense and of doing so in such a way that the development of one sense doesn't harm that of the others.<sup>21</sup> To do this, a particular and successive attention is necessary for each sense, with the others provisionally held in reserve.

The techniques for knowing Nature within man, which require and allow it to be dissected and de-composed, allow in return for it to be re-composed according to a constructed order, which is no longer that of chance and habit, but of a nature ordered by reason. Because reason is in man the product of a natural progression, the order imposed by reason will be the only genuine natural order. Man makes use of what nature gives him in order to perfect his nature. [113]

And so the techniques of experimentation for knowing [*connaître*] are also the techniques for the production of a man capable of knowing better: the advances of knowledge are thus necessarily and naturally linked to the advances of the one who allows us, as an object of experimentation, to know. To conduct experiments in the school of the artificially blind<sup>22</sup> is also to constitute for the subject of the experiment an experience that renders him as perfect as his nature entails.

Mérian's proposal, in which the philosopher is the director (delegated by the sovereign) of a laboratory – a laboratory that is also an establishment which offers care and assistance, a hospital, a school, a factory, and which culminates in an Academy of philosophers – is certainly the product of a psychology that still remains inseparable from its philosophy, and for which knowing how man feels, thinks, and knows is indistinguishable from knowing how *he should* feel, think, and know – so as to be a good citizen.

This study opened with a man who denied divine seeds. It closes by giving the floor to another, who built a school. *Who* today occupies the place of the philosopher who put himself in the place of God, and who is the tree?<sup>23</sup>

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## APPENDIX

### Chevalier de Mérian

### The History of Molyneux's Problem<sup>24</sup>

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<sup>21</sup> Cf. Diderot: 'The help that each of our senses gives the others prevents them from perfecting themselves [...]. But it would be very different if we were to exercise them separately in occasions where the help of one sense alone would suffice.'

<sup>22</sup> TN: this is a reference to Mérian's 'Séminaire d'aveugles artificiels' (CpA 2.4:119), as presented in the appendix to this chapter.

<sup>23</sup> TN: This last paragraph reads: '*Cette étude s'ouvrirait sur un homme qui n'ait les semences divines. Elle se clôt pour laisser la parole à un autre qui bâtit un séminaire. Qui, aujourd'hui est à la place du philosophe qui se mettait à la place de Dieu, qui est l'arbre?*' Given the references to and significance of marble in the text, *l'arbre* here may perhaps be a typo for *marbre*. In response to a question about this the author replied: 'after all, what is written is written, whether or not it's a slip of the pen' (letter from Alain Grosrichard, 12 February 2012).

<sup>24</sup> This is an extract from Mérian's eighth essay, read before a public assembly of the Academy of Berlin, 4 June 1772, published in the *Mémoires de l'Académie*, Classe de Philosophie Spéculative, 1780.

TN: First published in the *Cahiers pour l'Analyse* as Chevalier de Mérian, 'Histoire du problème de Molyneux (Huitième mémoire)', CpA 2.4 (March 1966), 115-122.

[115] ... We very much hope, then, for an increase in the number of observations that are authentic, and undertaken by philosophers. Then we could compare them, and perhaps find something in one that lacks in the others. Cheselden first lit the torch; in two pages of observations made almost at random he clarifies things that larger tomes had tangled up. Who knows what a series of comparable experiments might yield, experiments expressly directed toward this goal, with all necessary measures prepared in advance.

M. Abbé de Condillac anticipated me in this hope. He examines what must be done in order to draw the most from these kinds of experiments, how to prepare the blind man before giving him sight, the things he must be taught and those he should remain ignorant of, and the way he should be questioned and observed.

He thinks that, before the first bandages are removed, the blind man ought to be enclosed in a glass cage. This would certainly offer means for determining the influence of Touch on Sight. For if this man does not see beyond the cage, if the objects outside are only coloured glass for him, then we can imagine the consequences without my having to go into them. But this experiment, deftly handled, would teach us more than we can imagine, and as our blind man emerges from the shadows his experience will shed new light on an infinity of objects about which we talk endless nonsense.

