

## Chapter 2

# Renaissance Anatomy in the Americas: A Bioarchaeological Perspective on the Earliest Skeletal Evidence of Autopsy in the New World

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### Introduction

In October 1564, Andreas Vesalius, the Flemish author of history's most significant text on human anatomy, died on the Greek island of Zakynthos in the Ionian Sea. On a voyage from Egypt to Venice, Vesalius's ship had been caught for more than a month in severe storms and he was probably suffering from scurvy (vitamin C deficiency) when he made it to shore and died shortly afterwards (Biesbrouck and Steeno 2010, 2011). The body of the "father of modern medicine" whose work forever established human dissection as the core of medical education was interred without an autopsy in a grave outside the island's Roman Catholic church and has been since lost to the ages.

Exactly 40 years later across the Atlantic Ocean in New France, the first snow began to fall on Samuel de Champlain's settlement on tiny Saint Croix Island, located in the middle of the river that now serves as the border between Maine and Canada (Fig. 2.1). Champlain (1574–1635), later known as the "father of New France," was the surveyor and mapmaker for a colonizing expedition directed by the Huguenot nobleman Pierre Dugua, Sieur de Mons (1564–1628), to whom King Henri IV had granted a fur trade monopoly. Unprepared for the freezing temperatures and lacking sufficient food and fresh water, Champlain and 78 other colonists became trapped on the island over the severe winter of 1604–1605. As he reported 8 years later in his

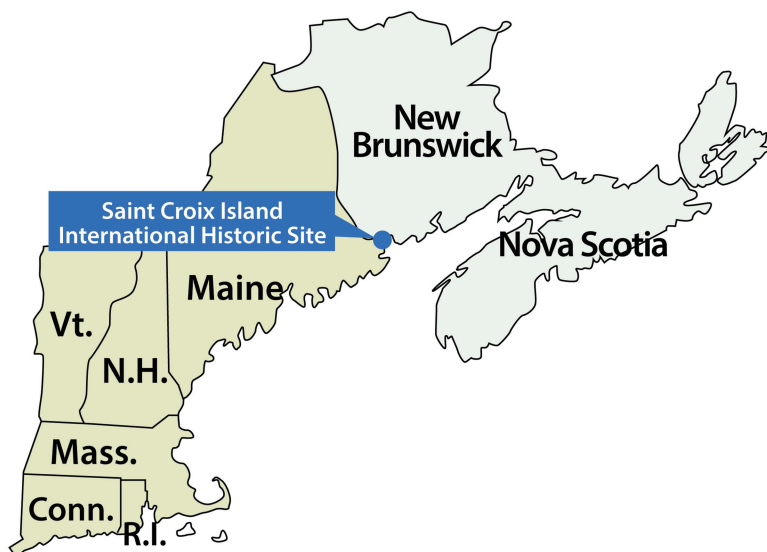
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**Fig. 2.1** Location of Saint Croix Island, Maine

book *Les Voyages*, 35 of the men died of an illness that Champlain called “*mal de la terre* (land sickness), otherwise scurbut” (Champlain (1922 [1613]:303). Based in part on Champlain’s descriptions of the colonists’ clinical symptoms, modern diagnosis indicates that they had indeed suffered from scurvy (Crist and Sorg 2014).

Champlain also provided an eyewitness account of the autopsies performed by the settlement’s barber-surgeons as they attempted to solve the mystery of the deadly illness at a time when nutritional deficiencies were not understood. Writing that “We could find no remedy with which to cure these maladies. We opened several of them to determine the cause of their illness,” Champlain (1922 [1613]:304) then described the results of only the second postmortem examination reported by Europeans in North America. Some 400 years later, excavations of the settlement’s cemetery at Saint Croix Island, now an International Historic Site, unearthed the remains of a young man who had been subject to one of the autopsies that Champlain had written about. The youngest of the 25 men discovered in the graves, Burial 10’s head had been sawn open to examine his brain and his calotte subsequently replaced under his scalp before he was buried. With this unequivocal evidence of a craniotomy, Burial 10 currently represents the earliest skeletal evidence of autopsy found in the New World.

