

MADELINE  
SCHWARTZMAN

SEE  
YOURSELF  
X

HUMAN  
FUTURES EXPANDED

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# INTRODUCTION

This book is a work of speculation and fantasy. It is an attempt to see into the future by collecting the visions of a wildly creative group of artists and designers, all pondering the human head and its extension into space. It begins with present day extensions: hair, vision, brain waves, sound, the tongue, nose and ears—all things that cast us into surrounding space. Who knows where it will end? The idea is to guess. Physicists do it. They speculated on the existence of the Boson Higgs particle for 40 years until it was discovered in 2012 and verified in 2014. Here is my prediction: even as we continue to cast ourselves into space through the internet, sensors and, if technologists like Kevin Warwick have predicted correctly, brain-to-brain communication, something is going to happen to the human head. I see it coming. I have made my own speculations that I will share with you: hair that will have the ability to create architectural spaces or join forces with walls and floors. What do you imagine? Use your most powerful resource, your invention machine: the brain. ‘Case the joint’ of your own body and look into the future. Let *See Yourself X* pave the way.

The human head is at the center of a massive scramble. The mysterious, weird and elusive brain has scores of neuroscientists at work, attempting to decode the processes and mechanisms of thought. Whole university buildings are under construction as I write, like Columbia’s own Jerome L. Greene Science Center, a part of the Center for Neurosciences Initiative. Electroencephalography (EEG) and all manner of projections into and out from the brain are being deployed in greater and greater force. Yet for all of our efforts, we only understand the tip of the gnarled iceberg. The brain—the subject of our study—is also our tool. This is human evolution’s cruel taunt: to never allow us to comprehend our own comprehension. We cannot see ourselves sensing. We may not know the full limits of extending a facial feature into space, but we can project that idea. We’ve seen it done. We recognize the strangeness of the nose prosthesis (see “Transformed”) for the patient ravaged by syphilis, or even Pinocchio’s plight. We can project into the future, even as we struggle to comprehend the mechanisms of moving forward. Kahn & Selesnick imagine two human heads as the seeds of a future population. Will they have bodies? Will they even need them?

How do we escape the bounds of what we know and cast into the unknown? *Wired* explored that theme in a 2014 article called “Why Inventors Misjudge How We’ll Use Their Creations” by

Steven Johnson. We may not know the full limits of extending a facial feature into space—the structural morphological and neurological limits—but we can project that idea. Consider Édouard-Léon Scott de Martinville, a Parisian printer who became fascinated by the human ear and the art of stenography. Putting these two things together was radical and brilliant. Instead of writing words, he imagined a machine that would write sound waves.<sup>1</sup> He, not Thomas Edison, was the genius behind the audio recording device, or in his words the “phonograph: the self-writing of sound”.<sup>2</sup> Genius yes, except that by casting himself into the future, into unknown, uncharted territory, he was blind-sighted by his own cutting edge. He neglected to invent a device for playback. His invention turned on deaf ears. 20 years later Edison’s addition to the invention—audio playback—allowed the fruits of de Martinville’s invention to be heard. “We often fail to perceive important developments or possibilities because we assume that recent trends will continue to follow their current trajectory.”<sup>3</sup> Johnson continues, “Strangely enough, working at the cutting edge of a field makes you more prone to these sorts of blind spots, because you’re exploring new territory without conventional landmarks or guidelines. You design a tool with one specific use in mind, but that focus blinds you to other ones.”<sup>4</sup>

I read this deep into the researching of this book, and took reassurance in my own quest to make sense of this amazing cross-section of explorations of the human head. Will we be able to be cloned from a nose, like The Leader in Woody Allen’s *Sleeper*? Perhaps. Will our human anatomy include plants or animal parts? Perhaps. We do not know. But these artists and designers are on to something, even when it was not their intention to explore the future. There are depictions of human-fungi hybrids, the integration of algae systems into the body, and infrastructure for the mouth. This volume is a collection of work as weird as those found in marvelous Medieval manuscripts. We may know only a tiny bit about the workings of the brain, but my brain knows when someone is giving theirs a good workout. That is the essence of this collection: artists promoting conceptual ideas and taking risks.

This book had inauspicious origins. It began with an airplane crash—in the city of Detroit. I was on my way to Edinboro University to give a talk on my new book *See Yourself Sensing: Redefining Human Perception*<sup>5</sup> when my Delta MD-88 airplane hit a bus just after landing.<sup>6</sup> It wasn’t a head-on crash—thank



Kahn & Selesnick, *Seed*, 2013, archival inkjet print. Image courtesy of Yancey Richardson Gallery.



Madeline Schwartzman, *Delta Crash*, 2013. Image courtesy the artist.

goodness—merely a glancing blow at high speed (well over 100 mph), since we had just alighted and were breaking to taxi. Had we run over a discarded carpet roll left on the tarmac? There was a very brief moment of extreme alarm. Then mid-bump the 70 people on the left side of the plane gasped in horror. They reported seeing the plane's wing ram into a massive airport shuttle bus and flip it over like a cardboard toy. The pilot braked hard and everyone crammed to the left side to see the overturned behemoth. Its grey industrial underside was now exposed to natural light for the first time. Our plane's wing had sustained serious damage to the tip.

