TRAP
FIG. 4.1 Berengario da Carpi, *Tractatus de fractura calve sive craniae a Carpo editus* (1518) (source: Wellcome Library, London)
INSCRIBING THE SOUL: CEREBRAL VENTRICLES AS SYMBOLIC AND MATERIAL BOXES

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**Terminology**: cerebral ventricles, cerebral cellulae, and containers or chambers of the soul. **Location**: centre of the brain. **Material**: cluster of four interconnected cavities surrounded by brain matter. **Function**: from the fourteenth to sixteenth centuries, believed to contain human rational faculties of common sense, imagination, reason, and memory; uncertain function between the sixteenth and eighteenth centuries; after eighteenth century, demonstrated to be responsible for the production and circulation of cerebral-spinal fluid. **Morphology**: continuous spherical containers until the sixteenth century. Dissection demonstrated each ventricle to follow the contours of the brain and brain stem. Two lateral ventricles are symmetrically ‘C’ or ‘new moon’ shaped; middle ventricle connects lateral ventricles to the fourth ventricle and each shape varies with cerebral development. **Volume**: adaptable capacity for imagination, reason, and memory; approximately 25–35 ml of fluid. **Access**: imagined through contemplation; visible through cerebral dissection; visible through medical imaging techniques. **Record**: recorded in speech, writing, gestures of dissection, and medical imaging techniques.

**Keywords**: containing, diagnosing, dissecting, imagining, injuring, inscribing, meditating, remembering, treating, visualising
This essay will guide the reader through the definition, treatment, performance, and access to a particular set of medieval and renaissance boxes that were located in the centre of the brain, namely, the cerebral ventricles, or cells. A ventricle was an anatomical space or cavity whose purpose was to contain. The stomach, heart, bowels, bladder, chest, and uterus were all defined as ventricles or ‘little bellies’, where ventricle was the diminutive of the Latin venter or belly. A second term was also commonly applied to these important mental spaces, namely cellula, the diminutive of cella, or ‘small store-room, chamber or cabinet’ (Whitaker 2007: 48). Until the mid-sixteenth century, three cavities in the brain were thought to contain the faculties of the soul: imagination, reason, and memory (Green 2003: 131). These anatomical spaces were defined by their metonymic quality of ‘continuity’ and ‘containment’, becoming secure little boxes for the soul. In the sixteenth century, however, through a shift in the medium of communication—namely from oral signifiers to graphic and typographic signifiers—the power of the body to be ‘continuous’ and ‘contained’ was ruptured by two related inscription practices. Cutting the body and inscribing the results on paper effectively transferred the soul from inside the head to the surface of the printed page.

In this theory that located the soul in the cerebral ventricles, not only were these cavities passive containers that enclosed the faculties of imagination, reason, and memory, but they also actively transferred animal spirits between them, allowing for proper mental functioning (Kemp 1990: 53–71). The galenic concept of animal spirits, or pneuma, united anatomy, physiology, and psychology so that blood could be rarefied into its subtlest part. These animal spirits, in turn, could be consciously controlled as they passed between ventricles. An example of proper and improper use of these containers can be seen in the following sixteenth-century treatment of a head wound, as well as a doctor’s method of diagnosis. In the year 1518, the Duke of Urbino, Lorenzo de’ Medici, fell off his horse and injured his head in a riding accident. Shortly thereafter, Berengario da Carpi, professor of anatomy and surgery at the University of Bologna, was called to his aid. Da Carpi treated the Duke of Urbino for a break in ‘continuity’ of the skull, which he diagnosed as a fractured occipital bone.
The treatment relied upon a surgical classification that sought to determine the ‘genus’ of the injury in order to recognise the specific patient’s ‘species’. Da Carpi wrote that a surgeon must initially recognise if a patient’s symptoms could be classified as either 1) an internal break related to mental functioning in the cerebral ventricles, or 2) an external break, which was isolated to the skull. Diagnosis required expert training in recognising symptoms such as a perceptible break in the skull, a patient’s reported vision impairment, vertigo, fever, vomiting, or disordered speech (da Carpi 1518: 1–7). The signs could then be compared with a patient’s complexion (hot, cold, wet, or dry), temperament (sanguine, choleric, phlegmatic, or melancholy), dominant element (earth, air, fire, or water), and season of injury (winter, spring, summer, or autumn). Once de’ Medici’s injury was properly diagnosed as an external break where the membranes, brain, and ventricles remained undamaged, prognostication (treatment) should follow the standard medieval surgical method of removing bone fragments or relieving pressure with surgical instruments (trepanation), applying plasters, and finally offering the patient potions in the correct proportion to his or her complexion, temperament, elements, and season. Following Plato’s *Timeaus*, which emphasised the spherical shape of the skull as the most protected and immortal part of the human body, a continuous skull contained the brain, which in turn contained the soul. A discontinuous skull could not enclose the soul efficiently, allowing for the soul to potentially leak out of any open wounds (Kısmet Bell 2018: 59–60). Remarkably, the Duke of Urbino recovered from this risky procedure, and within two months Professor da Carpi published the first book on treating cranial fractures, *Tractatus de Fractura Calve Sive Cranei a Carpo Editus* (On Fracture of the Skull or Cranium). Initially hesitant to publish his treatment methods, da Carpi recounts a dream that convinced him of the necessity of sharing a detailed account of diagnosing and treating head injuries:

There appeared to me in my dream a certain person whose hat was topped by a rooster’s crest, decked out with winged sandals of gold and bearing a golden wand in his hand around which a serpent was coiled. He was quite recognizable to me in that form as Mercury. I know that a rooster, his crest, winged sandals, a golden wand, and a serpent are the attributes of a physician,
for antiquity regards a man of such form to be a consummate physician (da Carpi 1518: 15).

From the dream vision’s accessories—a hat with a rooster’s crest, winged sandals, and a caduceus of gold—da Carpi recognised Mercury, one of the deities of medicine, who then instructed the doctor to write a book on head injuries ‘for the good of mankind’ (da Carpi 1518: 15). After this blessing from his medical muse, da Carpi wrote his text that provides the reader with a definition of the anatomy of the head and its potential injuries, the information being drawn from both personal witness and ancient authority. The treatise first establishes a method for recognising the diverse symptoms of various wounds, and then moves on to the difficult challenge of prescribing treatment.

The title page of On Fracture of the Skull or Cranium includes an image of the lateral view of a man’s head on which three circles are superimposed (see Figure 4.1). These circles represent the containers in which the inner senses of a human’s intellectual soul reside, knowledge of which was considered essential for proper treatment of head injuries. Reading the image from left to right, the first circle symbolises the location of the organs of common sense and imagination (phantasy) in the front of the head, while judgment and reason reside in the centre circle, and reminiscence and memory in the posterior circle in the back of the head. The circular lines themselves demarcate the border between body and soul, and the continuity of each faculty. They signify the resemblance of a circle to the shape of the head, which also appears as the ideal form of the sphere.

Not only da Carpi, but doctors and surgeons across Europe utilised the metaphors of ‘continuity’ and ‘container’ to diagnose illnesses of the intellectual soul, treat head injuries, and prescribe natural and artificial treatments to enhance normal intellectual performance. Pain or injury to the front of the head signified an injury to the first ventricle, in which resided common sense or imagination. Such injuries tended to be associated with the patient seeing strange images or combinations of image fragments. Damage to the central ventricle was thought to cause aphasia, or an inability for the rational faculty to judge or understand the meaning of sensible impressions. These were diagnosed by incoherent speech. Injury to the rear of the head and the posterior ventricle caused memory loss. This theory that located the inner senses in the ventricles
of the brain dominated epistemological discussion for much of the medieval period, from the fourth to the sixteenth century.