Bioarchaeologists analyze human remains to reconstruct past human behavior within diachronic, sociocultural frameworks. Researchers employ the methods of skeletal analysis and differential diagnosis to document and better understand aspects of the past that are unavailable from other archaeological and documentary sources. Apart from the resulting paleopathological information (Waldron and Rogers 1987), among recent areas of interest are the social impacts of disease, status

differences and class inequality, and colonization on different population subgroups, as well as the various roles the body as a material object plays in both life and in death (Agarwal and Glencross 2011; Murphy 2008). To most effectively explore these areas, this chapter adopts a biocultural perspective that describes and discusses the remarkable discovery of Burial 10's craniotomy at one of New France's earliest settlements. Combined with Champlain's written account, analysis of the young man's remains provides a unique opportunity to explore the practice of autopsy in late Renaissance Europe and its importation to the New World. It was during this period in Europe that human bodies were transformed into commodities for use as educational tools due to the strong influence of Andreas Vesalius (1514–1564) and Ambroise Paré (1510–1590), the renowned French Royal Surgeon later called the "father of forensic pathology." Champlain's French barber-surgeons would have been familiar with their anatomical texts in 1604 and ready to conduct the autopsies ordered by Dugua as his colonists died during the winter at Saint Croix Island.

The French physicians and surgeons of the Renaissance performed most of their autopsies on the corpses of royalty and conducted their educational dissections using the remains of criminals, the poor, and foreigners (Cazort 1996; Park 1994; Pioreschi 2001). Given this social context, would Dugua have ordered autopsies of the gentlemen at his settlement? In his account of that tragic winter at Saint Croix Island, Champlain (1922 [1613]) did not provide the names of any of the 35 deceased men nor specify who had been autopsied. The one gentleman whose death recently has been confirmed through documentary research was René Noël, a 31-year-old nobleman known as the Sieur de La Motte Bourgjoli who reportedly died of scurvy on March 31, 1605 and was buried the same day (J.S. Pendery 2012). With greater access to the limited food available at the island, it is likely that few if any of the other noblemen were among the deceased. Even if noblemen did perish, did Dugua and his fellow gentlemen marginalize the workers and servants, as they would have back in France, by using their bodies in failed attempts to discover the cause of their illnesses? Could religious differences have played any role in who was chosen for autopsy? Some inferences can be drawn to address these questions by considering the history of autopsy and dissection in Europe and through a careful reading of Champlain's subsequent works and those of his contemporary Marc Lescarbot (1570–1642), a Parisian lawyer and historian who spent the winter of 1606–1607 in New France with Champlain and several of the other Saint Croix Island survivors.

## **Historical Context and Archaeology of the Saint Croix Island Settlement**

The sociocultural developments that characterized the European Renaissance began in Italy during the fourteenth century and converged in the 1500s to provide Dugua and Champlain with the political opportunities and technological advances to establish their short-lived settlement at Saint Croix Island (Jardine 1996; Knecht 2001; Salmon 1987). By 1604, when they sailed for the New World, fishing fleets from

France, Spain, and other European countries had been making regular visits to the east coast of North America for more than a century. Although fishing was the primary focus of these voyages, an unorganized trade in furs also arose during this period. Beginning in the early 1500s, French ships regularly visited the coast and inland waterways of modern-day Canada and New England. French colonies were established intermittently throughout the sixteenth century but it was the three voyages of Jacques Cartier (1491–1557) between 1534 and 1542 that most firmly established France's claim to modern-day Canada (Biggar 1911; Cartier 1924 [1545]). In 1535, Cartier led the first recorded exploration into the interior of Canada through the St. Lawrence River gateway. He and his crew spent the winter of 1535–1536 near modern-day Québec City where many of the men died from exposure and scurvy. Over the next 60 years, French attempts at colonization were sporadic, with only small trading posts lasting more than several years.

