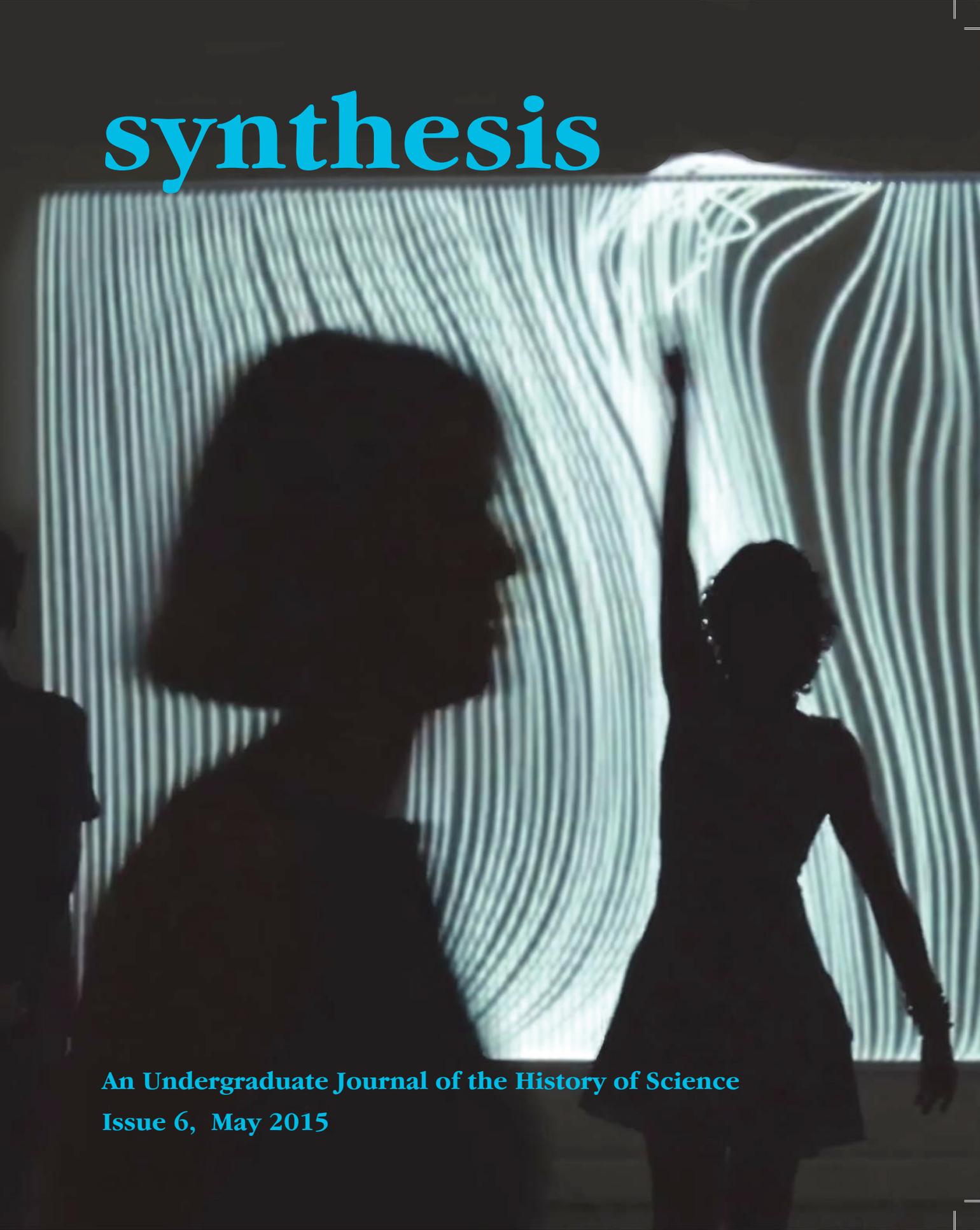


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To the readers of *Synthesis*:

I am pleased to present the sixth edition of *Synthesis*, an undergraduate journal dedicated to providing thought-provoking undergraduate literature on a variety of history of science topics. Each year, our organization solicits submissions from students around the globe to encourage discussion and promote academic interest in the field.

This year *Synthesis* received a record-breaking number of submissions. While the articles in our final publication span time periods, disciplines, and topics, a unifying theme among the articles could be “history re-told.” Each article takes a popular historical narrative and reevaluates it by introducing new or overlooked information.

In the first article, “Snatching Bodies, Making Doctors: Stealing black corpses for medical education in the nineteenth-and early twentieth century,” Scott Nelson examines the practice of grave robbing as used in American medical education in the South. Nelson explains the history of body snatching and why black bodies were particularly susceptible to this practice. In her article, “Microscopic Discovery: A Guide for Seeing Life at Small Scale,” Beatrice Steinert evaluates our modern use of the microscope in light of earlier theoretical texts by scientists. She argues that this seemingly simple practice can help us understand knowledge formation, and writes from a unique viewpoint by juxtaposing modern technique with historical works. The next piece, “The Intersection of Gender and Science,” is an interview with Sarah Richardson, a rising scholar and professor of social sciences jointly appointed in the Department of the History of Science and the Committee on Degrees in Studies of Women, Gender, and Sexuality at Harvard. Richardson stresses an interdisciplinary approach to studying history of science, explaining her own path into the field and interest in gender studies. In her article, “More than a ‘Girl-Hour’: Female Astronomers at the Harvard Observatory, 1922-1932,” Alona Bach reevaluates gender dynamics from 1922 to 1932 at Harvard in Harlow Shapley’s observatory, arguing against existing literature by claiming gender discrimination was reinforced during Shapley’s time. In our final article, “Universal and Specific Childrearing Advice in the Twentieth Century: A Case Study of Black Child Care at the Intersection of Two Histories,” Vaneshia Reed examines popular child-rearing manuals of the time in light of race differences. Reed evaluates the less well-known book *Black Child Care* in comparison with the popular manual by Dr. Benjamin Spock.

If you find yourself captivated by the stories presented in this issue, we encourage you to reach out and join our organization. *Synthesis* consists of many undergraduates with a variety of interests, and students from universities outside of Harvard are encouraged to join as remote staff editors or as contributors. If you would like to participate – as a writer, editor, or collaborator– please email us at harvardsynthesis@gmail.com.

Happy reading!

Katelyn Smith
Editor-in-Chief

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Snatching Bodies, Making Doctors

Stealing black corpses for medical education in the nineteenth- and early twentieth-century American South

Scott Nelson

University of North Carolina at Chapel Hill

ON THE THIRTEENTH PAGE OF W. REECE BERRYHILL'S BOOK, *MEDICAL EDUCATION in Chapel Hill: The First One Hundred Years*, one finds a particularly telling photograph. Its accompanying caption reads: "Students working in the second dissecting hall around 1900. Located near the present site of Venable Hall, this building was abandoned after Caldwell Hall was occupied in 1912."¹

Indeed, taken at the turn of the 20th century, this picture shows seven aspiring medical students learning their trade. They are smartly dressed, some wearing aprons and others not. As the caption informs viewers, they are inside a "dissecting hall," a space designated specifically for exploring and understanding human anatomy. The caption ignores the focal point of this photograph, however. Under the gaze of each of the seven living men is one who has long since taken his last breath. With legs bursting into the foreground and threatening to fall off the dissecting table, this figure commands attention from its audience, which sits both within and beyond the photographic frame.

The longitudinal perspective of the cadaver on the dissecting table is rarely seen in photographs taken at this time. More commonly, the dissected body appears horizontally in the photographic frame with students and instructors positioned behind it.² The decision to photograph the cadaver from this angle allows for the observation of revealing details that would have otherwise gone unnoticed. The most important of these is that the body on the dissecting table, that which remains of it, once belonged to a living, breathing, black man. Although the photograph is poorly lit and the right leg of the cadaver has been so sufficiently dissected that it makes racial classification difficult, there can be no doubt that the man is of African descent: the paleness of the sole of his left foot contrasts substantially with his dark upper thigh.

How then, did this black man arrive on the table in a dissecting hall of a Southern medical school? It is doubtful that he “donated his body to science,” a modern concept that became popular much later than 1900.³ Furthermore, it is unlikely that his body was obtained legally. In fact, at the time of this photograph, not one law existed in North Carolina that directed medical schools on the acquisition of bodies, black or white, for dissection.⁴ Rather, it was at this time that medical schools in North Carolina, like many others across the American South, relied on more dubious means to supply their students with necessary “clinical material.” On one hand a horrifying desecration of the deceased, on the other a lucrative business practice supplying a scientific necessity, body snatching as a means of supplying cadavers to Southern medical schools was a practice

that not only existed in the 19th and early 20th centuries — it thrived.

Dissection, a necessary science

When the medical students in the photograph described made their first incisions into the human subject that lay before them, they were not engaging in a novel or innovative mode of academic exploration. In fact, human dissection has existed since at least the third century B.C. when Greek physicians made “extensive anatomical and physiological discoveries” by way of the ancient surgical knife.⁵ Although dissection was not widely practiced in the first thousand years A.D., its prevalence picked up again in the fifteenth century. During this time, however, dissections were not for medical purposes, but rather for artistic ones. The firsthand study of human anatomy was especially beneficial for artists like Michelangelo and Leonardo da Vinci, evidenced by their masterful renderings of the human form and its detailed musculature.⁶ Later in the eighteenth century, the practice of dissection spread from the realm of art back into the medical arena, where it would cement itself as a quintessential teaching tool; in London and elsewhere in Europe, “experience in dissecting was conventional practice” for aspiring physicians and surgeons.⁷ Yet it wasn’t until the nineteenth century that dissection for educational purposes was regularly practiced in the United States. At this time, students including Thomas Eakins, whose later paintings *The Gross Clinic* (1875) and *The Agnew Clinic* (1889) accurately depict contemporary surgeries, began the intense study of human anatomy through dissection in medical schools located in Philadelphia,

New York, and Baltimore.⁸ From the first decades of the nineteenth century onward, the practice of dissecting human cadavers became increasingly common as more medical schools were established across the United States.