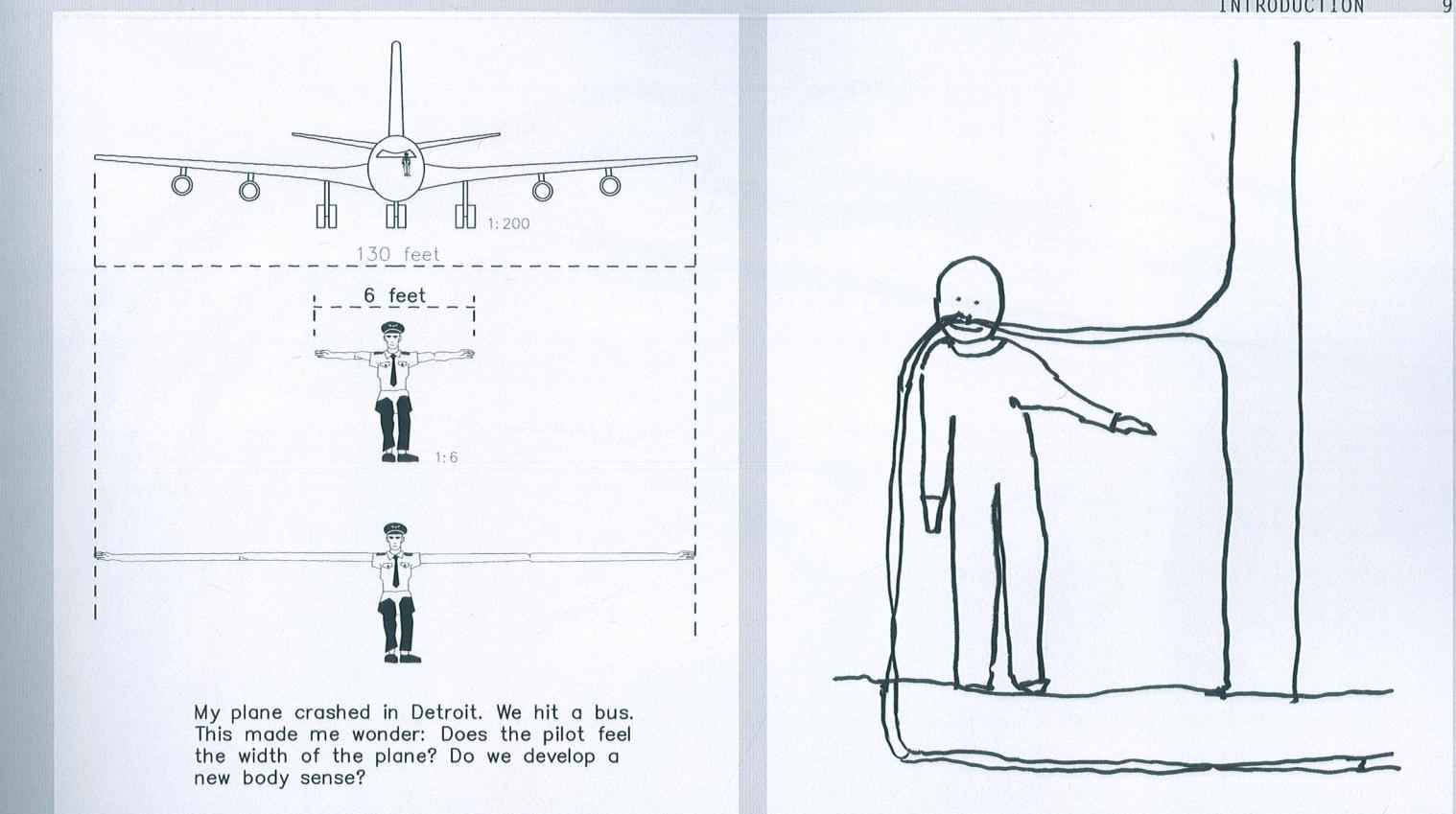
I was excited. We were little creatures in a giant body with a head, tail and arms—something akin to the tiny humans in Richard Fleischer's *Fantastic Voyage*. Our external arms had struck a blow. Maybe it was denial, but I knew that I had a great opener for my book talk. This was clearly a *See Yourself Sensing* moment—a chance to question our preconceptions about the human sensory apparatus and the head. While people were fretting and complaining, I was busy pondering conceptual questions about the human/airplane hybrid: does the pilot feel the width of the plane? Is the wing span a part of the body schema? An expanded head? Shoulders? Despite having a reasonably similar size and shaped head, do we feel them internally in completely different ways? And if the pilot does feel the width of the wings, why had we just tipped over a bus? I had to know.

Detroit is an airline hub. As such it is filled with ambling pilots. I used the half a mile walk to my new gate as a research opportunity—to talk to them. It's not that easy to approach a pilot.

They are often in groups, and in uniform, and they can be intimidating, standoffish and unapproachable. But here I had just the ticket: news of the accident. Word had not yet spread. They wanted details. It was a cautionary tale and they all seemed visibly relieved that it had not happened to them. Such an accident, they informed me, was a career disaster. By the end of the crash debrief I was able to describe the nature of my trip, and to pose my question: do you feel the width of the plane?

I spoke to three pilots and then it was time to make my connection. The first two men—handsome, trim look-alikes in their late 20s—said, "No." They did not feel the width of the plane. Instead they relied on instruments. I was a bit disappointed but not deterred. Then I came upon an older man with a walrus-style moustache (a set of mini-wings?) at my gate. He was 64, one year away from retirement. I asked. He said, "Yes, I do feel the width of my wings." Bingo! A man who whose body schema told him that he was 150 feet wide. "I would never have hit that bus." Perhaps it was generational: he had learned to fly manually. Perhaps it was experience. He probably had five times the amount of flying years. Whatever the case, Pilot Three was my own patient zero. His response was the beginning of this book. I have since asked several more pilots. The older ones feel it. They worry about the younger pilots' reliance on instruments. We of a certain age all do.

A couple of days after the crash, its seriousness dawned on me. A glancing blow at over 100 mph is only a small step away from a severed wing. I got angry and called the airline for a refund. At first they said, "Didn't you receive an apology and a 25 dollar



Madeline Schwartzman, *Does the Pilot Feel the Width of the Plane?*, rendering: Jeff Miles, 2013. Image courtesy the artist.

Madeline Schwartzman, *Mustache Structure*, 2013. Image courtesy the artist.

certificate at the airport?" No. After two more phone calls, I received a full voucher that expired before I could ever use it. One week later the crash inspired a series of drawings: I extended Pilot Three's body into space, drawings each arm's reach 75 feet in either direction—the span of the wings. Those drawings led to a series of crude sketches of other possible extensions inspired additionally, by my favorite of The World Beard and Moustache Championship winners. After all, some of the moustaches that extended horizontally into space were very much like airplane wings. Several of them would require sideways entry into a typical three-foot doorway. They might even tickle a bus. What if the moustache could suspend us up in the air, let us cradle from a tree, or connect our body to the tree itself?