The trouble is that such occasions are rare. We must wait for them to arrive by chance. Not all subjects are equally suitable; there is not enough time to prepare them; the circumstances may be unfavourable. [116]

If the occasions are rare, true observers are no less so, and it will be difficult to ensure they are on hand when needed. Philosophers are too indolent, and are not curious enough to seek out the means of learning more; they prefer arguing to seeing. For most, philosophy is a profession [*métier*] rather than a science. Instead of consulting Nature, they harp on with obscure words, dated systems, and banal demonstrations. Given this state of things, we should not be surprised that since Cheselden, which is to say for more than forty years, we've had no new experiments on such an important subject.

And finally, even Cheselden's experiment has a drawback, which it shares with all experiments that involve cataract operations on those born blind. Cataracts hardly produce a total blindness, and thus it is not a total blindness that is cured. Whence it follows that these blind people, since they have already combined, however imperfectly, tangible extension with the weak light they experience, would be unable to have pure, unalloyed visual perceptions once they do open their eyes. The colours and light that they see are already outside of them and spread out in space, or at least they are outside of their eyes. As a result, they would no longer be suited to satisfy us on questions of purely visible extension, nor on those which relate to it, nor perhaps on other matters that we cannot yet predict.

What would be the solution to all these problems? What might offer a sure way of having subjects prepared at length and at our leisure, who would fulfil all the requisite conditions for conducting our experiments with success? Let us here give free rein to our imagination.

In order to shed light on the origin of language and the different idioms that we speak, it has often been proposed to raise together, from a young age, two or three children separated from all interaction with other men,<sup>25</sup> and in places where no human sound would strike their ears, to see if they would manage to devise themselves a language, and what that language would be.

What I am imagining is perhaps just as daring. But in Philosophy we must examine everything, devise everything, pursue all conjectures, and fear nothing.

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<sup>25</sup> TN: We have retained Mérian's use of gendered language throughout, translating '*hommes*' as 'men'.

The plan would be to take infants from their cradles, and to raise them in profound darkness until they reach the age of reason. Supposing that we had a sufficient number of them, there is nothing that we could not undertake to do. Some would be left to mere nature, others would be more or less educated, and a few would even be given the most excellent education that their condition allows. We would teach the latter to read by touch [*lire en relief*]; we would teach them the Sciences, Physics [117], Philosophy, Geometry, and above all, Optics. Some would be raised in isolation, others in groups or societies, and at a certain age we would choose the most intelligent among them to form learned societies. It would be very entertaining to listen to them argue about the nature and properties of Light – this would be rather like certain disputes among certain scholars on certain subjects they understand about as clearly, and to whom one might ask: *quid rides? fabula de te narratur* [*Why do you laugh? The story is about you*].

In a word, since their minds would be in our hands, so to speak, since we would be able to mould them like a soft wax and to develop in them types of knowledge in whatever order we please, we would be able to take all precautions and vary the experiments in all imaginable ways.

Once acquainted with the ideas that they would have acquired in this state, and the order in which they have acquired them, it would be that much easier for us to interrogate them when the time comes to drop the veil from before their eyes, and to direct the interrogations in such a way to draw the greatest profit from their responses, compared with one another. What light could we not expect from this? It would surely go beyond anything we can anticipate, and would bear on a number of objects that we didn't have directly in view.

I foresee two kinds of difficulties here, one physical, the other moral.

First of all, we might fear that these infants would completely lose their power of sight and thus become irremediably blind [*sérieusement aveugles*]. Were this so, it would certainly be necessary to renounce this enterprise, both out of a sense of justice and because this would be a waste of time and effort. I frankly don't see why we would have to fear such a dreadful turn of events, and I know of no fact that proves it. However I will leave the discussion of this question, which is beyond my competence, to those who make knowledge of the human body their particular object of study. If this blindness turned out to be a matter of a simple cataract, our experiments could still proceed, though it might perhaps be inhuman to attempt them. But is it really demonstrated that the crystalline lens becomes tarnished in the darkness? If kept for several years in a place that the light of day does not penetrate, does glass lose its transparency, to the point that it can never be recovered?

Another objection, diametrically opposed to the preceding one, seems more well-founded to me. It will be said that light is everywhere, and that there is no darkness so thick that light cannot illuminate the eye once it becomes accustomed to it. The pupil dilates in obscurity, and seizes the faintest glimmers. This is how the cat and the [118] owl in the night discern objects, and probably the mole in his subterranean dwelling. Some prisoners, enclosed in the blackest dungeons, once glimpsed a faint light at the end of several weeks, and their sight strengthened from day to day; eventually they could even perceive the rats coming to gather their crumbs.