However, as we will soon see, this theory was challenged when sixteenth-century anatomists began to dissect the body through post-mortem division of the body’s parts; the body they inscribed in text and image no longer possessed a neat line demarcating an inside and outside. As professor of surgery at the University of Bologna, da Carpi would have been present at annual mandatory public anatomies (dissections), though many more than those on official record were probably preformed. An altered relationship between continuity, containment, dissection, and inscription arose from this change in knowledge presentation, which in turn emptied the ventricles of their container capacity.
Yet da Carpi’s first book *On Fracture of the Skull or Cranium* presented a body that was both continuous and discontinuous, the reason for which can be partially explained by the very performance of the inner senses. This proper performance of the inner senses returns us to his dream.

Aside from its conformity to the rhetorical convention of presenting a medical book as blessed by the god of medicine—the dream da Carpi recounted was included in the dedication to the very same Lorenzo de’ Medici, in hopes of future patronage—, da Carpi’s dream can also be interpreted through this theory of the inner senses that were located in a specific space in the head. The dream of Mercury appeared initially as fragmented images from da Carpi’s faculty of memory: human form, golden colour, a rooster’s crest, winged sandals, and the caduceus. Once visualised in the chambers of the soul, the allegorical fragments were judged and assembled into a coherent whole by his rational faculty—it is worthwhile to note that da Carpi translates the visible qualities of the hat and staff into intellectual judgment of ‘the form to be a consummate physician’—in order to arrive at knowledge or recognition of the allegorical figure.

After their initial acquaintance, Mercury continues the dialogue with the following words of encouragement to the author to publish his findings: ‘Begin then and first meditate alone in silence and hide your meditations in the chambers of your memory. Examine your purpose from all sides thoroughly. Then proceed slowly to take up your pen without resort to authority or witness’ (da Carpi 1518: 1–2). What we see in both the title page image and da Carpi’s retelling of his dream is a shift in the form of knowledge of the human body, head, and brain. The dream vision and printed image of the inner senses (see Figure 4.1) give specific examples of the brain as a container in which words and images are stored, assembled, and judged. Paradoxically, however, we also see the dream vision’s instruction to ‘take up your pen without resort to authority or witness’. This form of externalisation of knowledge – taking up the pen and inscribing one’s thoughts on paper – brought with it extreme epistemological consequences, both for the usefulness of the description of the head and brain as a container and also for a doctor’s reliance on knowledge gained from past masters of anatomy.

By writing and subsequently printing his text, da Carpi’s focus shifted from his teachers at the University of Bologna – most notably Alessandro Achillini
(1463–1512) and Gabriele Zerbi (1445–1505) to himself. Da Carpi had a strained relationship with these two professors of medicine and philosophy, who as key members of what is historically called the ‘Pre-Vesalian Period’ in the history of surgery and anatomy, often criticised each other’s treatments in competition for patrons, patients, and students (De Santo 1999: 205–08). Da Carpi combined anatomical and surgical knowledge from the medieval masters of anatomy, in particular the fourteenth-century Italian Mondino de’ Luzzi’s Anathomia, a text that had been canonical for university education in surgical knowledge since it was first written. Mondino compiled treatments from the eleventh-century Persian philosopher Ibn Sina (Avicenna), and even the ancients Galen of Pergamum, Hippocrates, Aristotle, and Plato. By utilising the newly discovered technology of print, as well as his own anatomical observations, da Carpi moved his knowledge outside the containers of his brain and onto the printed page. The continuity of these containers had been broken, not in the material sense of a head injury, but in a formal sense in that they no longer contained knowledge that was visible outside the body.

CONTAINING THE SOUL

The system of thought that defined the brain and body as containers had survived a long history by the time it reached da Carpi. Not only did it guide the framework in which the soul was discussed in da Carpi’s surgical text, but it was also popular in philosophical and theological writings as well. By analysing the metaphors of continuity and containment, one sees that as the usefulness of these descriptions abated, the very contours of the soul and body changed.