Human dissection was not always a mechanism for scientific enlightenment, however, and in some cases it was employed in a grisly manner. In sixteenth-century British law, for instance, public dissection was included as a means of punishment that was worse than death.⁹ This penalty was transferred into New York state law following the American Revolution, for in 1792, Albany man Whiting Sweeting was sentenced “to be hanged by the neck until [he was] dead, and [his] body delivered to the surgeon for dissection.”¹⁰ At this same time, the Massachusetts General Court ruled that anyone who died as a result of a duel would be sentenced to postmortem dissection and dismemberment, a harsh punitive threat.¹¹ Of course, perhaps the most infamous, and chilling, use of dissection for non-medical purposes was the series of murders in the Whitechapel district of London in 1888 at the hands of the unidentified Jack the Ripper. At least three of Jack’s victims were found with their abdominal organs carefully removed.¹² Such gruesome applications led some to believe that dissection was a “desecration of the corpse” that “represented a gross assault upon the integrity and identity of the body.”¹³ Nevertheless, for the past three centuries, dissection has remained an important avenue for the mastery of human anatomy. Its continued practice today suggests that any moral shortcomings have been sufficiently

outweighed by its educational value. This value is nowhere more apparent than within the confines of the formal medical school.

The medical school

The first medical school in then British America was established in Philadelphia in 1765. In the decades that followed, additional schools were founded in New York City and Cambridge, Massachusetts.¹⁴ While the study of anatomy was indeed emphasized, the lack of cadavers available for dissection limited instructional experiences. At the Harvard Medical School in Cambridge, “a single body was made to do duty for a whole course of lectures.”¹⁵ The shortage of clinical material in medical schools restricted class sizes and reduced students’ opportunities for a hands-on experience. As a result, fewer physicians than society required graduated from medical schools in the United States’ earliest years. Historians Robert L. Blakely and Judith M. Harrington explain the dire consequence: “the dearth of anatomical training was evident in the poor treatment given to patients by physicians...if [medical students] were to become more than haphazard and butchers, they needed the intimate knowledge of the human anatomy provided by direct dissection.”¹⁶ Under pressure from the public, the medical school curriculum evolved. The result was a shift to the “Paris method” in which students were permitted to dissect cadavers first-hand, no longer resigned to the role of audience member in an impersonal lecture hall.¹⁷ Eventually, courses in anatomy styled in this fashion were not only preferred by medical students, they were required for their graduation.¹⁸

Of course, an increased emphasis on individual, “hands-on” dissection required a greater supply of cadavers. Yet in Massachusetts, where state law included dissection after death as a possible punishment, the number of executed criminals was scarce -- only forty between 1789 and 1830.¹⁹ A similar dilemma existed elsewhere. As medical schools in the United States multiplied with rapidity in the nineteenth century, increasing in number from five in 1810 to sixty-five in 1860 -- mirroring the rapid growth of the nation’s population -- the number of cadavers obtained through legal means could not keep pace with the demand.²⁰ For many schools, this created a critical problem. One university president warned that “without dissecting material, it will be necessary to close the [medical] school.”²¹ In an effort to avoid this outcome, snatching cadavers for dissection became a widespread occurrence. In Vermont alone, it is estimated that around 360 bodies were snatched between 1820 and 1840.²² By far the most effective method for procuring bodies, body snatching provided a means to an end and kept medical schools in operation.

Body snatching: the history and the act

Evidence of body snatching,²³ defined in this essay as the physical removal of bodies from their graves for the purpose of medical dissection, was recorded as early as 1763 in British America. It was in this year, according to the November 28th issue of the *New York Gazette*, that a “body has since been taken up, and likely to become a Raw Head and Bloody Bones, by our Tribe of Dissectors, for the better instruction of our young Practitioners.”²⁴ Body snatching

in the Northeast United States continued throughout the end of the eighteenth century, evidenced by numerous newspaper accounts detailing public opposition to the practice. In 1788 alone, riots broke out against anatomy students and their professors in Philadelphia, Baltimore, and New York City due to body snatching activity.²⁵ Furthermore, one student at Harvard Medical School wrote that it was in 1796 when he “began the business of getting subjects.”²⁶

As the number of medical schools expanded in the first decades of the nineteenth century, so did the act of stealing corpses. Vast regional networks connecting body snatchers and medical schools developed in the Northeast and Midwest United States as well as the South and numerous newspaper reports from across the country detailed instances of body snatching in local communities.²⁷ In some regions, the body snatching business boomed. In a letter to a colleague in 1858, University of Virginia Medical School professor John Staige Davis wrote of the “extreme inconvenience” the abundant supply of cadavers was causing him; his dissecting room had become overcrowded with subjects.²⁸ In 1854, body snatchers were “emptying at least six hundred or seven hundred graves annually in and about New York City.”²⁹ At the dawn of the Civil War, however, body snatching came to a halt. There was no need to steal bodies from graves -- over half a million corpses were available if students had the time to dissect them. More commonly, however, students and physicians were kept busy tending to the masses of the wounded.³⁰ In the years following the war, body snatching resumed. In 1879, the author of a contemporary

periodical suggested that “at least a majority” of the five thousand cadavers dissected each year in the United States were acquired illegally, most likely through body snatching.³¹ For those schools engaged in the ghastly deed, long gone were the days of cadaver scarcity. In the nineteenth century, the decade of the Civil War notwithstanding, body snatching was having its heyday.

While the act of body snatching varied slightly in each instance it was practiced, the overall structure of the process remained fairly constant. In most cases, body snatching consisted of three distinct steps, the first of which was learning of an upcoming burial. This was often achieved by communication with informants in a local community. In 1820, a New York man described a conversation he had with a body snatcher passing through town who “inquired...about the sick, wanted to know their size, proportions, &c.”³² After acquiring all of the necessary information, the second step for snatching was locating the grave site. This was done in daylight, often times under the guise of hunters in search of small game or family members going to pay their respects to a deceased relative. Hours later, under the cover of night, the last step of disinterment commenced.

The actual snatching of a body required at least three men, two to exhume the corpse and one to hide and then return in a getaway vehicle. Before anyone broke ground, the grave site was carefully surveyed by shaded lantern light for any sticks, rocks, or flowers that if displaced, might suggest a disturbance. A large tarpaulin or cloth was then set adjacent to the grave to catch any dirt removed in the disinterment. To maximize efficiency, the entire coffin was not removed.

Historian Suzanne M. Schultz writes that “no self-respecting [body snatcher] would have loitered in a cemetery for the length of time it would have taken to accomplish this task.”³³ Instead, an approximately three-foot-square hole was made at the head of the grave, determined by the position of the surrounding grave stones. Loose dirt as a result of the recent burial made digging easy. Once the coffin was exposed, an auger was used to bore holes into the lid, a much quieter alternative to a saw or an ax. After removing the lid, the corpse was strapped into a unique apparatus that involved a harness with a ring attachment. A rope was fastened to the ring and the body was slowly removed. Any clothes or jewelry found on the body was thrown back into the grave; the snatchers wanted to avoid any chance that their subject would be later identified. After restoring the site to its original condition, the party of men, now one more in number, hurried away to the escape vehicle. The most experienced of body snatchers could exhume a body in under an hour.³⁴

Initially, bodies were delivered directly to medical schools following disinterment, usually by wagon. As body snatching operations expanded, however, bodies were stuffed into large barrels, whiskey casks, or boxes, packed in bran, and shipped long distances via railroad.³⁵ An excerpt from the 1879 *Galveston Daily News* details the arrest of a body snatcher who shipped bodies in boxes from Chattanooga all the way to Cincinnati and Atlanta under the impression that such boxes contained fish or fur.³⁶ To avoid similar detection, body snatchers in Virginia cut a deal with the Virginia Central Railroad, which “received increased freight rates” as payment

for the transport of corpses.³⁷ Even with this additional cost, many body snatchers made a handsome profit. Adult corpses in Virginia could be procured for \$12 per body, excluding shipping rates. In New York, this price could be as much as \$30 per body. A pricing list from 1850 shows that body snatchers were not above stealing the youngest of corpses: “infants from birth to 8 years” were \$4 each.

Body snatching was a seasonal practice that only occurred when medical schools were in session, usually between November and February. Of course, this was the optimal period for snatching anyway, as cold weather delayed the body’s natural decomposition and therefore preserved corpses for dissection. Anything other than this natural refrigeration could wreak havoc on the body snatching trade. In November of 1849 in Virginia, for instance, uncharacteristically warm weather led to an “unavoidable” delay in the acquisition of cadavers. It had been so warm, stated one body snatcher, that, “the subjects are all in incipient putrefaction when buried.” Two attempts at exhumation were all for naught, the bodies were “too far gone.”³⁸

Since its inception in the 18th century, body snatching in the United States has served the vital purpose of supplying cadavers to medical schools for anatomical education. In the nineteenth century, the exhumation of corpses became systematic and as a result, snatchers located and unearthed bodies with swiftness and ease. Keeping well aware of unexpected weather and its potentially disastrous effects, some snatchers made respectable profits, transporting bodies to medical schools both locally and across great distances. But just who were these people that busied themselves with the traffic of the dead?

The snatchers

On December 6, 1875, the *St. Louis Globe-Democrat* printed an editorial that described body snatchers as “unprofessional bunglers” who partake in “nefarious work.” Careful not to let the snatchers’ employers off the hook, the author added that “the respectable professors who hire such miserable starvelings...to get corpses for them are even more guilty than their wretched tools.”³⁹ The editorial sheds light on a critical aspect of body snatching in the nineteenth and early twentieth centuries: the act of snatching was almost always instigated by medical schools, even when middlemen executed the disinterment. This fact is underscored in a brief report from an 1879 issue of the *Louisville Courier Journal* in which two men were arrested in Nashville for “attempting to unearth a corpse” at a local cemetery. Upon conviction, one of the men revealed that “he was employed by the medical department of the University of Tennessee to which place, if they had been successful, the body would have been taken.”⁴⁰ Indeed, many medical school administrators and instructors, including the aforementioned Davis in Virginia, dealt either directly or indirectly with professional body snatchers to secure their supply of cadavers.⁴¹ It is therefore important not to underestimate the role of the medical school establishment as the primary driving force for body snatching at this time. It was at the request of the schools and the promise of their patronage that professional body snatchers removed corpses from their graves.