It's true that since these prisoners enjoyed sight before being plunged into darkness, one can doubt whether it would be the same for a child who will have never exercised the visual organ, who understands nothing of its use, who doesn't know how to move it, and in places in which a small portion of light would not suffice to irritate the fibres to the point of opening the pupil. But even in such circumstances, we would suffer no shortage of resources. We would make use of a blindfold whose most advantageous construction will have been overseen by experts. In the same way I would

leave to skilful scientists and doctors questions concerning the salubrity of the air, and the general health of our young students.

Finally, it will be objected – and this is the most serious objection – that nobody would want to sacrifice their children to experiments in Metaphysics, that it would be unjust to require it of them, and that this would be an act of cruelty toward these children.

I respond that my plan is addressed to philosophers inflamed with the love of Science, who know that one only aspires to great things by trampling on popular prejudices. What's more, the execution of this plan would surely not be my affair nor that of any particular agent, but rather that of a sovereign or of a magistrate invested with public authority. And I would ask, furthermore, a question of most of these tender-hearted mothers who might fear my proposition, and who might be inconsolable at the thought of keeping their children blind until a certain age: how do you yourselves spend this precious time with them? Alas, you do nothing more than spoil their hearts and blind their minds [*leur aveugler l'esprit*]!

But, without even referring to the resources we would offer these houses from which we would gather the children, who belonging to no one should belong to the public good, turn your eyes to the streets of a large city. Look at all of these objects of disgust and pity, these cursed and crippled children, who are indeed often rendered irreversibly blind by these monsters who call themselves their parents. Where would be the evil in snatching these tender victims from their torturers to have them serve our experiments and to put them in a position of one day becoming useful citizens, perhaps even illustrious citizens?

I am so far from believing that one might lose out in being raised in the manner I propose, that, on the contrary, I know of few educations that I would prefer to this one. [119]

If our senses, rather than deploying themselves all at once, were to be successively developed one by one, it is likely that we would be able to draw many more services from them. They are weakened by their simultaneous action, and one is only perfected at the expense of another. Not even a single one among them comes to the degree of perfection of which it is capable, because the soul, having but a limited force, is too divided, too distracted in the midst of this multitude of sensations that assail it from every direction. If it were able to devote itself entirely to each particular sense, and combine it with others only after carrying the impressions and ideas it provides to the highest degree of clarity, and after having it fortified it such that it can resist any attack – if, I say, this were done, then what precision and accuracy [*justesse*], what order in our thoughts and actions, what force of mind and character would not result from it! What men we would be!

Let us make no mistake. Everything depends on these first series of sensible impressions, and the secret of education turns solely on this. These are the rudiments of our reason and of all our knowledge. They determine our turn of mind, our morals, our inclinations, our conduct, and to a large extent, our destiny in the world. All his life, if his first impressions were poorly arranged in his brain, a man will be nothing but a false and dubious mind, a muddle-head of weak character. If the supposition we've just proposed could be carried out, we would become beings as perfect as our nature entails.

So great a happiness, no doubt, is not in store for man. However, either I am much mistaken, or one would obtain a portion of these advantages in our School of the artificially blind.

First of all, the most necessary of our senses, and the one that serves as the principal instrument of our knowledge, could be cultivated more or less the way we desire. The sense of Touch, once rid of sight (which causes it the most distractions),

once free to operate on its own terms, would acquire the most exquisite finesse in our subjects. Their deft hands would become capable of handling the finest objects and distinguishing the subtlest nuances; their fingers would be like little microscopes. What a school for training mechanics, sculptors, and artists of any kind! But I also see others being trained as physicists, naturalists, and geometers of the first order, and above all as philosophers spared the thousand prejudices that we imbibe from infancy, that education serves only to deepen rather than destroy, that subsequently require so much effort to overcome, that despite all our efforts we never entirely surmount, and that most men take with them to the grave. [120]

There, in the shadows and the silence, one would study Nature, one would study oneself: one would learn to discern exactly the objects of each sense, and one would be wholly prepared to receive that of Sight, without transmitting with it the false judgments and errors that the habitual confusion with Touch leads us to. The soul circumscribed in a tighter sphere would exercise its faculties with a redoubled vigour. In the end, the Sages to whom the surveillance of this establishment would be entrusted would have the leisure and convenience to present objects and to generate ideas in the most natural order, or the one most in line with their goal, and to proportion their lessons to the different capacities of their students. What will ease their labours is the knowledge that, in the task to which they are devoted, there will be at least as much to gain for themselves as for their disciples.