I developed a master plan to create robotic hair. Why not? I wrote *See Yourself Sensing*. I am a licensed architect. I have the skill to become an interaction designer, or so I thought. I made a call to a professor of computer science at Columbia University, the organizer of the Columbia University Robotics Group. Hmmm. Tough. My Medusa would need to become thicker than I would like, and would never be as flexible as I had hoped. One of my students—Cassandra Nozil—had managed to make an elegant study of a robotic tongue. I was impatient. I wanted to see it in action immediately, allow the hair to swarm like birds and form various permutations of space. Robotics was not the ticket. Animation—one of the tools of my teaching arena—was. Along with my Barnard and Columbia students, I created two animations of swarming human hair. I had begun a new body of work and founded my new research dominion: the extension of the head into space.

This book follows the format of its predecessor: *See Yourself Sensing: Redefining Human Perception*. It is divided into five chapters that share physical and conceptual ambitions, and extend the human head into space in a related manner. These include:

"Extended", "Analyzed", "Clad", "Transformed" and "Obliterated." "Extended" collects work that is connected to the human body, or joined to it to form extensions that are pronounced, shocking, and often imbued with functionality not typical of the average human head. "Analyzed" features work that utilizes drawing, dissection, or other modes of representation, to convey layered ideas about the conditions of the head, including the parts of it we cannot see, and its association with history, biology, data sets and information. "Clad" groups together works that form a skin or exterior coating. "Transformed" includes head extensions that alter the legibility of the human head, or the irrevocably change the head itself. "Obliteration" looks at the end of the human head—its absence, obsolescence or disappearance. The head extensions of my students appear at the end of the volume. These projects inspired both books.

I hope you take inspiration from these innovations. These projects astound, shock and delight me. What if...? What a beautiful and satisfying question. The answer is the unknown. To get there we: connect/dissect/disembody/reconnect/repurpose/invent.

Bring on the future. Let that big beautiful brain of yours lead us there.

1. Johnson, Steven, "Why Inventors Misjudge How We'll Abuse Their Creations", *Wired.com*, October 15, 2014, <http://www.wired.com/2014/10/technological-innovation-oversights>, accessed February 6, 2015.

2. Johnson, "Why Inventors Misjudge How We'll Abuse Their Creations", 2014.

3. Johnson, "Why Inventors Misjudge How We'll Abuse Their Creations", 2014.

4. Johnson, "Why Inventors Misjudge How We'll Abuse Their Creations", 2014.

5. Schwartzman, Madeline, *See Yourself Sensing: Redefining Human Perception*, London: Black Dog Publishing, 2011.

6. "Bus Ends Up On Side After Being Clipped By Delta Plane", CBS Detroit, March 3, 2013, <http://detroit.cbslocal.com/2012/03/03/bus-ends-up-on-side-after-being-clipped-by-delta-plane>, accessed December 16, 2014.

SEE YOURSELF X

4

# ANALYZED

We search for meaning in the face—for expressions of feeling, indications of character and health, and evidence of social status, income level and origin. We create narratives using real and hypothetical data sets. Over time, belief systems and shared cultural data allow us to elicit information. Humans have garnered details about individual character from the location and type of beauty mark on the face, the size and shape of the bumps and crenellations of the skull, the proportions of the features, the number of crinkles at the extremities of the eyes, and difference between the left and right half of the face.

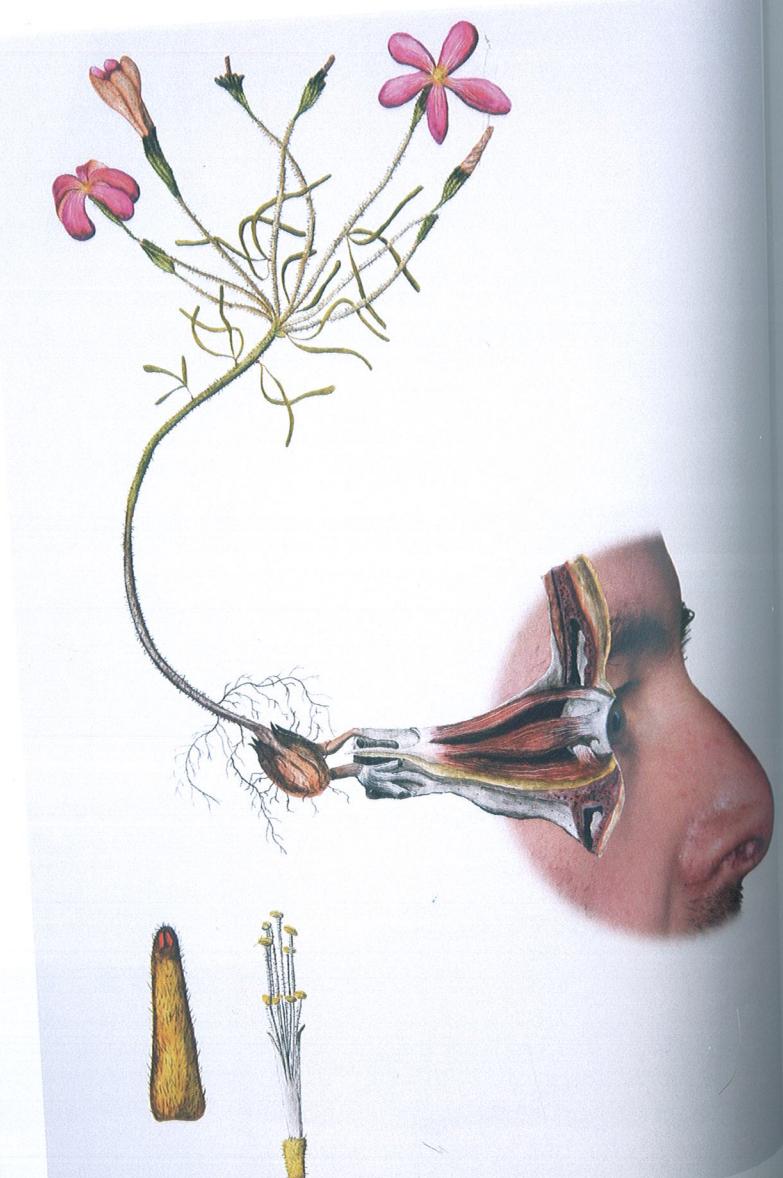
half of the face.