These professional body snatchers, also labeled at the time as “resurrectionists,” “sack-um-up men,” and “night doctors,” are often portrayed by historians as shady,

unreliable figures who were mostly “free-lancing rustics.”⁴² However, they were also enterprising opportunists, capitalizing on the spike in demand for cadavers in the nineteenth and early twentieth centuries. What is more, they were often quite clever. One man who personified this ingenuity was William Cunningham, known as “Old Cunny” to his peers, who worked in the 1860s as a wagon driver by day and a body snatcher by night in Cincinnati, Ohio. On a typical evening, “Old Cunny” would remove a body from the grave, dress it in old clothes, and position it in his wagon beside him. If anyone came too close, Cunningham would reprimand his dead companion by shouting, “Sit up! This is the last time I am going to take you home when you get drunk,” and then, perhaps ironically, as “Old Cunny” was a heavy drinker himself, adding “The idea of a man with a family disgracing himself in this way!”⁴³ Around the same time in Washington D.C., another cunning body snatcher practiced her craft. Maude Pratt frequently attended funerals of the recently deceased where she acted genuinely distressed, accompanying the coffin all the way to the cemetery. Once the ceremony concluded, she would drop flowers at the site of the new grave, marking it for later resurrection.⁴⁴ Stories like these suggest that body snatchers were not all the “unprofessional bunglers” described above. Some resurrectionists were masterful at their jobs and, willing to risk arrest and public condemnation, could profit handsomely from their “nefarious work.”

While employing professional resurrectionists as middlemen distanced medical schools from body snatching, it was often easier, and less expensive, for professors

and students to exhume bodies themselves. In 1818, Dr. Thomas Sewall, who would later go on to establish the George Washington University School of Medicine in Washington, D.C., was suspected of removing bodies from eight different graves. The bodies were eventually found in Sewall’s possession -- he was using them to teach surgery to a group of medical students.⁴⁵ In another instance, Dr. Valentine Mott, a surgical teacher and president of the New York Academy of Medicine in 1850, assisted in unearthing and transporting eleven corpses for dissection, all in one night. Mott was not the only president of the Academy to participate in body snatching; each of the first six men to hold the title were involved in body snatching at some point during their careers.⁴⁶

Students played an integral role in snatching bodies as well. Edward Dixon, a medical student at Rutgers in the early 1830s, remembered his educational experience years later as one characterized by “diligent use of the shovel and the scalpel.”⁴⁷ Students at the Columbus Medical College in Ohio could echo this sentiment forty years later. It was they, and not their professors, who were responsible for stealing bodies from the cemetery at the Columbus State Hospital.⁴⁸ Some students benefited financially from body snatching. One 1872 Detroit Medical College graduate paid for his medical studies by moonlighting as a body snatcher, stealing corpses from a Canadian cemetery and selling them to the University of Michigan.⁴⁹ In other places, body snatching helped offset the cost of procuring a body for dissection. This was as much as five dollars at one medical school, a steep price in the early nineteenth century.⁵⁰

Although body snatching was very

much an illegal enterprise, it was deemed absolutely necessary by medical schools across the United States. Many schools relied on professional body snatchers who eagerly participated in the “traffic of dead bodies”⁵¹ for personal income. While the employment of middlemen (and, like the case of Maude Pratt, middlewomen) distanced respectable professors and their students from criminality, it was often simpler and more economical to do the snatching themselves. A rich history exists of professors and students who braved both the law and personal trepidations to procure bodies for dissection. There is no doubt that these corpses, utilized as educational tools, became a vital aspect of medical learning. Equally important, however, were the living people to whom those bodies once belonged.

The snatched

“There was a hierarchy for the eighteenth-century dead as surely there was one for the living,” historian Steven Wilf once observed.⁵² In the nineteenth century and at the turn of the twentieth, this assertion continued to ring true. Usually, the wealthiest of the deceased were buried under a church floor or close enough to its walls to be guarded by a warden or a hired watchman.⁵³ Those families that could afford to protect their buried relatives with a host of mechanisms, including iron cages called “mortsafes.”⁵⁴ Also useful in fending off body snatchers was the invention of the iron coffin; an advertisement from 1894 claims that it is “burglar proof” and “cannot be penetrated by chisel or drill.”⁵⁵ More natural deterrents to potential resurrectionists also existed. One African-American newspaper from 1827 suggests

layering wheaten straw between a coffin and the surface of the ground, assuring that “the longest night will not afford time sufficient to empty the grave.”⁵⁶ Of course, the simplest and least expensive method to inhibit body snatching was to have family members stand guard at the grave site for several days until the body decomposed, thereby becoming unfit for dissection.⁵⁷ Unfortunately, the safeguarding options listed above required considerable amounts of money, a willing family, or both, things the impoverished and lonely lived without. Consequently, body snatchers concentrated their efforts on the cemeteries that held the bodies of this destitute demographic, those buried in potter’s fields. It was here that medical historian Frederick C. Waite observed, a body “did not remain long in the grave.”⁵⁸

In some cases, the bodies of those snatched did not even make it into the grave. In 1879, one doctor claimed that bodies frequently disappeared from morgues and the “dead rooms of hospitals.”⁵⁹ Those bodies that were interred in potter’s fields and cemeteries for the impoverished were often poorly guarded, if at all. Guards could be bribed by money and whiskey, and some were regular accomplices in the act of snatching.⁶⁰ In one instance in Nashville in 1879, a body snatcher “proved conclusively that he had been in the habit of purchasing stiffs [(bodies)] from the sexton of the cemetery at \$3 apiece.”⁶¹ Other sources of bodies were prisons, train stations, docks, asylum burial grounds, and almshouses.⁶² The number of bodies acquired from one almshouse in Philadelphia was so high that its guardians came to be known as the “Board of Buzzards.”⁶³

Indeed, some bodies of those at the

higher echelons of society made their way onto the dissecting table. The most famous example occurred in 1879 when the body of United States congressman John Scott Harrison, son of President William Henry Harrison was found at the Ohio Medical College.⁶⁴ Reports of such instances of body snatching that involved the well-to-do members of society often made the newspapers, but these were few and far between. The great majority of bodies snatched in the nineteenth and early twentieth centuries belonged to the impoverished and disenfranchised and often went unnoticed. While “white paupers crowded the country’s almshouses,” another group, the black community, was far more vulnerable to body snatching, particularly in the South. It is here where this essay turns to focus on this group and their vital role in shaping American medical education.

Black bodies: the vulnerable

“In Baltimore the bodies of coloured people exclusively are taken for dissection,” commented English sociologist Harriet Martineau during her visit to Maryland in 1835, “because the whites do not like it, and the coloured people cannot resist.”⁶⁵ Indeed, voiceless and marginalized in society, the black community was afforded little protection for their dead in the United States’ nineteenth and early twentieth centuries. As a result, blacks fell victim to body snatching and, as easy targets, were often the preferred source of anatomical material for medical schools. As historian D.C. Humphrey put it, “Dissecting a white was risky business. Dissecting a black was largely a matter of finding a body.”⁶⁶

As early as the eighteenth century,

black bodies were singled out for snatching in the United States. In 1788, free and enslaved blacks petitioned the New York City Common Council to put an end to body snatching in black cemeteries by white medical students. The appeal was ignored.⁶⁷ As one New Yorker wrote, “the only subjects procured for dissection are the productions of Africa... and if those characters are the only subjects of dissection, surely no person can object.”⁶⁸ Almost a century later, black bodies remained a vulnerable target. In one black cemetery in Philadelphia in 1883, melting snow revealed a number of empty graves, as if the ground “had been subjected to an aerial bombardment.”⁶⁹ It is important to note here that the medical school establishment at this time was one that was dominated by whites; black students were simply not admitted to medical schools. This trend would continue throughout most of the nineteenth century -- it was not until 1868 that the first medical school for African Americans was established in the United States and even then black doctors worked in a “Negro medical ghetto.”⁷⁰ Therefore, as long as body snatching existed, it was the corpses of the poor and marginalized that served as favored specimens for dissection. In an era characterized by racial discrimination, the black community was virtually defenseless against wily resurrectionists.

Snatching in the South

In the American South, the dilemma facing black communities was even more acute. For it was here that the concentration of blacks was the greatest and where, as historian Todd L. Savitt noted, “they were rendered physically visible by their skin color but were legally

invisible because of their slave status.”⁷¹ The discrimination did not cease following Lincoln’s Emancipation Proclamation in 1863. Instead, throughout the nineteenth and early twentieth centuries, blacks remained the primary subjects for dissection in southern medical schools.

A fascinating discovery in 1989 gives credence to this point. It was during this year at the Medical College of Georgia that construction workers stumbled across bones and other remains buried in the basement of the medical college’s dissecting hall. Archaeologists were called to the scene and by way of forensic technology, were able to classify by race those bones which are believed to have belonged to dissected bodies. In an examination of twenty four buried tibiae, it was determined that 79 percent belonged to African Americans, the other 21 percent to Euro-Americans. The result is particularly telling, as census counts during the period of dissection suggest that only 42 percent of the college’s surrounding population was African-American.⁷² Although a minority in the general population, black bodies were frequently employed as instruments for anatomical education.

There is no doubt that medical schools in the South were well aware of their geographic proximity to black communities and in turn, the access they had to their graves. Some schools openly advertised the fact. In an 1831 issue of the Charleston Mercury, the Medical College of South Carolina was described as follows: “No place in the United States offers as great opportunities for the acquisition of anatomical knowledge. Subjects being obtained for the coloured population in sufficient numbers for every

purpose and proper dissection carried out without offending any individuals in the community!”⁷³ Similarly, the Louisiana Medical College in New Orleans advertised that among its “admirable advantages for instruction of medical students – particularly those destined for southern practice,” was “the great facility of obtaining subjects for dissection” from the nearby New Orleans Charity Hospital, one that admitted black patients.⁷⁴ Other schools, while avoiding the specific mention of dissection, did exalt the usefulness of black bodies for the advancement of medical knowledge. In 1853 the Hampden-Sydney College Medical Department (named the Medical College of Virginia after 1854) proclaimed that “The number of negroes employed in our factories will furnish materials for the support of an extensive hospital, and afford to the student that great desideratum – clinical instruction.”⁷⁵

Not all clinical material for dissection was supplied from local sources, however. In some cases, black bodies were disinterred in the North and shipped to the South. In the 1830s, one New York newspaper published an article under the headline, “More Pork for the South.” The text below described the intended transport of “two dead negroes” from New York City to Charleston, South Carolina.⁷⁶ Likewise, body snatchers in the South routinely shipped black bodies to medical schools in the North. During the 1880s and 1890s, an anatomy professor at one New England medical college received “twelve bodies of southern Negroes,” twice each academic session.⁷⁷ Such transport between the North and South underscores the importance of the black body for dissection purposes. Once snatched, black

bodies became commodities in high demand that could be shipped hundreds of miles before they were laid on the hard surface of a dissecting table.