I think I have proven that for the children raised this way there will be infinitely more to gain than to lose. At bottom, what do they lose? A possession of which they have no idea, and as a consequence no desire. We have always seen how indifferent those born blind are about this; they don't understand what advantage this new sense is supposed to bring. Saunderson had contempt for most of the men who enjoyed it; he considered their minds to be slow and heavy [*matériels*], and did not want to change places with them.

But even if we admit that being deprived of Sight for a certain period may be a real loss; will it not be richly compensated for? Does it count for nothing, this ineffable pleasure that you have long prepared them for? Imagine their transports of joy, the flood of delights that will inundate them, when we make them pass from night into day, from the darkness to the light, when a new universe, an altogether dazzling world unfolds before them as from the depths of Chaos! Can there be anything comparable to such an instant? And doesn't a whole life spent intoxicated with pleasure pale in comparison? For after all, almost all our pleasures are only repetitions. Novelty itself, which has so many charms for us, boils down to various arrangements of things that we already know; it's the same dough, tossed in different ways. Whereas here we have things that are genuinely new, of an absolute novelty, new in both substance and form, of which we have neither presentiment nor idea, and that can be tied to nothing that was previously known to us.

The wonders of nature are lost on most men. They grow accustomed to them by slow and imperceptible gradations, before they become capable of reflection, and far from judging them worthy of research they live and die without paying attention to them. These wonders would make a very different impression on those who appreciate the cost of such research, if presented to them for the first time [121] after they have attained the age of reason. Think of the pleasant surprise that would be in store for them! Think of the movements of curiosity they might excite in their souls!

Now all of these pleasures we thus prepare for our blind charges, we tear them away, so to speak, from Nature in order to offer them to them. It is true that Nature will maintain its rights, by granting them only by degrees the full enjoyment of light and the universe that is illuminated by it. But this very process will direct their desire for knowledge, and each step they make will be marked by discoveries.

I imagine them struck motionless with astonishment at the first impression of light, this magnificent being that a veil had thus far hidden from their gaze, and at the varied play of colours for which it is the inexhaustible source. Once they recover from their surprise, how often they will fall back into it, when, as they begin to move, as Sight is joined to Touch, they see this light and these colours projected into space, illuminating, painting, decorating the earth and the firmament, when little by little they come to sense, flowing out of them and as if created before their eyes, the greenery of the fields, the verdure of the prairies, the glowing empire of Flora, and in the distance, the woods and mountains whose pale shades limit their view and define the horizon. Raising their eyes, they perceive, extended around them like a glorious pavilion, this azure canopy in which shines in all its splendour this star to which they owe the new day that illuminates them. And then, in a beautiful night, quite different from the one they have just left behind, the moon and the stars will bathe them in their soft and vibrant light. What animated scenes, what enchanting forms will follow one another across this beautiful theatre, and will be for them, as for Cheselden's blind patient in his transports of delight upon the hills of Epsom, so many new ways of seeing, so many new subjects of ecstasy!

And ultimately to the attractions of natural beauty will be joined the attractions of science. Think of the discoveries to be made from this new sense, from its association with others and in particular with Touch! What an opportunity for Geometry, for Optics, for Natural History, and for Philosophy! Each of these sciences, in this new domain, will display its new charms to those among our students who will be initiated into them. As I pointed out above, we will be able to direct the course of their mind, to make their ideas grow and to develop them in a hundred different ways, by varying objects and sensations. We will be able to choose the points of view in which we want to place them, and the order in which we want to lead them. We will suggest to them combinations we'd like to see them try: we will behold, so to speak, the production of their ideas. By doing so we will clarify for them the most difficult matters, and resolve the thorniest questions. They will make discoveries for us in discovering for themselves [122]: and it will turn out that in these dark places an excellent Academy of philosophers was formed.

Do you still think that they would hold it against you for having failed to care for them? I think that, on the contrary, they would be more disposed to appreciate what you have done for them, that they would thank you with tears of joy, and that comparing themselves with others, they would be glad their whole lives for the education you have given them. If I had received a similar education, I would think myself all the more worthy of being here: the essay I've just read to you would have been infinitely shorter, and infinitely better.