We need information. We want evidence, proof, verification. We seek it in the head—focusing on that place closest to our essence—and hunt for data. It is all a superficial substitute for the elusiveness of the engine of our humanity: the brain. Our human black box. We know so little about the brain. Despite meteoric developments in neuroscience, biology and computation over the past 20 years, the brain is still *terra incognita*. We still do not know how it works. Even fundamental things we do seem miraculous. The very fact that we are permeable—that we extend our sensory apparatus into space, and receive constant input back through apertures—seems like a miracle.

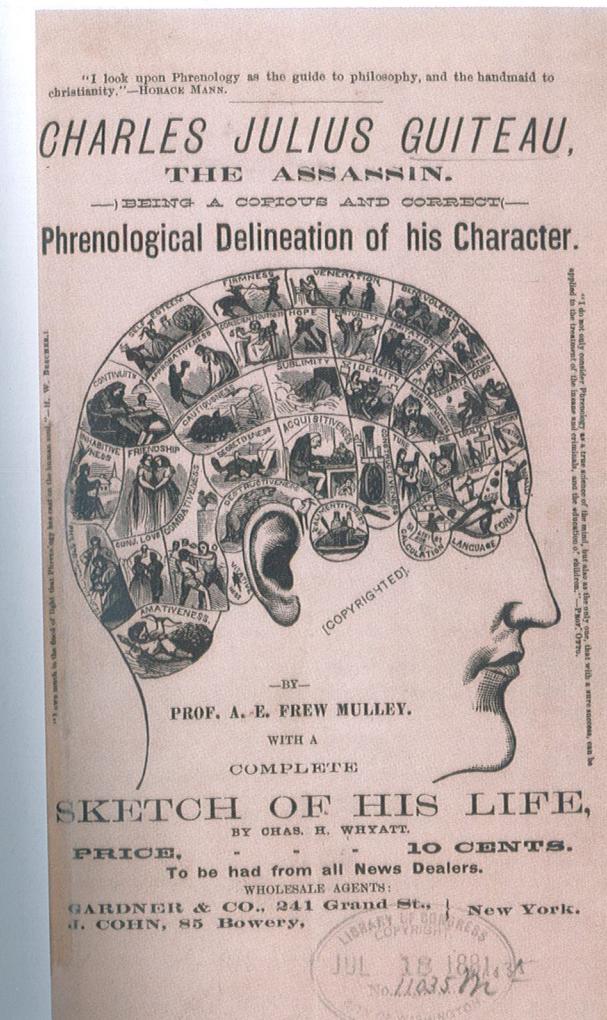
...to connect the dots, draw

In lieu of concrete information we connect the dots, draw lines, measure bumps and create all manner of linear systems for creating a measureable order. Metoposcopy, craniology, phrenology, and anthropometry are but a few of the techniques devised for gaining answers. We use systems that are all measures of the external reaches of the body—the outer shell. Considered science in their day, each system of gathering and analyzing information about an individual was ultimately deemed to be inaccurate or to be quackery, only to be replaced by another pseudo science. We want answers so badly, we'll even settle for false ones.

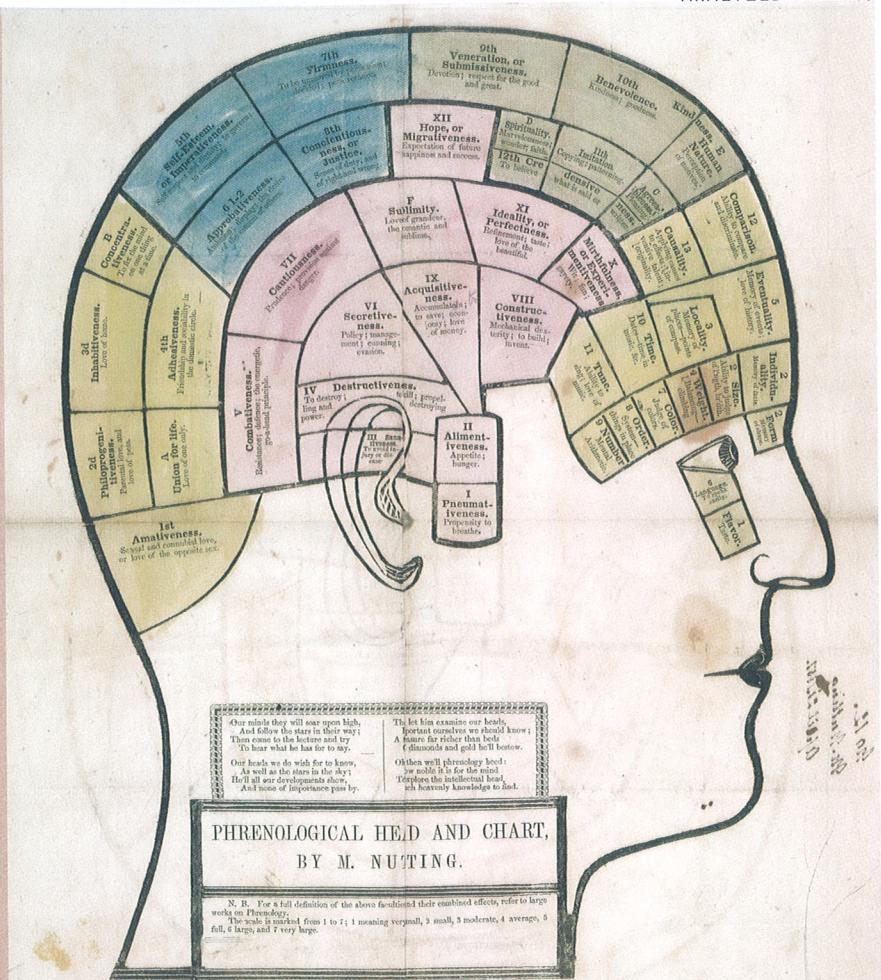
Metoposcopy was a sixteenth-century method for divining qualities about an individual from the lines on the forehead. It worked in conjunction with astrology, and was invented by the great sixteenth-century mathematician, physician, and astrologer Girolamo Cardano (1501–1576). "For Cardano... metoposcopy is not merely a procedure to foretell the future and destiny of a given individual. It is first and foremost one of the most fascinating manifestations of the dialogue between mind and memory, rationality and what we now would



Laurent Millet, *L'Herbier*, 2011. Image courtesy the artist.