In lieu of body snatching, professors and students at some medical schools in the South attempted to lure living black bodies into their examination rooms. Of course, blacks would never enter such places at their own will. Savitt writes that even “illiterate slaves did not have to read [the advertisements] to learn about medical-school hospitals; their reputations preceded them.”⁷⁸ Instead, advertisements for anatomical material were directed towards slaveholders. One rather frank example comes from a certain Dr. T. Stillman, affiliated with the Medical College of South Carolina:

To planters and others – wanted 50 Negroes. Any person having sick Negroes, considered incurable by their respective physicians, and wishing to depose of them, Dr. S. will pay cash for Negroes affected with scrofula, or king’s evil, confirmed hypocondriasm, apoplexy, diseases of the liver, kidneys, spleen, stomach and intestines, bladder and its appendages, diarrhea, dysentery, &c. The highest cash price will be paid on application as above.⁷⁹

Although there is no evidence to suggest Dr. Stillman’s advertisement found willing slave contributors, support for the vital role of the black slave in the advancement of medical knowledge can be found elsewhere. For instance, four of the eight articles in an 1836 issue of the *Southern Medical and Surgical*

Journal mentioned the treatment of slaves.⁸⁰ In an 1838 issue of the same journal, a professor from Georgia reported that slaves served as the subjects of eighty percent of the eye operations he conducted. Also of note was the performance of six surgeries in the presence of students in the Medical College of Georgia’s anatomical theater in 1838, three of which involved slaves.⁸¹ A particularly vulnerable subgroup of the American black population, slaves could be forced to participate in medical procedures against their will, much to the benefit of medical students practicing their craft. Moreover, accepting slaves whose afflictions were “considered incurable,” allowed for the possibility of medical enlightenment before and after the subject’s inevitable death. While body snatching was often a criminal and burdensome task, admitting infirmed slaves and dissecting their corpses postmortem was a much simpler yet less common alternative to body snatching.

A range of reaction

Public reaction towards body snatching during the nineteenth and early twentieth centuries varied widely. Some raged against medical schools when they caught word of the removal of corpses for scientific purposes. Following the disinterment of bodies from a grave in Painesville, Ohio in 1845, a group of citizens adopted a series of resolutions, one of which proclaims:

Resolved, that we most solemnly believe that those who have no regard for the dead, can have but little respect for the living, and those who respect

neither dead or living, should never receive the confidence of the public.⁸²

Other responses were far more violent. Following the precedent set by the “Doctor’s Mob Riot” of 1788, in which a mob of New York City citizens hunted down the anatomy professors of the city’s medical college for secretly unearthing bodies from a local cemetery for dissection, numerous rowdy protests broke out in the nineteenth century in states including Maryland, Connecticut, Massachusetts, Vermont, Illinois, and Missouri.⁸³ In Baltimore, following an 1807 riot that demolished the dissecting hall, architects designed a new medical building that still stands today, complete with “maze-like corridors to thwart potential mobs trying to break into the anatomy laboratory.”⁸⁴ Even after building this safeguard, the threat of continued riots prevented dissection at the medical department of the University of Maryland until 1832.⁸⁵

Following the Civil War, it was widely regarded that the nation was lacking in medical expertise. Historian Michael Sappol writes that “many diplomaed practitioners were exposed as incompetent, unable to perform amputations, set fractures, remove bullets, or do other basic surgeries.”⁸⁶ As such, there was a push to revamp medical education across the newly united country with an increased emphasis on first-hand dissection to develop critical skills. In turn, some members of the public adopted more moderate opinions of body snatching. These views were generally characterized by a criticism of the means but an appreciation for its ends. That is, while many people abhorred the idea of ripping corpses from their coffins, they understood

the importance of dissection for the education of future physicians. This point is illustrated in an 1875 article titled “Body-Snatching” which includes both assertions that “dissections of the human body are absolutely necessary for a medical course” and that “the crime of body snatching is one that should be punished with hard labor in the Penitentiary for life.”⁸⁷

Public opinion was also shaped by popular literature. When the American version of Charles Dickens’ *Tale of Two Cities* was published in *Harper’s Weekly* in 1859, readers were introduced to the character of Jerry Cruncher, who, like many actual body snatchers, had an ordinary job by day and resurrected corpses by night.⁸⁸ Body snatching also made its way into Mark Twain’s literary classic, *The Adventures of Tom Sawyer*. When Tom and Huck Finn snuck off to a cemetery at midnight to cure a wart, they witnessed the snatching of “old Hoss Williams” by the hands of Injun Joe and Muff Potter on behalf of “Sawbones,” the “young Dr. Robinson.”⁸⁹ Such fictional accounts of body snatching, laid out clearly for public consumption, suggest that the subject was far from taboo. Rather, body snatching was a significant reality in American society and affected more than medical students and their procured specimens.

In some instances, the public called directly on the government to intervene so that cadavers for dissection could be obtained legally. In an 1881 letter to the editor, one Tennessee citizen suggests “allowing [medical] colleges to have the bodies of criminals and unclaimed paupers” for dissection.⁹⁰ Indeed, since 1831, legislative measures known as Anatomy Acts existed in the United States, authorizing local officials

to deliver the bodies of those who would otherwise be buried at the public's expense (those who died in state hospitals, prisons, almshouses, or other state facilities). In turn, body snatching was made illegal and could be punished by heavy fines. States in both the North and the South established their own Anatomy Acts throughout the nineteenth and early twentieth centuries.⁹¹ Not all acts were the same, however. Those written in the South commonly sought to assuage the fears of the white community and ensure that only blacks would be handed over to dissectors. One bill proposed in the Kentucky House of Representatives in 1833 called on the courts of the state to "adjudge and award [only] the corpses of negroes executed by sentences" to medical schools "for dissection and experiment."⁹² Years later in 1903, an Anatomy Act in North Carolina was amended to include that no white cadaver would ever be delivered to a black medical college for dissection.⁹³ Whatever their content, the Anatomy Acts were often weakly enforced and did not deter body snatchers. No clearer is this disregard for the law than in a report that stemmed from the arrest of a certain body snatcher named Richard Jordan. The report concludes with a line stating that, "Jordan, after securing the [punitive] fine, stated publicly that he would resume operations again as soon as the excitement blew over."⁹⁴

Racialized responses

Owing to the aforementioned preference resurrectionists had for black bodies, it is understandable that blacks and whites harbored different fears in regards to body snatching and dissection. Most members

of the white population were concerned only about the deceased who shared their rung on the social ladder. This was evident in New York in 1788 when the exhumation of numerous bodies from a black cemetery went ignored while the snatching of a single white female led to rioting.⁹⁵ Exemplary of the racialized rhetoric of the time, some believed that body snatching allowed for blacks and other disadvantaged populations to "repay their debt to society."⁹⁶ As long as it did not involve them or those they knew, many members of the white population were not overly concerned with body snatching. In the words of an anatomy professor at the University of Michigan, "the 'better people' could rest easy."⁹⁷

Members of the black population, particularly in the South, were not afforded this luxury. Savitt wrote that "blacks usually knew full well how the bodies of their friends and relatives were being used, and they were both offended and frightened."⁹⁸ For instance, in 1856, an elderly black woman exclaimed to her friend as they passed by the city's medical school, "Please Gawd, when I dead, I hope I wi' dead in de summah time," alluding to the previously noted fact that body snatching and dissections only occurred in the winter months, when medical schools were in session and the body could be sufficiently preserved.⁹⁹ Following the Civil War, whites, as a means of controlling recently emancipated black men and women, invented rumors of supernatural "night doctors" who stole, killed, and dissected blacks.¹⁰⁰ Although fictitious, the fear that such rumors bred was very much real. Four verses of a poem ominously titled, "The Dissecting Hall," details the anxieties of the black community:

Yuh see dat house? Dat great brick house?
Way yonder down de street?
Dey used to take dead folks een dar
Wrapped een a long white sheet.

An' sometimes we'en a nigger'd stop,
A-wondering who was dead,
Dem stujent men would take a club,
An' bat 'im on de head.

An 'drag dat poor dead nigger chile
Right een dat 'sectin hall
To vestigate 'is liver – lights –
His gizzard an' 'is gall.

Tek off dat nigger's han's an' feet –
His eyes, his head, an' all,
An' w'en dem stujent finish
Dey was nothin' left at all.¹⁰¹

Blacks did not only play the role of “the snatched.” In several cases, blacks were complicit in the act of resurrecting bodies. In one 1883 episode, it was the black superintendent of a Philadelphia cemetery who permitted resurrectionists to unearth bodies at will.¹⁰² Four years earlier, a report out of Nashville highlighted the activities of three “negro body-snatchers.”¹⁰³ Blacks were also accomplices to body snatching in situations in which they had little choice. In the mid-nineteenth century, the previously mentioned Medical College of Georgia employed “resurrection slaves” to steal black corpses. Between 1842 and 1852, these slaves obtained no less than sixty-four bodies for dissection.¹⁰⁴

In 1852, the Medical College of

Georgia officially purchased one of these slaves, a man named Grandison Harris. Harris's task was to snatch black bodies from a local cemetery and deliver them to the medical college's dissecting room. After several years of work, Harris gained an impressive degree of familiarity with human anatomy, and he often served as a teaching assistant alongside fledgling medical students. In fact, Harris's expertise garnered great respect -- it was said that “students freely went to him, much more than they did to the instructors.”¹⁰⁵ Unfortunately for the black man, he was likely loathed in his local community. Historian Tanya Telfair Sharpe compared Harris' presence in black neighborhoods to that of a drug dealer in today's society: one that evoked both fear and jealousy. Following the one-time slave resurrectionist's retirement in 1905, he was granted a pension of \$10 a month and his son was hired on as a janitor.¹⁰⁶ Although Harris was a rare example of a black man benefiting from the practice of body snatching, his story does add gray to a broader narrative that is often painted solely in black and white.