The theory that the soul is divided into parts and resides in three ventricles in the head first appeared in the fourth century CE as a mixture of Aristotle’s definition of the human intellectual faculties taken from de Anima, Neo-Platonism’s emphasis on a hierarchical ontology found in Plato’s Timaeus – which located the intellectual soul in the head because it was the most perfect, sphere-like organ – and Galen of Pergamum’s humoral and pneumatic physiology (Bell 2009: 1–9). This mixture of natural philosophy and anatomy provided a plausible anatomical structure to show where and how the mind functioned. The theory of the inner senses remained incomplete until the fourth century when Syrian
bishop Nemesius wrote a passage that unified anatomy, physiology, and natural philosophy (see below). Once one has sensed an object with the five external senses (sight, sound, touch, taste, and smell), common sense or phantasy then assembles that object into an image in the first cell or ventricle. Thereafter, sense data is passed from container to container in an increasingly rarefied form:

The faculty of imagination hands on things imagined to the faculty of thought, while thought or reasoning, when it has received and judged them, passes them on to the faculty of memory. The organ of memory too, is in the posterior cell of the brain (Nemesius 2008: 1).

In addition to the tactile metaphor of ‘passing’, many additional medical and everyday comparisons described how the inner senses functioned within their little cells. In his recent book, *Metaphors of Memory*, Douwe Draaisma offers a wonderful walk through the history of the metaphors of memory, and explains several useful descriptions of the mind’s activities such as ‘knife and whetting stone’, ‘wax seal’ and ‘digestion’. Each of these ancient and medieval metaphors offered a vague but useful explanation of how the mind engages the world through sense data (Draaisma 2000: 22–44). As a knife, the active soul sharpened itself by carving away the nonessential sense data from common sense and imagination to arrive at the truth in the rational and memory faculties. As a wax seal, the mind passively received sensible data from the external world that pressed itself into the soul. As digestion, the mind concocted the sensible data, cooking away the waste in the ‘little bellies’ as it utilised only the most important information gained from sight, sound, touch, taste, and smell.

The function of the head as ‘container’ is common to all these metaphors of the mind. The inner senses contained the substance of the soul, and whether the mind was active or passive, the ethereal substance was cut, pressed upon, or digested within these containers (Olshewesky 1976: 391–94). The head, like the body, functioned as a series of containers in which one could imagine the contents of the soul becoming increasingly refined. As mentioned in the introduction to this paper, the womb, bowels, bladder, stomach, chest, and head were all understood as containers, and diverse properties could be analogically transferred between anatomical regions. Just as the stomach ‘concocted’ its
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Contents (food) through digestion, the brain also ‘concocted’ its contents through thought in its ‘little bellies’. The remaining, unused elements of digestion were expelled from the stomach through the bowels while, analogically, the brain ‘expelled’ its foul contents from the mouth through inappropriate language, or through the nose and ears as fluids. The physiology of another container, the womb, was also metaphorically transferred to the head and the intellectual soul. Like a child who develops in the womb, thought was also ‘conceived’ in the head, developed until it was mature, and ‘birthed’ into the world through speech, writing, or the arts. Da Carpi’s dream, which commands him to ‘first meditate alone in silence and hide your meditations in the cloisters of your memory’, was a directive to not give birth prematurely. Such a mishap could possibly result in a disfigured text or disordered speech, these being signs of a potential break in his mental faculties.

The combination of these psychological, anatomical, and physiological descriptions provided a very detailed as well as complex set of concepts by which to understand both the mind and the body. Imagining the brain as a container also allowed one to imagine various sizes of containers, the most important of which were large architectural structures, or memory theatres. Commonplace mnemonic images were stored within these contained spaces, allowing an individual to walk around within imagined buildings in search of stored memories. Francis Yates’s *The Art of Memory* traces the history of the diverse mnemonic techniques as they appeared in sixteenth- and seventeenth-century writings on rhetoric, logic, and natural philosophy. One was either born with a naturally good memory, or one could use artificial commonplaces to improve one’s memory (2000: 1–5). Da Carpi’s dream of Mercury was one such commonplace. Allegorical images such as the rooster’s crest, winged sandals, and the caduceus allowed da Carpi to remember and judge these images to be the god of medicine as well as to utilise their rhetorical force to persuade a patron.