Near the end of the sixteenth century, King Henri IV began to persuade various gentlemen and merchants to establish colonies in Canada in return for official monopolies in the fur trade. Among them was Pierre Dugua, Sieur de Mons, who was granted the royal fur monopoly in 1603. He led his first expedition to New France in 1604 and with Samuel de Champlain as his cartographer built the small settlement at Saint Croix Island in the middle of the Saint Croix River, primarily for defensive purposes. This was Champlain's third expedition to the New World. He and Dugua's fleet of five ships left Havre de Grace in March and reached Saint Croix Island on June 25. There the settlers erected about 20 timber buildings and log huts including a chapel and dwellings for a priest, a minister, two surgeons, numerous artisans and workmen, "Swiss soldiers," and at least ten noblemen (Champlain 1922 [1613]; Lescarbot 1911 [1609]). The ships sailed for France at the end of the summer, leaving 79 men including Dugua and Champlain to brave the oncoming winter. The complement was unprepared for the severe weather that began with the first snow in October.<sup>1</sup> In his report on the events of their time at Saint Croix Island, Champlain (1922 [1613]) wrote:

During this winter our beverages all froze except the Spanish wine. Cider was given out by the pound... We were obliged to make use of very bad water and to drink melted snow, since we had neither springs nor brooks; for it was not possible to go to the mainland on account of the great cakes of ice carried by the ebb and flow of the tide... most of us, having poor quarters and suffering from shortage of fuel which we could not procure on account of the ice, had almost no strength; and, again, we ate only salt meat and vegetables during the winter, which produced poor blood. Such in my opinion was in part the cause of these unfortunate maladies [including scurbut] (pp. 306–307).

Champlain later wrote that 35 of the 79 colonists had died during the winter; Marc Lescarbot noted that it was 36 men. They were all presumably buried in the cemetery that Champlain depicted in his plan of the colony published in his 1613 book *Les Voyages*. The company's ships returned to relieve the survivors on

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<sup>1</sup>The severity of the winter was exacerbated compared to modern times by what has been termed the "Little Ice Age," a period of colder than average temperatures, and longer than average winters (Grove 2001).

June 15, 1605. Later that summer Dugua ordered the settlement dismantled and moved to the opposite side of the Bay of Fundy, establishing a colony at Port Royal (now Annapolis Royal) on the western coast of Nova Scotia that later served as the capital of Acadia until 1710. Due to the failures in effectively colonizing New France under the monopoly system, Dugua lost his royal grant in 1608 but continued to finance trade expeditions until 1622, the most noteworthy of which was Québec City founded by Champlain in 1608.

Archaeological excavations conducted in the 1950s for the US National Park Service revealed the location of the cemetery that Champlain had included in his drawing of the Saint Croix Island settlement (Hadlock 1950; Harrington and Hadlock 1951). More extensive excavations in 1969 identified 23 individuals in the cemetery (Gruber 1970, n.d.). With no physical anthropologist assisting them in the field, Gruber's team exposed but overlooked Burial 10's autopsied cranium. The best-preserved bones and teeth were transported to Temple University in Philadelphia where over 20 years later Crist (1998) documented lesions indicative of vitamin C deficiency among the crania, mandibles, and long bones. Excavations in 2003 to re-inter the remains in their original graves revealed two additional burials and provided the opportunity for an American-Canadian team of bioarchaeologists to systematically examine all of the individuals' skeletons (Crist et al. 2012; Crist and Sorg 2014; S.R. Pendery 2012). Although Champlain had recorded 35 deaths at the settlement, the graves of the other 10 men had been lost to subsequent ground disturbance and erosion of the island's shoreline. It was during the re-excavation of Burial 10's grave in 2003 that his autopsied cranium was identified and documented.