The big picture: body snatching and the role of the black body

Placed in a larger context, body snatching and the subsequent dissection of cadavers was only one way in which the black body served to advance medical education in the American South in the nineteenth and early twentieth centuries. Indeed, Dr. James Marion Sims, who practiced gynecological surgery in Alabama, had no known experiences with snatching bodies for dissection. Yet, in the 1840s and early 1850s, he performed

numerous experimental surgeries on black slave women by which he developed a cure for vesico-vaginal fistula.¹⁰⁷ Years later, Dr. Sims reflected on his brave patients, who, without their “indomitable courage” would have left the “broad domain of surgery” without “one of the most useful improvements that shall forever hereafter grace its annals.”¹⁰⁸ Additional medical breakthroughs, including the first successful ovariectomy, the first operations on anesthetized patients, and the perfection of the Caesarean section, relied on the black body.¹⁰⁹

Yet, even in the larger narrative of the black body as a useful medical tool, body snatching stands out in bold. This is because the very act of resurrecting the dead black body bestows an importance on it that never existed while the body was alive. Borrowing the words of anthropologist Lesley A. Sharpe, the black community in the nineteenth and early twentieth centuries served as one example of the “socially expendable categories of persons [who were] ironically transformed into valued objects through their involvement in medical research.”¹¹⁰ In 1951, black anatomist W. Montague Cobb wrote on this irony, stating, “...our [white] colleagues recognized in the Negro [on the dissecting table] a perfection in human structure which they were unwilling to concede when that structure was animated by the vital spark.”¹¹¹ This is not to say that body snatching and dissection eliminated racialized and hierarchical feeling. In fact, the act of manipulating a helpless body is in many ways one that carries immense power. As medical students were educated during “that stage of life, when the transformation of character is inevitable,” it is possible that the body snatching and dissection of black corpses led

them to perceive the black man as inhuman or subordinate.¹¹² Upon the dissection table however, a certain education in equality cannot be ignored. As aforementioned traveler Martineau claimed, white medical students who dissected black cadavers “cannot say that coloured people have not nerves that quiver under moral injury, nor a brain that is on fire with insult, nor pulses that throb under oppression.”¹¹³ Through dissections, students learned, whether they realized it or not, that differences between black and white bodies were, quite literally, only skin deep. It was body snatching that made this lesson possible.

Decline and legacy

While the bulk of body snatching activity occurred in the nineteenth century, some sources date its existence well into the twentieth. According to one author, body snatchers still operated in Tennessee in the 1920s, selling cadavers to four medical schools in Nashville and sending surplus bodies to Iowa.¹¹⁴ Eventually, however, the passage of Anatomy Acts, in conjunction with an improved public opinion of medicine, eliminated body snatching in the United States.¹¹⁵ Medical breakthroughs in bacteriology, surgery, and preventative medicine confirmed the importance of research, and an increasing number of people began donating their bodies to science.¹¹⁶ In 1968, this process was made easier with the passage of the Uniform Anatomy Gift Act. Adopted by all fifty states, it replaced the patchwork of previous state legislation and ensured the right of a donor to bequeath his or her own body to medical science and education.¹¹⁷

Without daily reminders, it is vital that the history of body snatching remains intact. Eased by the existence of donation programs today, the process of procuring bodies for dissection in the nineteenth and early twentieth centuries was complex and in most cases, criminal. Body snatching was meticulously planned and executed by aspiring medical students, their desperate professors, and enterprising middlemen, who all attempted to meet the rising cadaver quotas that resulted from the evolution of the medical school curriculum. From the beginning, the marginalized and disadvantaged populations of society were the most vulnerable to body snatching. In an era brimming with racial prejudices, the black community was an easy target. While public reactions to body snatching varied, the white population was generally content as long as their graves remained immune to desecration. On the contrary, the black community lived in fear of white doctors, as well as the black men that helped them. The institution of slavery and the greater concentration of black populations in the South made it a hotspot for body snatching, a practice that continued in the region into the early decades of the twentieth century.

The history of body snatching in the nineteenth and early twentieth centuries in the American South provides more than evidence that “violation of the sepulchre [was] essential to the study of anatomy.”¹¹⁸ Rather, the purposeful resurrection of unguarded, and most often black, corpses, contributes to the greater assertion that blacks were vital in the advancement of medical knowledge. Of course, the role of race in medicine did not disappear when body snatching dissipated in

the 1920s. Between 1932 and 1972, six hundred rural black men were the sole subjects of the Tuskegee syphilis experiment performed by the U.S. Public Health Service. As a part of the experiment, doctors and scientists allowed subjects infected with syphilis to go untreated. At least 128 men died of syphilis or related complications, causing outrage in the black community.¹¹⁹

The Tuskegee experiment, in addition to instances of forced sterilization, radiation testing, and “corrective” surgeries particular to blacks suggest that any strained relationship between the medical and African-American communities that exists today is one that began developing years ago. While it is impossible to pinpoint just when such an uneasy coexistence -- one characterized by suspicion, exploitation, and fear -- truly began, there is no doubt that body snatching during the 19th and early 20th centuries had a significant impact. When historian Harriet A. Washington asserted that today’s “much bewailed racial health gap is not a gap, but a chasm wider and deeper than a mass grave,” she was halfway there. Such a chasm did not appear on its own. It was body snatchers that helped to dig it.¹²⁰

Notes

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- 3 Ann Garment, et al., "Let the Dead Teach the Living: The Rise of Body Bequeathal in 20th-Century America," *Academic Medicine*, 82 (2007): 1002.
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- 5 Heinrich von Staden, "The Discovery of the Body: Human Dissection and its Cultural Contexts in Ancient Greece," *Yale Journal of Biology and Medicine* 65 (1992): 224.
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- 7 Helen MacDonald, *Human Remains: Dissection and its Histories* (London: Yale University Press, 2006), 12.
- 8 Michael Sappol, *A Traffic of Dead Bodies: Anatomy and Embodied Social Identity in Nineteenth-Century America* (Princeton: Princeton University Press, 2002), 49, and Schultz, *Body Snatching*, 6.
- 9 Ruth Richardson, *Death, Dissection and the Destitute* (Chicago: University of Chicago Press, 1987), 32.
- 10 The Narrative of Whiting Sweeting, Who was Executed at Albany, the 26th of August, 1792 (Albany, 1794), 11, 19, in Sappol, *Traffic of Dead Bodies*, 103.
- 11 John B. Blake, "The Development of American Anatomy Acts," *Journal of Medical Education* 30 (1955): 433.
- 12 Detailed accounts of the Ripper's mutilated victims can be found in tens if not hundreds of works. Here I will cite Peter Ackroyd, introduction to *Jack the Ripper and The East End*, ed. by Alex Werner (London: Chatto & Windus, 2008), 8.
- 13 Richardson, *Death, Dissection and the Destitute*, in Edward C. Halperin, "The Poor, the Black, and the Marginalized as the Source of Cadavers in United States Anatomical Education," *Clinical Anatomy* 20 (2007): 489.
- 14 Blake, "American Anatomy Acts," 432.
- 15 Founded in 1782, the original Harvard Medical School was located in Cambridge, Massachusetts. The school was moved to Boston, where it is currently located, in 1810. Quote from *Boston Gazette*, May 5, 1788, in Jules Calvin Ladenheim, "The Doctors' Mob' of 1788," *Journal of the History of Medicine and Allied Sciences* Winter (1950): 25
- 16 Robert L. Blakely and Judith M. Harrington, "Grave Consequences: The Opportunistic Procurement of Cadavers at the Medical College of Georgia" in *Bones in the Basement: Postmortem Racism in Nineteenth-Century Medical Training*, ed. Robert L. Blakely and Judith M. Harrington (Washington: Smithsonian Institution Press, 1997), 165.
- 17 *Ibid.*, 166.
- 18 Meghan J. Highet, "Body Snatching & Grave Robbing: Bodies for Science," *History and Anthropology* 16 (2005): 419, DOI: 10.1080/02757200500390981.
- 19 Blake, "American Anatomy Acts," 433.
- 20 Linden F. Edwards, "Resurrection Riots During the Heroic Age of Anatomy in America," *Bulletin of the History of Medicine* 25 (1951): 178 and Sappol, *Traffic of Dead Bodies*, 48.
- 21 President Edwin Anderson Alderman's Report at the University of North Carolina at Chapel Hill, February 1899, in Manning, "History of UNC Medical School," 16.
- 22 Schultz, *Body Snatching*, 15.
- 23 This essay will use the term "body snatching," rather than "grave robbing," to indicate the removal of bodies from their graves. The decision is in accordance with historian Suzanne Schultz's assertion that "would-be thieves took only bodies for their purposes, leaving behind all of the personal effects that were buried with the deceased" (Schultz, *Body Snatching*, ix). Grave robbing, as opposed to body snatching, is commonly associated with the stealing of material items within the grave, like clothes or jewelry, and was not usually practiced by body snatchers.
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- 25 Sappol, "Traffic of Dead Bodies," 45 and Ladenheim, "Doctors' Riot," 23-43
- 26 Edward Warren, *The Life of John Collins Warren, MD.* compiled chiefly from his Autobiography and Journal (Boston: Ticknor and Fields, 1860), 409.
- 27 *Transport in South*: James O. Breeden, "Body Snatchers and Anatomy Professors: Medical Education in Nineteenth-Century Virginia," *The Virginia Magazine of History and Biography* 83 (1975): 329, in Midwest, Martin Kaufman and Leslie L. Hanawalt, "Body snatching in the Midwest," *Michigan History* 55 (1970): 31, and in Northeast, Frederick C. Waite, "Grave Robbing in New England," *Bulletin of the Medical Library Association* 33 (1945): 283. While many 19th-century newspapers printed articles or reports relating to body snatching, only a few are cited here. "Grave Robbing: How Human Ghouls Glide into 'Potter's Field' and Secure Subjects for Medical Science..." *Louisville Courier-Journal*, August 11, 1878, 4, "Robbing the Grave," *Chicago Tribune*, March 8, 1871, 4, "Charged with Body Snatching," *New York Times*, January 3, 1885, 2.
- 28 Breeden, "Body Snatchers in Virginia," 342.