In this memory culture, that which one was to remember – a manuscript, an oration, or even a medical technique for treating head wounds – was committed to memory with exacting precision. Yates argues that, from the ancient world to the Renaissance, the art of memory was like a form of ‘inner writing’ (2000: 6). If one wanted to remember more than one topic, one imagined interconnected spaces in which one inscribed and stored the treasures of memory. An imaginative
walk through these chambers, the discovery of commonplace images that stood for items, and the order in which these items were to be remembered, allowed one to recall texts, speeches, and techniques in their entirety.

The shift in the form of knowledge – from allegorical words and images stored in the chambers of memory to visual images and text inscribed on the printed page – transformed the containers of the soul into benign ventricles of the brain. It should be acknowledged here that ‘inscription’ is borrowed from Latour’s sociological theory of ‘science in action’ in which modern scientists live by a strange form of ‘mania of inscription’ and the proliferation of ‘files, documents, and dictionaries’ (1986: 48). Alongside the visible image, the written and printed word also became ‘inscription devices’, transforming pieces of matter into documents (1986: 51). Unlike modern inscriptions that are written to be seen, renaissance textual inscriptions were written to be heard, spoken, and visualised in one’s imagination, reason, or memory faculties that were contained in the ventricles of the brain.

**Dissecting and Inscribing: Open Access to the Soul**

Five years after da Carpi published his *On Fracture of the Skull or Cranium*, he published *Isagoge Breves* (*Brief Introduction to Anatomy, 1523*), a summary of anatomical knowledge based on Mondino’s fourteenth-century anatomy text, *Anathomia corporis humani*. The *Isagoge Breves* was itself a compendium to a larger text da Carpi had written as a commentary to Mondino in the first decade of the sixteenth century and reprinted in 1522. In the *Isagoge*, da Carpi includes a series of anatomical images, thereby shifting knowledge from inside the containers of the brain to the visible markings on the printed page. Though still based on the authority of Mondino’s *Anathomia*, it departs from this text in several key ways. One of the anatomical images can be seen as the first visibly accurate representation of the cerebral ventricles – the anatomical structures in which the inner senses were thought to be located (see Figure 4.2). Compared with the symbolic image of the three circular containers of the soul (see Figure 4.1), this naturalistic representation demonstrates a problem many sixteenth-century anatomists encountered when treating both mental and physical ailments: what happens to knowledge when it is inscribed outside the body?
One answer to this question can be found in da Carpi’s initial fear of publishing his text, a fear that was rooted in a loss of authority. Inscribing information outside the body reduces the control one has over it. If he shared his knowledge, it would no longer be his own personal possession, stored and guarded in his memory, only to be accessed when and if he deemed necessary. University and municipality authorities took strict measures to define who, when, and where medical knowledge could be accessed and shared, which in turn sanctioned a
social hierarchy of licensed and unlicensed doctors and surgeons (Siraisi 1990: 16–24).

After one has taken a pen and inscribed knowledge in words and images, to be infinitely multiplied by the newly invented printing press, the signs are now stored in the pages of a book, equally accessible by anyone. The oral tradition, by which guild knowledge was passed from master to apprentice, guarded in storehouses of the elect’s memory, slowly came to an end. The manuscript culture, by which a single hand-written text was guarded by the masters of a guild and stored in the learned gestures of the doctor or surgeon’s body, was no more. Information that can be mechanically inscribed by the printing press revealed a new form of ‘open access’ knowledge.

‘Open access’ has another meaning too: through the practice of dissecting and opening bodies for the sake of knowledge, the once continuous body with its series of containers is now open. The inside of the box is revealed to the world. In Italy in the fifteenth century and in Northern Europe in the early sixteenth century, university student attendance during annual public dissections was required, though students often procured more bodies, creating an illegal black market for cadavers and clandestine dissections. What is written about the anatomy of these bodies, however, like the allegories of the inner senses, seems quite strange to modern readers. The goal of the annual dissections, rituals rigorously controlled by the university and city authorities, was not so much knowledge of the body but an assurance that the dissected body matched the words of the ancient masters. Anatomy in the early sixteenth century – cutting the body into its parts for the sake of knowledge – was less a discovery of new features than a proof of the manuscript’s veracity, which in turn demonstrated the power of the ancient master’s speech.