## **The Practice of Autopsy in Renaissance Europe**

Despite the long-standing misconception to the contrary, by the time Champlain landed at Saint Croix Island in 1604, autopsy had been a common practice among European physicians and surgeons for well over 350 years. Like many other cultural values, attitudes regarding the sanctity and appropriate disposal of the dead body varied by region and religious affiliation, with autopsies and dissections more readily accepted in medieval Europe outside of Italy (Brown 1981; Klestinec 2007; O'Neill 1976). Even in Italy, however, the corpses of saints, cardinals, and popes were dismembered with some regularity so that their relics could be distributed to multiple churches and abbeys (Brown 1990; Cazort 1996; Park 1995). It was actually in late thirteenth-century Italy that autopsy and dissection of common people developed into integral parts of forensic investigations and medical education (Crivellato and Ribatti 2006; Park 1994, 1995; Prioreshi 2001). Accounts of autopsies performed for legal proceedings subsequently begin to appear more regularly during the first half of the fourteenth century.

Until its authority faded during the Reformation in the early sixteenth century, the Catholic Church played a significant role in regulating autopsies, dissections, and other postmortem preparations of the human body in Christian Europe

(Alston 1944; Brown 1981). There was no universal prohibition of postmortem examinations during the Middle Ages (Park 2009) but at the Council of Tours in 1163 the Church disallowed embalming and division of parts of the body. By the time of the High Renaissance (ca. 1490–1527), Pope Sixtus IV had permitted medical students at Bologna and Padua to perform autopsies on plague bodies and the interest in human anatomy began to extend beyond jurisprudence and medical education into art and public theater (Carlino 1999; Cazort 1996; Klestinec 2007; Sawday 1995). With these increasingly loosened restrictions, the first reported autopsies in France were performed at the University of Paris in 1477 (Grendler 2004). By then, dissection had already been officially recognized as a teaching method at the University of Bologna in 1405 and at the University of Padua in 1429 (Hellman 1955). The increased availability of printed books fostered this interest and broadened the reach of anatomical knowledge, especially in the methods used to determine causes of death (Furdell 2002). Most famously, in 1543, Andreas Vesalius published his groundbreaking text *De Corporis Humani Fabrica*, which provided the first realistic and accurate drawings of human anatomy.

By this point in the mid-sixteenth century, autopsies and dissections had become accepted methods of medical practice and instruction throughout Europe (Lindemann 2010). In France, the Parisian barber-surgeon Ambroise Paré published several books on surgical methods during the second half of the sixteenth century. These books were remarkable because they were the first texts written in vernacular French rather than Latin, the traditional European academic language (Drucker 2008). When merchant ships began to sail long distances during the Age of Discovery, captains hired surgeons to treat their crews. Many of them carried Paré's books with them. Within the limitations of the period, they practiced preventive medicine, treated illnesses and injuries and, when necessary, performed autopsies. Reflecting their status and shipboard responsibilities, surgeons far outnumbered physicians on both privately owned ships and in the royal navies (Druett 2001). At least three surgeons accompanied Dugua's expedition to Saint Croix Island; Champlain makes note of "our surgeons" who conducted the autopsies and other records indicate that a surgeon named Philippe Raybois had left the island when their ships returned to France in August 1604. It was these and many other unnamed surgeons who carried the medical practices of the Renaissance, including autopsy, to the New World.

## **Bioarchaeological Evidence of Autopsy at Saint Croix Island, 1604–1605**

When Samuel de Champlain published his book in 1613 about his explorations in the New World, he chose to include descriptions of how scurvy had attacked his men at Saint Croix Island in 1604–1605, Port Royal in 1605–1606, and at Québec City in 1609. He also described how his surgeons had conducted autopsies at each settlement in futile attempts to cure the men from the disease that he called *mal de la terre* or "land sickness." As a veteran mariner who had sailed to the Caribbean and New France four

**Fig. 2.2** Photograph of Burial 10 taken during Temple University's excavations in 1969. Note sawn cranial fragment resting in the soil at the center of Burial 10's head



times before 1610, Champlain was familiar with the symptoms of scurvy and knew of various purported remedies. None of these, however, were either available or effective. In his account of the autopsies performed at Saint Croix Island over the winter of 1604–1605, Champlain (1922 [1613]) presented the surgeons' findings:

We could find no remedy with which to cure these maladies. We opened several of them [deceased colonists] to determine the cause of their illness. In many cases it was found that the interior parts were diseased; for example the lungs were so altered that no natural moisture could be seen; the spleen was watery and swollen; the liver very fibrous and mottled, with none of its natural color; the vena cava, both ascending and descending, full of thick, clotted and black blood; the gall tainted. Nevertheless, many arteries, both in the mid and lower bowels, were in pretty good condition. In some cases incisions were made with a razor upon the thighs over the purple spots, whence there flowed a black clotted blood. This is what could be learned from the bodies infected with this disease (pp. 304–306).<sup>2</sup>

The remains of one young man excavated at the Saint Croix Island cemetery presented unequivocal evidence of a cranial autopsy cut. During the original excavations in 1969, each individual grave was assigned a number as it was discovered (Gruber 1970). Burial 10 was found supine in his grave with his elbows slightly flexed, each of his hands lying over the hip on the same side of his body, and his legs fully extended (Fig. 2.2). Burial 10's head was rotated towards the left side, exposing

<sup>2</sup>The description of dry lungs, watery spleen, and black, clotted blood suggests that the autopsy might have been delayed for some time after death, and that the body had been frozen and then thawed for autopsy.



most of the right side of his cranium and mandible. All of Burial 10's facial bones except his hard palate and mandible were fragmented and eroded. Most of his cranial vault was intact except the frontal and right temporal, which had been broken into large pieces. Burial 10's left upper extremity and both lower limbs, several of his left ribs and thoracic vertebral bodies, and both innominates were present and moderately eroded. The bones of both feet were intact. The Temple University archaeologists removed Burial 10's right femur and mandible and brought them to Philadelphia for more detailed study. The condition of Burial 10's cranium was not substantially different when he was re-excavated in 2003. His postcranial remains, however, had deteriorated significantly. Burial 10's first cervical vertebra was intact but all of his other vertebrae and ribs that were present in 1969 had completely decomposed. The left femur and both tibiae were present and sufficiently preserved for examination and analysis.

Burial 10's remains were analyzed in the field following standard anthropological methods (Buikstra and Ubelaker 1994; Moore-Jansen et al. 1994; Paleopathology Association 1991) and referencing appropriate paleopathological sources (e.g., Aufderheide and Rodríguez-Martín 1998; Ortner 2003). Burial 10's bones and teeth indicated that he was of European descent and, at about 18–20 years old, was the youngest of the 25 men discovered in the cemetery. (It is possible that Burial 10 was Henri Beaufort, an apprentice apothecary who was 21 years old when he sailed for New France in 1604. According to J.S. Pendery (2012), a will that he filed before embarking indicates that he was one of Dugua's colonists but his fate after 1605 is unknown). Skeletal lesions indicated that Burial 10 was suffering from an active systemic infection, sinusitis, and scurvy. In cases of prolonged scurvy the gingival tissue may swell to the point that it obscures the anterior teeth and blocks the passage of food and even liquids into the mouth. Because of the excessively swollen gum tissue, the settlement's surgeons had cut away part of the roof of Burial 10's mouth, including all of the anterior teeth. Evidence of healing indicated that Burial 10 had survived this crude surgery.

In addition to the evidence of surgery, Burial 10's cranium clearly presented the results of the standard transverse craniotomy cut that the settlement's surgeons had made through his head (Fig. 2.3). A large fragment of the frontal that had been cut through during the autopsy lay in the center of Burial 10's fragmented facial bones when he was originally excavated in 1969 (Fig. 2.2). Together with this fragment, analysis of the cut marks visible across his cranial vault allows for an accurate reconstruction of this young man's autopsy. The surgeons had begun Burial 10's craniotomy by either turning his head completely to the left or possibly by laying him prone and then detaching his scalp from his cranium. This was done by making incisions across the back and along the sides of his head using a thin-bladed instrument similar to a modern scalpel. These incisions produced a series of thin (less than 0.5 mm) transverse cut marks observable across the external surface of Burial 10's occiput, located superior to the external occipital protuberance and slightly to the right of the midline (Fig. 2.4). The surgeon then used a thicker saw blade to cut through the cranium. The surgeon had removed Burial 10's calotte with some skill; although several false starts or directional readjustments were present the cut margin was remarkably straight. No pathological lesions were present on the endocranial surfaces.