- 29 David C. Humphrey, "Dissection and Discrimination: The Social Origins of Cadavers in America, 1760-1915," *Bulletin of the New York Academy of Medicine* 49 (1973): 821.
- 30 Sappol, *Traffic of Dead Bodies*, 238.
- 31 T.S. Sozinsky, "Grave-robbing and Dissection," *Penn Monthly* 10 (1879): 216-217 in Humphrey, "Dissection and Discrimination," 822.
- 32 N. P. Wiley to I.B. Van Schaik, New York, January 14, 1820? in Sappol, *Traffic of Dead Bodies*, 113.
- 33 Schultz, *Body Snatching*, 32.
- 34 The entire process of body snatching is paraphrased from Waite, "Grave Robbing in New England," 279-281.
- 35 Breeden, "Body Snatchers in Virginia," 334.
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- 38 H.L. Thomas to John S. Davis, Charlottesville, September 25, 1849, in Breeden, "Body Snatchers in Virginia", 331.
- 39 "Body-Snatching," *St. Louis Globe-Democrat*, December 6, 1875, 4.
- 40 "Body Snatching: Jordan, the Nashville Grave Robber, Fined \$25 – The Sexton Implicated," *Louisville Courier Journal*, November 25, 1879, 1.
- 41 Breeden, "Body Snatchers in Virginia," 328.
- 42 Halperin, "The Poor, the Black," 490 and Breeden, "Body Snatchers in Virginia," 322.
- 43 Schultz, *Body Snatching*, 59.
- 44 *Ibid.*, 61.
- 45 *Ibid.*, 51, 52.
- 46 *Ibid.*, 49.
- 47 Edward H. Dixon, "Scenes in a Medical Student's Life – Resurrectionizing," *The Scalpel* 7 (1855): 93-100, in Sappol, *Traffic of Dead Bodies*, 116.
- 48 Shultz, *Body Snatching*, 54.
- 49 Kaufman and Hanawalt, "Body Snatching in the Midwest," 31-32.
- 50 Report of a Committee of the Regents of the University Appointed to Visit the College of Physicians and Surgeons in the City of New-York, Made to the Regents, January 12, 1826 (Albany, NY, 1826), 18-20, in Sappol, *Traffic of Dead Bodies*, 112.
- 51 This rather macabre phrase is borrowed from the title of Michael Sappol's book on the subject of body snatching.
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- 53 Sappol, *Traffic of Dead Bodies*, 107.
- 54 Halperin, "The Poor, the Black," 491.
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- 62 Highet, "Body Snatching & Grave Robbing," 421.
- 63 Humphrey, "Dissection and Discrimination," 823.
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- 65 Harriet Martineau, *Retrospect of Western Travel* (London: Saunders & Otley, 1838) vol. 1, 140; Humphrey, "Dissection and Discrimination," 819.
- 66 *Ibid.*, 820.
- 67 *Ibid.*, 820.
- 68 T.M. Gallagher, *The Doctors' Story* (New York: Harcourt, Brace & World: 1967), 48-49, 53 in Humphrey, "Dissection and Discrimination," 820.
- 69 Halperin, "The Poor, the Black," 490.
- 70 The medical school designated specifically for black students was the School of Medicine at Howard University in Washington, D.C., founded in 1868. However, it is worth noting that Howard's first graduating classes included a "large percentage" of white students. Other black medical schools established later, like Meharry Medical College in Nashville, TN, founded in 1876, had a significantly larger proportion of black students. See W. Montague Cobb, "Surgery and the Negro Physician: Some Parallels in Background," *Journal of the National Medical Association* 43 (1951): 151.
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- 72 Robert L. Blakely, "A Clandestine Past: Discovery at the Medical College of Georgia and Theoretical Foundations" in Blakely and Harrington, *Bones in the Basement*, 3 and Blakely and Harrington, "Grave Consequences," 174.
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- 80 Southern Journal of Medicine and Surgery 2 (1836): 335 in Fisher, "Physicians and Slavery," 46.
- 81 Southern Journal of Medicine and Surgery 2 (1838): 643-647 in Fisher, "Physicians and Slavery," 46.
- 82 The Ashtabula Sentinel, November 4, 1845 in Edwards, "Resurrection Riots," 178.
- 83 Edwards, "Resurrection Riots," 180-184.
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- 105 Tanya Telfair Sharpe, "Grandison Harris: The Medical College of Georgia's Resurrection Man" in Blakely and Harrington, *Bones in the Basement*, 213.
- 106 Ibid., 220.
- 107 A "vesico-vaginal fistula is a break in the wall separating the bladder from the vagina, which allows urine to pass involuntarily to the outside from the vagina rather than the urethra. Women suffering from this defect, usually the result of trauma during childbirth, are incontinent of urine and continually uncomfortable." See Savitt, "The Use of Blacks," 344-345.
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Microscopic Discovery

A Guide for Seeing Life at Small Scale

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IN EVERYDAY EXPERIENCE, EQUIPPED WITH ONLY A PAIR OF HUMAN EYES, WE ARE most often unaware of life that exists at small scale. Because we cannot see it with our naked eyes, knowledge of this microscopic world was virtually inaccessible until the invention of the first microscope in the late 17th century.¹ Robert Hooke, who is one of the most well known users of early microscopes, describes the microscope in his *Micrographia* of 1665 as a device that could, as Schickore puts it, “restore man’s original, uncorrupted view of nature.”² Despite a period of rapid discovery in the late 17th century, scientific interest in microscopes tapered in the early 18th century due to lack of improvements to the instrument and a saturation of knowledge obtainable by current microscopes.³ It wasn’t until around the 1830s that major improvements were made to the technology and the images and levels of detail it could produce. Currently, because microscope technology has improved by leaps and bounds and familiarity with microscopic phenomena has become integrated into everyday discourse and understanding, the role of the microscope as a tool in formulating that knowledge is almost

always overlooked.⁴

Motivated by previous challenging but thought-provoking experiences working with and learning from microscopes and a fascination with the role of the microscope in breaking down the barrier between humans and biological phenomena at small scale, I have created a field guide or users manual for a basic compound light microscope and slides of fixed, sectioned soft tissue (plant and animal cells, tissues, organs, embryos, etc). As the microscope is still most commonly used in teaching labs and thus the type many will first encounter, this tool and specimen combination has significant roots in discovery and exploration of the microscopic world. Although this guide will provide some technical information, it is primarily meant to highlight rich complexities embedded in the process of using a microscope and to critically examine how knowledge is produced with it. Of course one can quickly learn the basic, mechanical skills needed to manipulate the instrument and generate good images, but in only focusing on those skills, opportunity to tie in valuable philosophical and historical components of the process is lost. Therefore, this guide is meant for anyone, no matter how experienced, interested in the process of using microscopes.

This guide breaks down the process into five major steps, each of which will demonstrate how the instrument influences knowledge produced about the specimen observed. Emphasizing this mediation will then serve to deepen understanding of the role of the observer and manipulator of the instrument in the process of knowledge production. The guide concludes with a more general discussion of microscopes that will

propose ideas about what it means to interact with an instrument in the first place. Overall, I hope that in creating this guide and bringing the microscope back into view by emphasizing the role it plays in our understanding of and experience with the microscopic world, I can provide a deeper knowledge of that world and our relation to it.

Some Guiding Ideas

Although each section is somewhat distinct and can stand on its own, there are threads that weave them all together. The first, which draws on Ian Hacking's discussion of observation, is that any kind of observation is a skill that can be learned and improved upon through continual practice.⁵ Being a good observer, Hacking argues, requires not only knowing what to look for and what to ignore but also being highly sensitive and alert to the unexpected.⁶ This holds especially true for observation that requires the use of some form of instrumentation because the way in which information is presented by the instrument is often very unfamiliar. Although careful and skillful observation is arguably one of the most crucial aspects of scientific inquiry and knowledge acquisition, it is seldom directly discussed as something important to be learned.

The second thread is that "seeing" with a microscope can be regarded as a new kind of sensory activity. Thus in learning how to use a microscope, we are also learning a new way to see.⁷ According to Wartofsky, "seeing" in the complete sense of the word involves both raw sensation and perception; in other words in order to see a table you must both sense it with your eyes and then call upon

mental faculties to identify it and understand it as a table.⁸ The relationship between sensation and perception is a central topic of inquiry in epistemology and philosophy of science, especially biological science. As an empirical science, biology requires concrete reference to the external world and is thus heavily reliant on the senses as they are the only means we have for observing.⁹ Seeing with a microscope does involve sensing the images before you, but it primarily involves learning how to perceive them by understanding what the limitations of the instrument are and how those limitations must be worked with to achieve an optimal outcome. In talking about using a microscope as a new kind of sensory activity, which involves both raw sensation and perception of that sensation, we might be more comfortable critically examining it and more comfortable with the idea that, just like all the other human senses, it too is subject to error.

Working with the microscope

I. Light

The first thing you will do when you encounter a microscope is turn the light source on. The most common compound light microscopes utilize bright field illumination to produce images, a phenomenon in which a light source illuminates the specimen on the slide from below.¹⁰ The specimen absorbs this light, giving rise to “patches of dark and light” seen through the eyepiece, “[which correspond] to the proportions of light transmitted or absorbed.”¹¹ Since most biological material is transparent or all the same color, specimens need to be dyed prior to being viewed under the microscope in

order for our eyes to detect them.¹² On most compound light microscopes, there will be a knob that allows you to control how much light is interacting with the specimen. While more light will often give a clearer image, sometimes too much light will flood the image and wash out important details. Therefore, it is best to begin with a lower light setting and then work your way up until it is just intense enough to clearly see what is on the slide.

But what are we really seeing when we look through the eyepiece? Although it may seem like a familiar concept, more careful consideration of how this interaction between the light and the specimen produces an image reveals that it is in fact very different from the way our eyes work. Rather than detecting places in the image in which light has been absorbed, our eyes form images in our minds by detecting reflected light rays of differing amplitudes.¹³ If we then draw a direct comparison between our eyes and bright field microscope, we understand that they utilize different physical properties of light and form fundamentally different kinds of images.¹⁴ This comparison can be complicated, however, by the idea that microscopes and eyes cannot have a one-to-one relationship because seeing through a microscope also requires the use of a pair of human eyes. Nevertheless, the interaction between the light and the object, or specimen, observed with a microscope is fundamentally different from the interaction that gives rise to our everyday vision.