The traditional form of these early public dissections was a comparison of the visible structures of the dissected body with the spoken word of the anatomist who read from Mondino’s *Anathomia* (Carlino 1999: 1–20). Joannes de Ketham’s *Fasciculus medicine* (1495) offers a view into a public dissection scene (see Figure 4.3). At the top of this figure, an academically trained doctor reads from Mondino’s *Anathomia*. In the foreground, a barber surgeon cuts the body based on the authority of the spoken text. Students to the left and right of the body listen to the text while glancing at the broken contours of the body.
The body visualised in imagination and compared with allegorical images of the body in memory held more epistemological weight than the visible body itself. In cases of discrepancy, the manuscript prevailed. Da Carpi and his teacher, Gabriele Zerbi, had heated debates – debates that would rage throughout the sixteenth and seventeenth centuries as humanist and classicist authors questioned medieval manuscripts and thus, vicariously, ancient knowledge – about the structure of the brain and its functioning, most notably about an imaginary cerebral organ called the *rete mirabile* (‘wonderful’ or ‘miracle’ net).

Here, the form of da Carpi’s epistemic practices is also important, a form that allowed him to disprove the existence of the *rete mirabile*. The *rete mirabile* was supposed to be an anatomical structure at the base of the cerebral ventricles of ungulates; it was transferred to human anatomy by Galen of Pergamum. It was thought to bridge body and soul by converting body humours into *animal spirits*, or the elusive substance of the soul. These animal spirits were the contents of the inner senses, or that which moved back and forth between the ventricles, allowing both body and soul to remain continuous and contained. A brief look to the future shows that these animal spirits would become the key intermediary component of Rene Descartes’ (1596–1650) seventeenth-century idealist natural philosophy that divided mind and the body and yet retained their continuity. The animal spirits, which Descartes described in his *L’Homme* (*Treatise on Man*, 1662) as ‘a very fine wind, or rather a very lively and pure flame’, provided the substance by which the body interacted with the intellectual soul (Vol. XI: 129).

Da Carpi, however, had not yet made a formal leap to a materialist philosophy where a mind could exist as logically separate from the body. His focus was on an imaginary organ, the *rete mirabile*. After apparently participating in more than one hundred dissections without once observing this *rete mirabile*, da Carpi claimed in his *Isagoge Breves* that Zerbi and his ancient authorities were wrong and the *rete mirabile* must not exist (da Carpi 1523: xv). Rather than move from the external sense of sight to the internal narrative of Mondino’s *Anathomia*, visualising the body in imagination and reason, and finally remembering an allegorical organ situated in memory, da Carpi’s new grammar of knowledge moved between text and dissected body, and concluded that the evidence of the body possessed greater authority. As with the rhetorical emphasis of his dream, da Carpi’s hyperbolic claim to have attended ‘more than one hundred
dissections’ should not detract from the shift in form. The same modification in form that caused an imaginary organ to disappear, allowed a visible organ, the ventricles of the brain, to materialise before his eyes.

The shift from the brain as a series of containers for the soul to a functioning organ with its own sets of rules was not a quick or sudden one. Nor was the shift in knowledge from the inner senses to knowledge that was external, stored in the printed book, a quick transition. It would not be until the eighteenth century that the relationship between the ventricles and the production and circulation of cerebrospinal fluid would be hypothesised. From Italy to England, Germany, France, and Spain, these dual images of symbolic circles (see **Figure 4.1**) and detailed anatomical representations of the head and brain (see **Figure 4.2**) appeared side by side throughout the sixteenth and early seventeenth centuries. However, the difference between intellectual knowledge accessed and represented as symbols and commonplaces that guided the thinker through the labyrinths of memory, on the one hand, and sensible knowledge inscribed on the printed page, on the other, is a useful marker to delineate the temporal difference from the Middle Ages to the Renaissance. This difference marks a formal change in knowledge, and one index of this change is that da Carpi produced two very different images of the ventricles of the brain.