**Fig. 2.3** Left lateral aspect of Burial 10's cranium presenting transverse autopsy cut



**Fig. 2.4** Posterior aspect of Burial 10's cranium showing fine incision marks made with a thin-bladed knife to remove the scalp and the wider cut mark resulting from use of a cranial saw

In his descriptions of the autopsies at Saint Croix Island, Champlain made no mention of opening the crania or examining the brains of the scorbutic men. Perhaps Burial 10's swollen mouth or the infection of his maxillary sinus compelled the group's surgeons to perform an autopsy that focused on his head. His ribs were not sufficiently preserved to determine if he had been subjected to one of the postcranial autopsies that Champlain described. None of the other 24 individuals excavated at St. Croix Island presented evidence of cranial or postcranial autopsy incisions. Assuming that Champlain was accurate in his reporting, the taphonomic effects of burial most likely obscured the evidence of the autopsies since the ribs of most of the individuals were too poorly preserved to identify such cuts if they had been present. There also is no documentary or skeletal evidence that any of the men had been embalmed; it is likely that the bodies of those who had died during the winter were stored, frozen, until the ground thawed in the spring of 1605.

## Discussion

Human remains that reflect the early history of autopsy and dissection are not common in the archaeological record. The mummified body of a man dissected between ca. 1200 and 1280 is currently the earliest example of a human dissection (Charlier et al. 2014). The next oldest iatrogenic specimens in Europe are sawn cranial fragments dating from the late fourteenth to the sixteenth centuries recovered from a crypt in France (Valentin and d'Errico 1995). Closer in time to the autopsies conducted at Saint Croix Island, the bodies of the Medici family entombed in Florence provide numerous examples of craniotomies and thoracic autopsies conducted between 1574 and 1614 (Fornaciari et al. 2008).

While autopsies and dissections were likely performed as early as 1503 at Santo Domingo (present-day Dominican Republic) and at Mexico's first hospital beginning in 1523, in continental North America the autopsies that Samuel de Champlain described at Saint Croix Island are only the second ones recorded by Europeans (Hektoen 1926; Jimenez 1977). The first European autopsy in the New World for which a definitive report is currently available was conducted on 19 July 1533 at Santo Domingo. Performed on the remains of newborn conjoined twins, its purpose was to determine whether the twins Joana and Melchiora Ballestero shared one soul or possessed separate ones (Chavarría and Shipley 1924; Jimenez 1978). The local Roman Catholic priest apparently needed this information to determine how many postmortem baptisms were required. Despite clearly demonstrating that two distinct individuals were represented by the remains, the twins' father reportedly refused to pay for two baptisms.

The first autopsy in continental North America was reported by the French explorer Jacques Cartier, whose barber-surgeon Samson Ripault conducted it in 1536 at their settlement located near modern-day Québec City. Performed on Phillip Rougemont d'Amboise, a 22 year-old seaman whom they believed had died of

scurvy, the autopsy results are recorded in an account thought to have been written by Cartier himself and first published in 1545:

And because the disease [that had caused Rougemont's death] was a strange one, the Captain [Cartier] had the body opened to see if anything could be found out about it, and the rest, if possible, cured. And it was discovered that his heart was completely white and shriveled up, with more than a jugful of red date-colored water about it. His liver was in good condition but his lungs were very black and gangrened; and all his blood had collected over his heart; for when the body was opened, a large quantity of dark, tainted blood issued from above the heart. His spleen for some two finger breadths near the backbone was also slightly affected, as if it had been rubbed on a rough stone. After seeing this much, we made an incision and cut open one of his thighs, which was on the outside very black, but within the flesh was found fairly healthy (Cartier 1924[1545]:207–208).