(left) Frew, Mulley, A.E. *Charles Julius Guiteau, The Assassin*, New York: Gardner & Co., 1881. Image courtesy The Library of Congress;  
(right) M. Nutting. *Phrenological head and chart*. 1857. Image courtesy the Printed Ephemera Collection, The Library of Congress.



PHRENOLOGICAL HEAD AND CHART,  
BY M. NUTTING.

call 'subconscious', and human self and angelic beings."<sup>1</sup> In his book *Metapsychology*, he divides the forehead into three time zones:

The zone on the left relates to the first period of life (up to 30 years of age), because it is under the jurisdiction of the Moon, which presides over infancy.

In the twenty-first century, no lines are good lines. Botox and other fillers have made divination by wrinkle lines impossible on many faces.

Phrenology, developed by Franz Joseph Gall in 1796 and in use through the twentieth century, measured the bumps of the skull in an attempt to correlate the size of parts of the brain with the cranial protrusion. Elaborate maps parse the cranium into the most particular regions of character, including, one labeled "Mirth, hopefulness and conjugal love". Gall's system followed these rules, outlined by one of his collaborators, Johann Spurzheim, in his text, *Outline of Phrenology*.

1. The brain is the organ of the mind.
  2. The mind is composed of multiple distinct, innate faculties.
  3. Because they are distinct, each faculty must have a separate seat or "organ" in the brain.
  4. The size of an organ, other things being equal, is a measure of its power.
  5. The shape of the brain is determined by the development of the various organs.

6. As the skull takes its shape from the brain, the surface of the skull can be read as an accurate index of psychological aptitudes and tendencies.<sup>3</sup>

aptitudes and tendencies.”  
ropometry was a system of measurement developed by French  
e officer and innovator Alphonse Bertillon, to identify criminals.  
vised systems for codifying the measurement of different  
parts, and instituted the collection of facial morphology data  
facial markings, among them 15 prototypical projections of  
ose. “Bertillon concluded that if 11 physical measurements  
ht, length of outside, length of trunk, head length, head width,  
k width, length of right ear, length of left foot, length of middle  
r, length of left pinkie finger and length of forearm) of a person  
taken, the chance of finding another person with the same 11  
urements were 4 191 304 to 1 ”<sup>4</sup>

The system was eventually supplanted by the fingerprint, a more accurate identifier, simply because no two prints are ever identical. Anthropometry, it turns out, yielded some men who had nearly exact measurements and morphology. Bertillon then added another system to his kit of identification techniques: the *portrait* or head shot—the photographic documentation of the front side of the human head, an innovation still in standard practice in contemporary criminology. Talk about extension into space. The adjacency of a frontal and profile photo projects the subject in time and space of a crime.

Translational diagrams exist for the head as well. The sensory homunculus is a proportional system for identifying the parts

## "PORTRAIT PARLE" CLASS, FRANCE

## LISTE DES ABREVIATIONS LES PLUS USITÉES

cx	anterior	ab	abaissé	cl	clair	mar	marron
p	posterior	ath	adhérent	desc	descendant	or	orange
s	superior	azd	ardéso	émi	éminent	pt	petit
i	inferior	az	azuré	f	foncé	pm	prémient
E	externe	b	oblique	g	grand	sp	saillant
i	interne	bl	blond	grs	grisâtre	spé	spécialement
g	gauche	bsf	basse frontale	h	horizontal	trz	traversé
d	droite	bsq	besoigné	int	intermédiaire	rect	rectangulaire
ob	oblique externe	cav	cave (concav)	J	jaune	rex	vert (rouge)
bi	oblique interne	ch	châtain	m	moyen	rz	vertical

## FORMULAIRE DU "Portrait parlé"

taille 1", voute	Tete	long'	pied g.	au v de cl.	Race
vouloir 1", enverg. l,		lrg'	médias g.	au v de cl.	(Grec ou Gaulois)
buste 0", oreille dr.		zyg'	auric' g.	au v de cl.	Ital.
		concav' g.	coude g.	au v de cl.	Angl.
				au v de cl.	Spa.

Front	(Arc")	Racine (prof')	W lèvable	lèvres	lèvres
	inclin.	dos nose	proie'	lèvres	lèvres
Haut'	Haut'	(Haut) Salle	Bordure	lèvres	lèvres
Larg'	Larg'	Larg'	Epaisseur	lèvres	lèvres
part"	part"	part"	part"	lèvres	lèvres

Droite	bord. Orig'	Sup"	Ped"	sur"	lèvres
	lob. cont.	ath'	med'	parz'	lèvres
		zyg'	med'	parz'	lèvres
	a.trag	interv.	med'	parz'	lèvres
	ph'	interv.	med'	parz'	lèvres