In **Figure 4.1**, da Carpi presents the brain symbolically. The minimal sensible data – three circles – function as a memory device for the doctor or surgeon to remember the anatomy of the head that he had memorised from Mondino. Like the dream of Mercury and the symbol of the caduceus, these circles function as mnemonic tools to meditate on the purpose of the body stored in the chambers of memory. The lack of naturalistic detail in the image forces the viewer back into the chambers of the soul, repeating the axioms and aphorisms memorised from the manuscripts of Mondino, Hippocrates, Avicenna, and others. The symbolic image provides a means for meditation on the contents of a doctor’s memory gained through years of training and practice, without which a misdiagnosis could occur.

The second image, however, reaching a broader audience by way of a series of transfers – from dissection to sight, from sight to pen, from pen to paper, from paper to woodblock, and finally from woodblock to the printing press – circumvents the meditative movement of the inner senses. Knowledge is no longer
introspective, based on a comparison of what is seen with images stored in the containers of the soul. In its place, knowledge is externalised, and the dissected body is now compared with increasingly naturalistic images and commentary stored on the printed page. This change in the form of knowledge brought with it a change in the form of the brain, head, and body, effectively emptying the containers of their contents and spreading one's soul onto the printed page.

Yet the containers were not completely empty. Dissection rituals based on Mondino’s *Anathomia* emphasised the intellectual form of the body rather than its visible structure. The body that cut – the dissector with the knife – followed the traditional form of knowledge even as the product of that knowledge was changing. In his commentary on Mondino, da Carpi describes the methodological movements of sawing through the cranium, cutting the external cerebral membranes, the brain matter, and finally arriving at these containers of the soul:

> Then cut lightly through the middle until you reach the greater anterior [lateral] ventricle. Before you reach the depth of the lacuna [infundibulum] note that the ventricle is divided into right and left…Phantasy, which retains the appearance of the particular senses, is located in the anterior angle. Imagination, which apprehends those appearances received by phantasy, is in the posterior angle; it apprehends them by composing and dividing, not by perceiving that this thing is this (da Carpi 1521: 157).

In this passage, da Capri describes the two lateral ventricles, which are the foremost in the theory of the inner senses and often described as one chamber. The role of a cerebral dissection, even when compared with a cadaver and a detailed anatomical image (see **Figure 4.2**), was to demonstrate the ideal form of the head as a container for the soul. The image of these ventricles, as well as the gestures of dissection, was still based on the assumption that the head is a container for the soul. After this passage, da Carpi’s commentary on Mondino continues to describe the visible structure of ventricles as well as the *vermis* (little worm) by which the animal spirits pass between the ventricles. Knowledge of this physiological process allowed the doctor to differentiate illnesses of the inner senses caused by blockages of the passageways, which could be caused by an imbalance of humours or a fracture of the skull.
Altering a form of knowledge is an *awkward* practice, in the sixteenth-century sense of the term where ‘awk’ means to turn ‘back or behind’. Problems of assimilating new techniques into established procedures create not a linear movement forward, but backward glances, stops and turns. For da Carpi and other sixteenth-century doctors who followed this labyrinthine epistemic path as it twisted inside and outside the body, the contours of the soul were inconclusive. Internally, the soul was adaptable to imagined spaces of the chambers of memory, both continuous and contained. Externally, however, the soul was limited not by the small narrow passages called the cerebral ventricles, but by the details of the body inscribed with a knife, pen, and paper. As the form of knowledge shifted from memory and speech to vision and inscription, the contours of the body memorised in allegorical images adapted to the contours of the body recorded in ink on paper. Likewise, the soul transferred from boxes of imagined spaces to a series of visible traces.

**REFERENCES**


FIG. 5.1 ‘Better Shelter’ refugee housing unit, shown constructed alongside the flat pack boxes in which it is shipped (source: courtesy of Better Shelter; www.bettershelter.org)