These autopsy results are very similar in structure to those at Saint Croix Island described by Champlain in the book that he published 68 years later, strongly suggesting that Champlain was familiar with Cartier's account. Although autopsies may have been conducted by Spanish, French, or English surgeons in North America prior to 1600, the autopsies at Saint Croix Island in 1604–1605 are the earliest ones for which skeletal evidence now exists. The next oldest skeletal evidence of autopsy in North America is an occipital fragment with saw marks discovered in trench fill dating between ca. 1611 and 1617 at Jamestown, Virginia (Kelso 2006:166–168). The first autopsy in the American colonies for which documentary evidence exists was performed in Salem, Massachusetts in September 1639 on the body of an apprentice boy who allegedly was murdered by his master. Although no detailed report has survived, court records note that the postmortem examination had revealed “a fracture in his skull, being dissected after his death” (Winthrop 1853:384).

The discovery of Burial 10's autopsied remains provides a unique opportunity to explore the practice of Renaissance medicine in the New World. Beyond their medical aspects, from a biocultural perspective his remains also reflect the changing attitudes toward the body adopted by Europeans beginning in the thirteenth century, promulgated through the Reformation in the 1500s, and continued afterwards as the European colonies were established in the Americas. In particular, the autopsies at Saint Croix Island raise the issues of social organization, inequality, and marginalization of the settlers at the colony.

The Saint Croix settlement resulted from a business agreement between Pierre Dugua and King Henri IV; Dugua recruited and chose the men, Catholic and Protestant, who would populate the new colony and, serving as their unelected leader under the royal grant that he had received in 1603, decided how to set up their new society. Unlike colonies established later in the century by European governments, Dugua represented a joint-stock company whose shareholders expected profits in return for their investments (Biggar 1901). It was his responsibility to supply the colony; maintain order among men of various social classes including several French noblemen and fellow investors who had accompanied the voyage; plan the colony's defenses; create an effective administrative system; and motivate, reward, and discipline the laborers who constructed the colony's buildings, planted and farmed their crops, and procured food by hunting and fishing. As described by Diamond (1961:5), Dugua and his company needed to “utilize existing institutions—

religion, family, land tenure, law—and to adapt them, under government auspices, to the objectives of the planners and the needs of an immigrant population under frontier conditions.” In effect, Dugua and Champlain transmitted the royal, quasi-feudal society of Renaissance France to the New World, including its inherent class distinctions, inequalities, divisions and labor, and religious tensions. Indeed, as part of their agreement King Henri IV required Dugua’s company to transport 100 colonists every year to New France. Gentlemen (Champlain used the French term *sieur* when writing his books) were not expected to perform physical labor and, in fact, each brought several servants with them on the voyage to Saint Croix Island.

Autopsy and dissection were acceptable to the Renaissance Church and commonly practiced in Europe as well as the colonial New World. By the fourteenth century the ecclesiastical debate regarding the integrity of the body and resurrection of the soul had been generally resolved; the dead body was no longer considered sacred and could be opened for various reasons. Pioreschi (2001:229) argues that in the late Middle Ages “The body was thought to be particularly ignoble and contemptible because, in addition to belonging to the material world, its sins and impure desires added obstacles to the fulfillment of the spiritual destiny of the soul.” Given this theological position, the concept of the separation of the body and soul had been established to the degree that, at least in the cases of saints, royalty, and members of the elite, dismemberment as part of funerary preparations was a customary practice. Indeed, according to Brown (1990:831) in post-medieval Christian society “Burial intact was alleged to serve the interests of individual resurrection. Division, on the other hand, was thought to promote prayers, remembrance, and salvation, and also to preserve and commemorate family ties.” The distribution of body parts for interment in multiple locations thus allowed an individual to “lie close to a number of relatives and spouses to await with them the final resurrection” (Brown 1990:831). There remained a significant difference, however, in attitudes towards the types of postmortem examinations—autopsies were acceptable since they were performed privately but dissection was shameful since the naked corpse was publicly displayed (Park 2009). In the cases of criminals and other socially disgraced people, the loss of personal dignity associated with dissection was viewed as the final punishment for offenses against God and society, with little respect accorded the corpse.