Frontières	Interv.	Ortites	Ortites	Ortites	Ortites
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Frontières	Interv.	Ortites	Ortites	Ortites	Ortites
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Frontières	Interv.	Ortites	Ortites	Ortites	Ortites
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Frontières	Interv.	Ortites	Ortites	Ortites	Ortites
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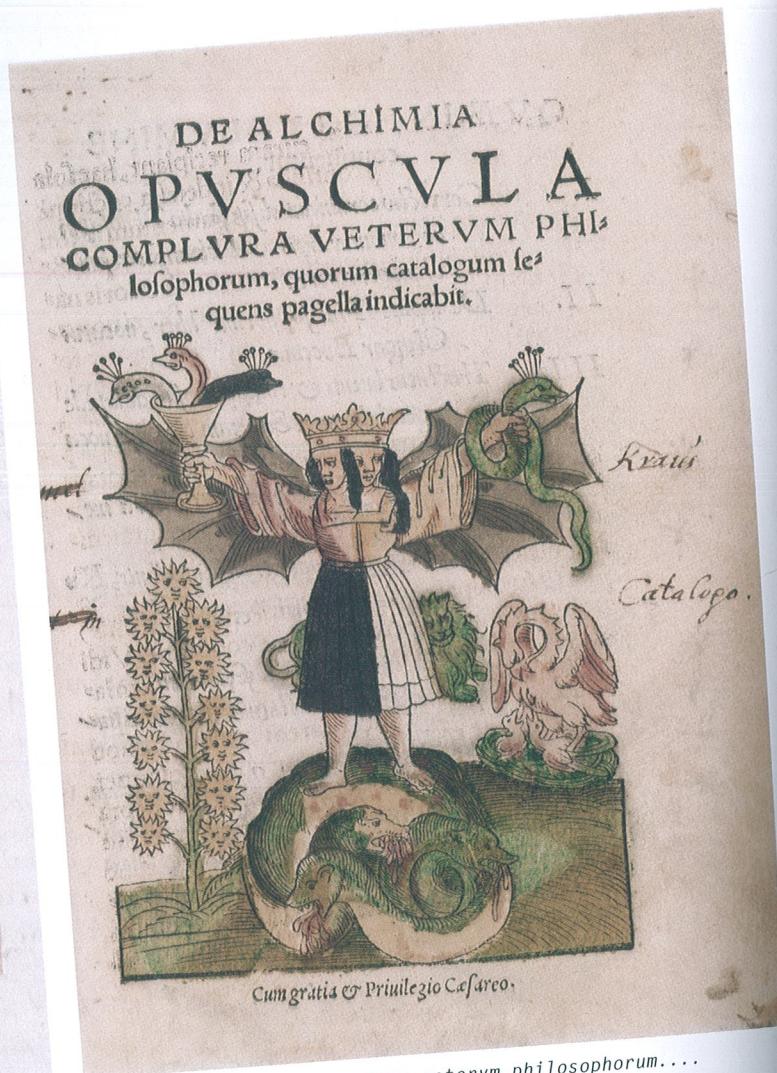
Frontières	Interv.	Ortites</
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Alchemical and Rosicrucian compendium, Python (Mercurius as three-headed dragon) 1760, from the collection Book of Secrets: Alchemy. Image courtesy Beinecke Rare Book and Manuscript Library, Yale University.

of the body with the greatest portion of the cortex of the brain devoted to it. The more somatosensory cells, the more exaggerated the body. The lips, tongue, and hands, are disproportionately exaggerated, and the torso and legs shrink down to next to nothing. Of course! These are the parts of us that extend out into the world and transfer material from outside to inside. The diagram doesn't exactly align with our body schema. As important as it is, we tend to hide the tongue and diminish its public role. We are not conscious of its superhero sensory status, despite the evidence.

The human head is also distorted, enlarged and extended for narrative purposes. Outrageous heads have been a key feature of editorial cartoons and caricatures for hundreds of years. In an 1831 drawing called Gargantua, French caricaturist and artist Honoré Daumier depicted King Louis-Philippe on a hybrid throne/commode. His tongue supports a giant extension, a ramp used for servants to deliver sacks of money—the livelihood of his subjects—into the royal's mouth. Artist Christophe Coppens used the tongue to a similar, though more general effect in *No Reference*, his 2008 installation of 33 boundary-crossing accessories. His extended tongue—made of embroidered and painted silk chiffon—exposes the usually shy and retiring cantilevered muscle, while revealing it to be a vehicle for greed and excess. Coppens' tongue is ready to suck up an abstract meal that is well beyond the capacity of

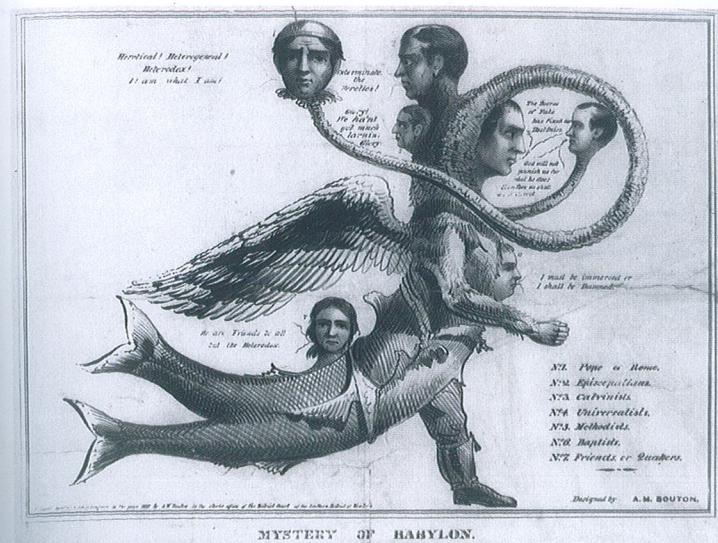
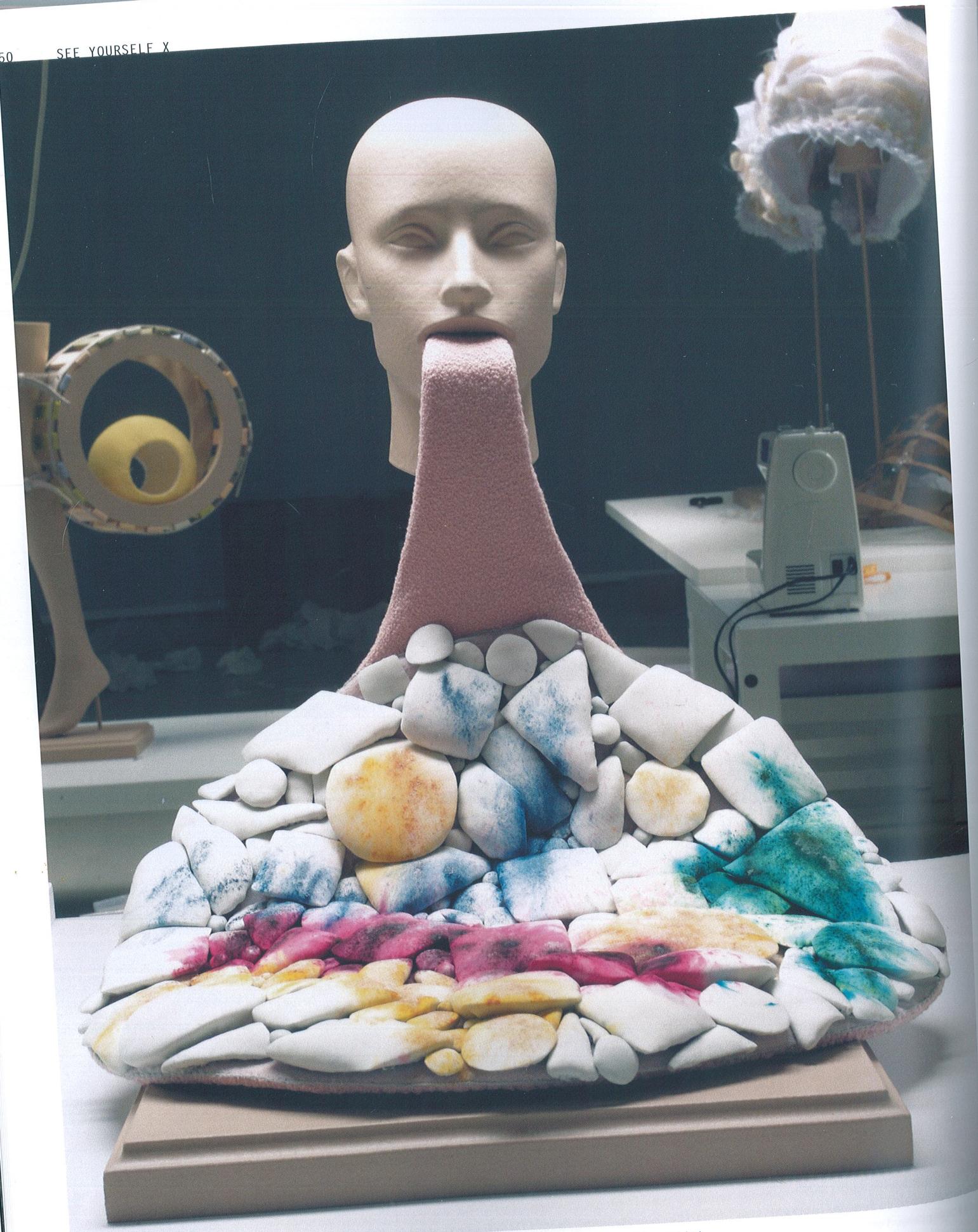