II. Focus

Once you look through the eyepiece, you will most likely encounter a very blurry image, indicating that the microscope is out

of focus. The focus can be adjusted with the knobs to the side, one is meant for course adjustment of the position of platform where the slide sits and the other is meant for fine-tuning. The compound light microscope uses two lenses to magnify slides, one at the eyepiece and one called the objective lens.¹⁵ The job of the knobs is to move the slide up and down until it is in a position relative to the lenses that will give a clear image. Often when focusing the microscope the observer will experience a sensation of falling into the blurriness past the plane of the specimen when the knobs are turned one way and then coming back out of it and going to the blurriness above it when they are turned the other way. The clearest image will be when the observer feels he or she is sitting directly on top of the plane.

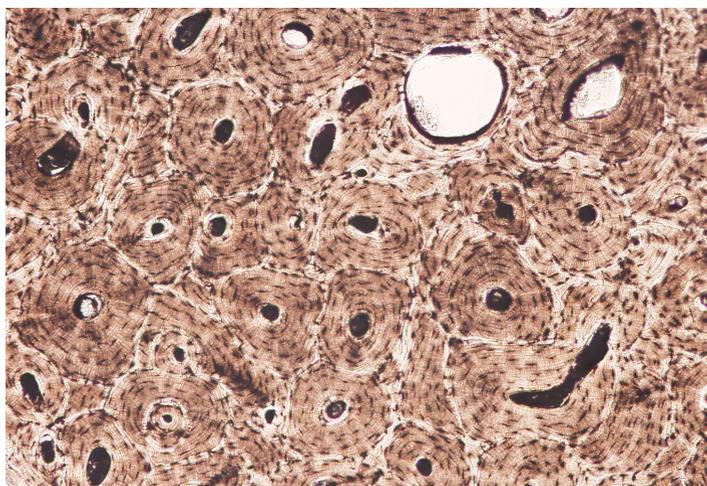
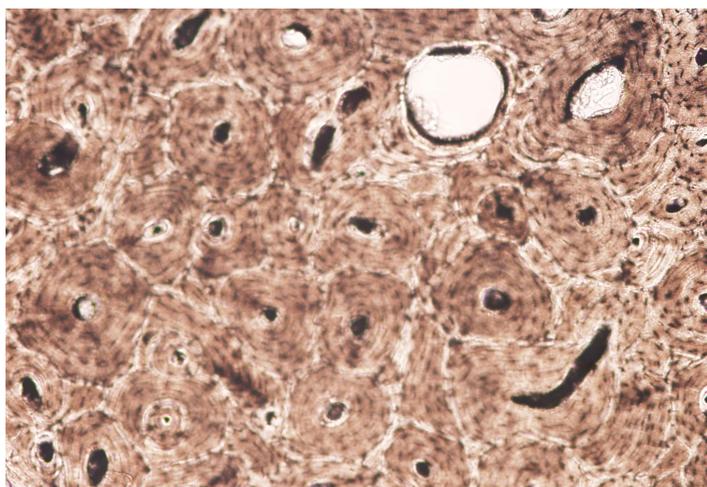
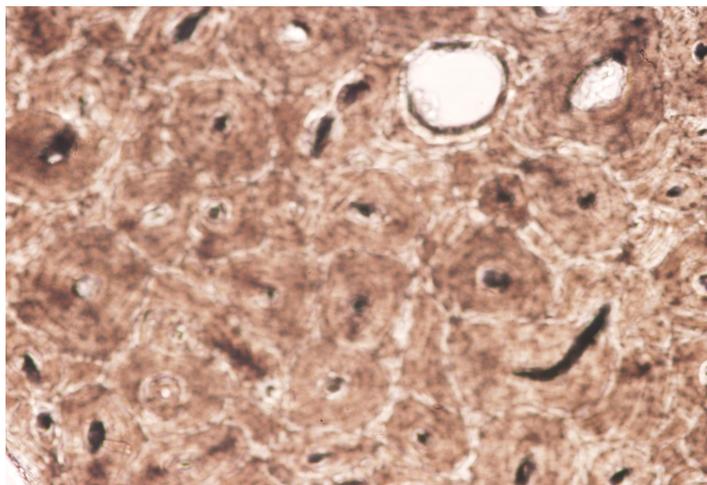
Examples of early uses of lenses can be traced back to the early eleventh century, when quartz crystals were used to enlarge small relics such as pieces of Mary's hair or particles of wood from the cross.¹⁶ These crude lenses were meant not only to serve as a visual aid, but they also symbolized how "Christian doctrine...helped reason to "see" what remained closed to the human intellect."¹⁷ Thus, emphasis was placed not only on the object magnified by the lens, but also on the lens itself. Jumping forward to the early 17th century, when Robert Hooke and Antoni van Leeuwenhoek first began using early microscopes to take a first glimpse into the microbial world, lenses were still just as important as the objects behind them.¹⁸ However, rather than acting as symbols, lenses at this time were recognized as being vital to an understanding of the object behind them. Due to the difficulty of melting the

glass and grinding it down into exactly the right shape, there was a wide range in quality of lenses produced, all of which would give a slightly different image of the same object.¹⁹ This variability made it difficult to determine what characteristics actually belonged to the specimen and what were the results of optical effects due to the apparatus. Thus at this time the skills of opticians, the individuals who produced the glass lenses, defined what became visible in early microscopy.²⁰

Although today the craft of making lenses has been somewhat perfected and variability in images due to the quality of the lenses used is practically nonexistent, exploration with the focus screws, such as experiencing being above and below the plane of the specimen, allows a modern observer to feel the presence of the lenses just as Hooke and Leeuwenhoek might have felt them. Although it seems like an unimportant step, becoming aware of the presence of the lenses through such an exploration will strengthen the observer's ability to ultimately see the image because it will strengthen his or her ability to perceive it, or know how and why it is there.

III. Image

Once you have successfully focused the microscope and the image has crisp clear lines, you can begin to observe and analyze the image now before your eyes. The first thing that may become apparent is that the image is very two-dimensional and looks like a colorful pattern of abstract shapes. Depending on the tissue type and the dyes used during the preparation of the slide, you may see pink, purple, red, blue, or brown interspersed with white spaces of varying shapes and sizes. For



These three images show cross-sections of human compact bone tissue, where individual cells are arranged concentrically around blood vessel carrying canals (dark spots). The first image is completely out of focus while the last image is in focus.

a beginner, this first experience can be very disorienting. Learning how to interpret and really see these images is one of the central challenges of compound light microscopy with fixed slides.

The first thing to understand about the image is that it is most likely a transverse or longitudinal section of whatever tissue or structure it came from. In order to get a clear image, specimens must be sectioned into thin sections to allow enough light to be absorbed or transmitted and so that only a single plane is viewed under the microscope. When the specimen has been sliced too thickly, the image will be blurry no matter how you try to focus it because detail above or below the plane in view will confuse the image and make it appear to be out of focus. Although they allow for crisp images, sectional views can make it challenging to understand the three-dimensionality of the structures presented. A particular type of cell, for example, could be wider in the middle and tapered at the ends. Depending on where the cell is cross-sectioned it will appear as either a small circle or a larger circle on the slide. It is only by looking at many different cross-sections of the cell that the observer will be able to comprehend its true three-dimensional shape (see images on opposite page).

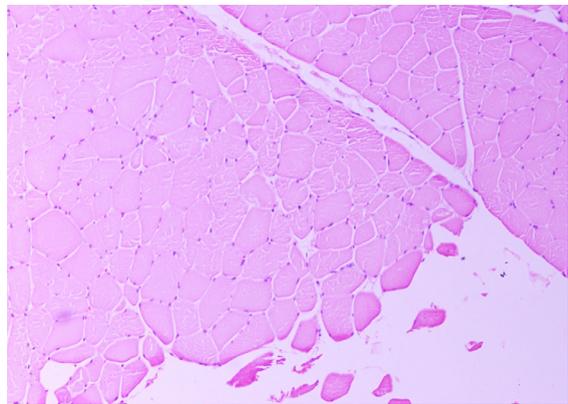
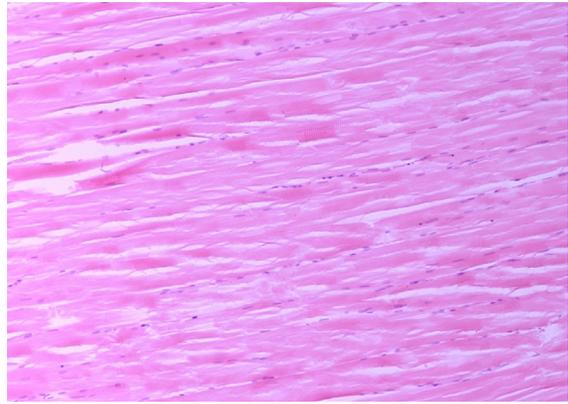
To begin the slide preparation process, all specimens are fixed with a formaldehyde solution and then dehydrated by removing the fixative and adding 70% ethanol.²¹ Those specimens that can be mounted whole onto the slide are then stained, put through an additional round of dehydration, and ultimately placed onto a glass slide and covered with a glued down cover slip to hold them in place. Those that

are too thick, however, need to be cut into serial sections approximately 6-10 μ m thick using a device called a microtome.²² The entire process of creating slides for view under a light microscope is extremely labor intensive, can take a number of days, and makes the specimens vulnerable to unintentional alteration. The most common of these alterations, called artifacts, is the spreading of tissue parts, which is identified under the microscope as large, unnatural white spaces in the image. Other common forms of artifact can be folding or twisting, as demonstrated by the darker red lines in the aorta tissue in the image below. For beginners, it is often very difficult to differentiate between what is natural or real and what is artifact; it takes looking at many different slides of the same kind of tissue to be able to quickly make these judgments.

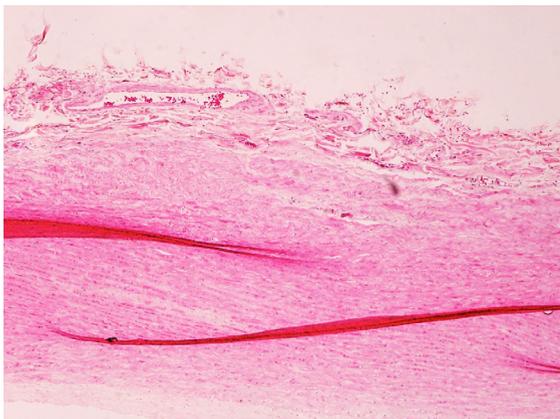
As Rheinberger points out, the use of instruments such as microscopes in the biological sciences creates a dynamic interaction between the apparatus and the object being studied with the apparatus in which several boundaries must be negotiated.²³ Such boundaries include those between the living and the nonliving, the visible and the invisible, and what is to be taken as real or authentic and what is to be taken as artifact; all three are clearly called into question in the slide preparation process. Rheinberger also stresses that instruments in science confine and greatly limit the scope of experimental systems; that is, they exist as rigid frameworks into which specimens must fit in order to be observed and therefore shape the way in which knowledge of the specimen unfolds.²⁴ The requirement of specimens to be manipulated in this way in order to be used

with the microscope is a clear example of such a rigid framework.