These attitudes towards the body are reflected in the autopsies ordered by Cartier in 1536 and Champlain between 1604 and 1609 in New France. Aware that the practice had been acceptable for more than three centuries, it is likely that neither leader faced significant moral obstacles when making the decisions to order the autopsies. To them, and the priests that traveled with them, the body and soul were separate and the desperate search to find an effective remedy for the diseases that were killing their colonists outweighed any religious opinions to the contrary. There were differences, however, in how Cartier and Champlain memorialized the autopsied men.

In the book that he published in 1545, Cartier specifically stated the name, age, and hometown of the sailor (Phillip Rougemont) whose body he had ordered to be autopsied. After describing the results of Rougemont’s examination, Cartier (1924[1545]:207–208) also makes a point to note “Thereupon we buried him as well as we could. May God in His holy grace grant forgiveness to his soul and to those of



all the dead.” In this passage Cartier, a practicing Catholic, recognized the importance of respectful interment even for common sailors and draws a clear distinction between the body and the soul. Some 60 years later, when Champlain and Lescarbot published their respective books about New France, neither name the men who were autopsied or distinguish them as gentlemen, sailors, or workers. Particularly for Champlain, baptized as a Protestant but later a convert to Catholicism, the dead men had been transformed into “some of the bodies” or “a few bodies” that were instruments used by his surgeons to save other colonists from the ravages of scurvy.

Champlain was aware of the class differences among the settlers; writing in 1613 about the prevalence of scurvy at his colonies he commented that “At first we thought that it was only the workmen who were struck down by this sickness: but we have seen that this is not true” (Champlain 1925 [1613]:61–62). Likewise, Lescarbot (1911 [1609]:260), also a Catholic, reflects ancestral and class differences when he described only as “a negro” the man autopsied during his voyage to New France in 1606. It appears that, at least in their memoirs, both Champlain and Lescarbot marginalized the men who had been autopsied by ignoring their identities and saying nothing about the final dispositions of their remains. In stark contrast, Champlain marginalized the leader of the criminal conspiracy against him at Québec City in 1608 by specifically naming the leader of the plot, Jean Duval, in his 1613 book, detailing Duval’s execution, decapitation, and the display of his head on a pike. In this case, Champlain’s behavior was consistent with the socially acceptable devaluation of the criminal body through postmortem mutilation and public exhibition.

The question of whether or not Champlain and Dugua would have ordered autopsies of any of the gentlemen if they had died at Saint Croix Island in 1604–1605, or subsequently at Port Royal, is best answered by considering the long tradition of autopsies and embalming of the elite members of French society. In fact, in 1559 King Henri II died after a broken lance pierced his right eye during a jousting tournament; both Andreas Vesalius and Ambroise Paré attended and wrote about his postmortem examination (Martin 2001). Fifty-one years later King Henri IV, Champlain’s and Dugua’s own royal patron, was autopsied the day after he was assassinated in May 1610 in Paris (Le Floch-Prigent et al. 2009). No doubt aware of this well-known custom, it is probable that the gentlemen too would have been autopsied if any of them had died at Saint Croix Island France. Whatever social conventions separated the classes or the Catholics from the Protestants back home, at the colonies in New France they likely would not have extended into the realm of postmortem examination.

## Conclusion

Regardless of Burial 10’s social standing or faith, whoever oversaw his interment at Saint Croix Island took the time and care to ensure that his corpse was intact by returning his separated calotte to its correct position, either before or as he was laid to rest. Perhaps it was the surgeon, the colony’s priests, the men who lowered

Burial 10 into his grave, or even Champlain and Dugua; it is likely that no one will ever know. Underscoring the ineffectiveness of the autopsies, however, Champlain (1922 [1613]:306) noted that “Our surgeons were unable to treat themselves so as not to suffer the same fate as the others.” They presumably were buried in the little cemetery at Saint Croix Island together with their deceased patients, explorers all in their strange New World and, like the body of Andreas Vesalius, unmarked but now not forgotten.

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