*De Alchimia opuscula complura vetervm philosophorum...* Rosarium philosophorum, 1550, from the collection Book of Secrets: Alchemy. Image courtesy Beinecke Rare Book and Manuscript Library, Yale University.

Political cartoons turn politicians into multi-headed Hydras, two-headed hypocrites, or macrocephalic nightmares, with massive heads and shrunken bodies. Everyone recognizes the implications of a gigantized head. It is a signal to expect comedy, parody or bitter critique. It encourages the reader to look for a royal, a politician, public figure, or average Joe, and to distill the message, whether social, political, economic or cultural. Is the interpretation of a two-headed animal universal? In a 1791 illustration, published two years before her execution, Marie Antoinette and Louis XVI are the heads of a two-headed animal. Antoinette is depicted as Medusa and Louis XVI sports the horns of a cuckold. Hugh Lofting's Dr. Doolittle creature—the two-headed Pushmi-pullyu—follows suit, but in this case two-headedness is wondrous and productive.

Beyond the interpretative readings of the human head are the evolutionary ones—factual and significant changes in the head's extension into space over time, changes well documented in the eighteenth century by the French naturalist Louis-Jean-Marie Daubenton book *Mémoire sur les différences de la situation du grand trou occipital dans l'homme et dans les animaux* and more recently by Daniel Lieberman in his book, *The Evolution of the Human Head*.<sup>5</sup> Lieberman documents our progression from chimpanzees to our current incarnation. He tracks the movement of our face inward over time, the shortening of the overhang of the





A.M. Bouton, *Mystery of Babylon*, 1835, The Library of Congress Prints and Photographs Division Washington.  
Image courtesy The Library of Congress.

brow, the diminishment of the size of the face, and increase in the size of the brain.<sup>6</sup> He speculates on why those changes took place, and throws a new theory into the pot. The size and position of the inter-related parts of the human head, he believes, have changed because of shifts in the way humans acquire and use energy.<sup>7</sup> It seems our way of eating, the types of food we chose, the kinds of body activity we have abandoned due to more recent developments in how we lead our lives, have led to changes in the structure and shape of the head, that far exceed relative changes to any other part of the body.<sup>8</sup>

The need to identify, measure and understand the human head is fundamental to human nature. We want to understand ourselves and others. Sometimes we want to know too much. Cast back from Bertillon's facial measurement systems introduced to the French police force, all the way to the present day. Due to the advent of biometrics and computation, we have become a society in which anyone can be measured and codified without knowing it, without permission and without the ability to defend against it. Face detection—using computer algorithms and omnipresent surveillance—simply by using the measurements of your cranial biology, you can identify who you are. Every human face has data sets, in some cases 37 points that can be used with face detection algorithms. Hackers and artists have responded by creating make-up that foils such detection. Such camouflage, also known as computer vision dazzle, outsmarts the computer by the shielding of some of the key data points, using make-up or a mask, to foil any bilateral symmetry and the formulation of an accurate data set. Dazzle is considered one countermeasure to the detection that extends us into computer networks and databases. The idea that we need such a countermeasure is scary and complex. Can we be discrete and free, and control the way we extend into space? It is probably too late for that.

To make matters worse for human data gathering, nearly every system that has been used to measure the human head has ultimately been co-opted for racist or elitist purposes—the analytical data distorted and misread as evidence of superiority. Eugenic principles pop up whenever humans are measured.

The upside of facial data and facial recognition is face tracking and precision projection mapping, in which real time movements of the head are followed by computer projection, and allow the face to be a site for all manner of projected surface, material, light and transformation. The face is a blank slate for real



Henry Robinson, *General Jackson slaying the many headed monster*, 1836, The Library of Congress Prints and Photographs Division Washington. Image courtesy The Library of Congress.

time projected fantasy, and can be viewed by others, or by the owner of the face, recorded or played back in real time on a monitor. While the focus of movement and transformation has been on the face itself, such transformational projection has found its way into theatrical sets and interaction design. But what of the home? Surely that is coming soon. Push a button and change the kitchen into a living room.

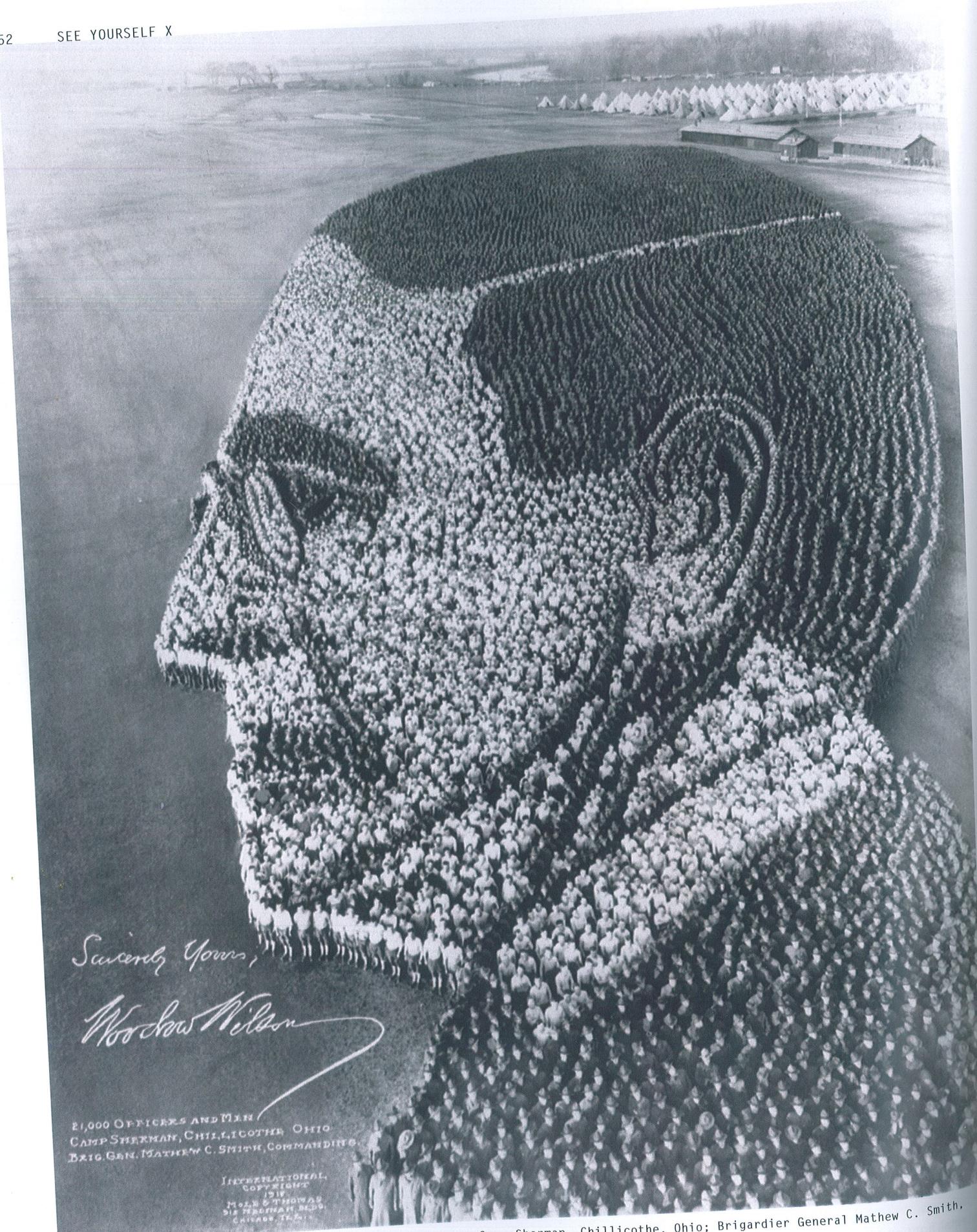
Key philosophical questions about the human head arose during the Enlightenment—debates about the precise location and relationship between the body and the mind. According to Descartes, “human beings were composed of physical bodies and immaterial minds”.<sup>9</sup> That meant that the mind could be anywhere. Talk about extending into space! Spinoza, in counterpoint, “claimed that thoughts and feelings are not primarily reactions to external events but first and foremost about the body”.<sup>10</sup> Amateur attempts to verify this fell, gruesomely, to the attendants of the freshly guillotined. According to Alister Kershaw, in his book *From A History of the Guillotine*, in 1905 Dr. Gabriel Beaureux managed to be present at the execution of Henri Languille, a convicted murderer, to observe with his own eyes, whether the head retained agency, after it had been severed.<sup>11</sup> It is hard to believe that such an observation-based inquiry was part of the twentieth century. It is evidence of how young our understanding of the head really is. It is also evidence of what we do with heads attached to those whom society deems unworthy of life:

It was then that I called in a strong, sharp voice: “Languille!” I saw the eyelids slowly lift up, without any spasmodic contractions—I insist advisedly on this peculiarity—but with an even movement, quite distinct and normal, such as happens in everyday life, with people awakened or torn from their thoughts.

Next Languille’s eyes very definitely fixed themselves on mine and the pupils focused themselves. I was not, then, dealing with the sort of vague dull look without any expression, that can be observed any day in dying people to whom one speaks: I was dealing with undeniably living eyes which were looking at me. “After several seconds, the eyelids closed again, slowly and evenly, and the head took on the same appearance as it had had before I called out.”<sup>12</sup>

Dr. Antonio Damasio sided with Spinoza. In his book *Looking for Spinoza: Joy, Sorrow and the Feeling Brain*, he concludes,

SEE YOURSELF X



Sincerely yours, Woodrow Wilson; 21,000 officers and men, Camp Sherman, Chillicothe, Ohio; Brigadier General Mathew C. Smith, commanding. The Library of Congress Prints and Photographs Division. Image courtesy The Library of Congress.



*Les deux ne font qu'un*, 1791, forms part of: French Political Cartoon Collection (The Library of Congress).  
Image courtesy The Library of Congress.

"Feelings do not cause bodily symptoms but are caused by them: we do not tremble because we feel afraid; we feel afraid because we tremble."<sup>13</sup> The debate continues, as does the severed head. Going further down the gruesome alley are experiments of the 1970s and beyond: animal head transplants, animal brains kept alive outside of the skull, and human head transplants, a procedure currently in the planning stages.<sup>14</sup> If we can substitute one head for the other, it means that we will be able to temporarily sustain the head independent of the body. That analytical act will be the ultimate extension.

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