Another major reason for paying close attention to the slide preparation process is that it highlights the fact that there exists a need for a highly regulated and well-crafted process for fixing biological material.²⁵ Because samples observed under a microscope are so small, they cannot be observed before or while in the process of becoming prepared for the microscope. Thus, the preparation process must be such that it can be accounted for when the manipulated specimens are ultimately viewed through the microscope. It is thus that specimens prepared for observation under a compound light microscope should be regarded as objects highly laden with knowledge about the instrument. A close investigation of how slides of tissue are prepared can not only provide information necessary to make sense of the images seen when looking through the microscope, but it can also shed light on the relationship Rheinberger refers to and thus how and why we must learn about these structures the way we do.



Above: These two images show human skeletal muscle tissue in two different section orientations. The top image shows a cross-section cut while the second image shows a longitudinal cut. Notice how the same tissue can look very different depending on how the sample was sliced during the slide preparation process. Only by looking at both images can one understand how thick and long these cells are.



Left: This is an image of tissue from a human aorta. Notice two types of artifact in this photo: tissue spreading along the top edge and the dark red folds in the center of the specimen. Both the spreading and the folding are results of the slide preparation process.

IV. Magnification

The next thing you should notice is that you are currently looking through the microscope at a specific magnification, or through a specific objective. Typically, compound light microscopes have two lenses, one that is in the eyepiece and cannot be switched out and one called the objective lens, which can be easily changed to increase or decrease magnification. To determine the total magnification of the image viewed through the microscope, multiply the magnification of the eyepiece lens (typically 10x) by the magnification of the objective lens (typically 4x, 10x or 40x).²⁶ Because the abruptness of moving between magnifications can be somewhat disorienting and takes some getting used to, a good tactic for dealing with magnification is to start with the lowest objective, typically 4x, so that you can get a kind of overview of the slide. Once you are comfortable, begin increasing the objective to begin exploring the new substructures each will reveal.

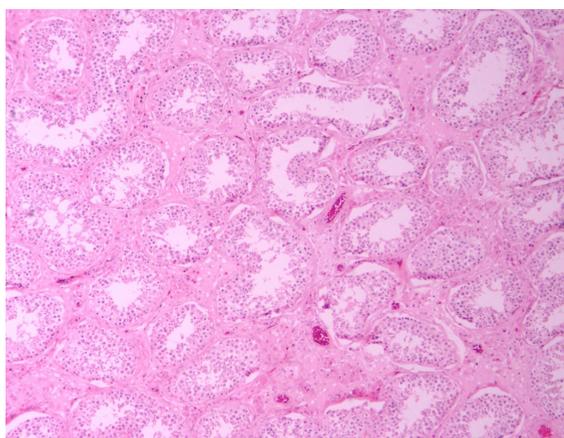
Although we most often associate microscopes with the concept of magnification, the principal aim of microscopy is not simply to enlarge, as this can be done simply by enlargement of a photograph, but it is to provide higher resolution and reveal more detail of the structure being observed.²⁷ In this context, resolution is defined as the quantity that refers to the level of detail revealed in an image of a particular specimen.²⁸ When using any microscope, there will be a limit to the resolution, or level of detail, that can be revealed. This property of microscopes is known as resolving power and is a quantity that is determined by both the design of the

instrument and by the wavelength of the beam of light used to radiate the image.²⁹ The resolution power and the resulting resolution thus presents yet another limitation that the microscope imposes on viewing the specimen and extracting knowledge from it.

Because the microscope only provides certain intervals of magnification, we can only view the structures at specific intervals of detail. Rather than providing a gradual increase or decrease of magnification, which would provide the observer with a sense of continuity as certain levels of detail disappear and others come into view, most microscopes have preset magnification levels that only allow for a step-wise descent or ascent into or out of levels of detail. This limitation of the microscope leaves it up to the observer to make connections between seemingly unconnected structures. We are being asked to trust that because the only the objective is adjusted, the different images that come into or go out of view are in fact images of the same structure. But because every time the magnification on the microscope is changed a seemingly new set of structures is revealed, we should also be able to understand them as existing only at the magnification being used at any given moment.

V. Moving Around

Once you have become comfortable playing with the objectives, you can begin moving around the slide by adjusting the two knobs that will be on either side of the instrument. Only a small portion of the slide can be seen through the eyepiece at any given moment, so even when the magnification is at the lowest it can be, most mounted specimens will be too large to view in their entirety.



Above: These two images show cross-sectional views of seminiferous tubules (where sperm are produced) in the human testis. The top image was taken with a 5X objective while the bottom was with a 20X objective. Notice how much more substructure can be seen in the 5X image. The nuclei of the cells and newly formed sperm can be clearly seen in this view.

Therefore, the observer is required to move around the slide in order to see everything on it. Although it may seem strange at first and somewhat uncomfortable, this process of looking and moving around the slide is not so different than what we experience everyday. The ways in which the microscope limits the field of vision when looking at a slide is similar to how the structure of our eyes and their location on our heads limit our own field of vision in everyday experience. Because of this limitation of our eyes, we are required to move around to see all that is around us in any given environment.

While this movement, or exploration, serves to essentially extend our field of vision, it functions on a more fundamental level in allowing us to see. In his *New Theory of Vision*, published in 1710, Berkeley argues that to see the world around you requires three-dimensional perception of that world and this perception can only be obtained through knowing what it is like to move around and intervene in it.³⁰ Berkeley states, “There is, indeed, a difference betwixt the signification of tangible figures by visible figures, and of ideas by words—that whereas the latter is variable and uncertain, depending altogether on the arbitrary appointment of men, the former is fixed and immutable the same in all times and places.”³¹ In other words, you are only able to confidently to attach meaning to what you sense by exploring, moving around in, touching, or interacting with the object of your vision.

Thus, according to Berkeley, we must have some way of interacting with the microscopic world presented to us under the microscope if we really want to see it. Although definitely less direct than

actual physical interactions with any given environment, moving around the slide and discovering new parts of the specimen can serve as the form of intervention Berkeley refers to when dealing with microscopic worlds. Despite the fact that we cannot utilize any other senses in this intervention, partly because the specimen is too small and partly because it has been chemically fixed, this exploration makes the observer feel he or she is in a way inside the specimen and moving around in it. Unlike other manipulations of the microscope, such as changing the focus and magnification, the observer has total control over the temporality and direction of his or her exploration. This is in fact the one way the image seen through the eyepiece can be manipulated that is not restricted by the limitations of the microscope; the freedom granted to the observer here is critical to his or her experience and ultimate ability to see.

The Microscope and Mechanical Objectivity

As technology has developed over the years and as microscopes have become more and more able to give images perceived to be the ideals of observation, they have become increasingly invisible as the means of producing the image.³² Heintz and Huber argue that “the assumption of instrumentally mediated objectivity is the result of a cultural attribution...which either conceals the fact that the image is dependent upon the equipment and measurement techniques used to create it, or interprets this dependency as unproblematic.”³³ The “instrumentally mediated” objectivity that Heintz and Huber refer to is objectivity created through the use

of a tool or machine such as a microscope. Daston and Galison refer to this kind of objectivity as “noninterventionist” or “mechanical” objectivity, an objectivity that is the result of a machine being incapable of judgment and therefore incapable of interfering with what it produces.³⁴ This kind of objectivity sits well with the values and codes of conduct on which modern day science depends because it lends itself to the pursuit of objective scientific truths.³⁵

Taking a closer look at the process of using a microscope, however, reveals that the microscope does in fact interfere with its products and in doing so pulls human intervention into the knowledge production process. As I have continuously touched on throughout the guide, the limitations and requirements of the instrument influence not only the process of using it but also how knowledge is produced from it. For example, most instruments require natural specimens to be manipulated in a certain way in order to be used with them.³⁶ This manipulation is a direct breach of the “mechanical” objectivity often associated with microscopes; while the microscope itself cannot “intentionally” alter the image and therefore upset objectivity, specimens are often altered before they even come into contact with the microscope. Even in an age where the production of glass lenses has been perfected and the quality of the microscope is generally no longer questioned, objectivity-upsetting variability still exists in the preparation of slides or specimens for study. Limitations such as this and preset magnifications, to give another example, force the microscope to present bits and pieces of information about the specimen rather than the whole picture. The observer

is then required to stitch these pieces of information together in a coherent manner and make judgments about what he or she is seeing. Thus, since the invention of the microscope, mechanical objectivity has played a limited role in the exploration of biology on the microscopic level; the participation of the human mind in perceiving and drawing images seen through a microscope remained central well into the twentieth century and still continues today.³⁷

Because a microscope is a requirement for dealing with small dimensions, it will always stand as an intervening intermediary between that world and us, no matter how much technology develops. As I hope to have elucidated throughout this guide, seeing through a microscope requires much more than just peering through the eyepiece; it requires active engagement of the individual doing the observing. Effective microscope observation requires knowing how to engage and what kinds of judgments to make about what you see. These are skills that can be learned and mastered through continuous practice.

Notes

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- 20 Ditzen, *Breaking*, 342.
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The Intersection of Gender and Science: An Interview with Sarah Richardson

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Q: When and how did you become involved with History of Science?

A: I started in philosophy of science when I was an undergraduate, asking fundamental questions about the relationship between empirical facts and theories in biology. I ran into gender studies only at the very end of my undergraduate education, and it was in gender studies that I saw questions that we had been asking in philosophy of science and philosophy of biology really hitting the real world. Questions like: how big are sex differences, and how should they structure our understanding for the possibility of achievement and flourishing for both men and women? I became very excited about the rich trove of analytical questions to explore there, and it seemed like these questions mattered a lot. I began to move beyond philosophical approaches that are focused more on an internal analysis of claims in the sciences, to social and cultural and historical understandings of where the very structures of knowledge production, institutions, and practices that produce knowledge claims, come from. This led me increasingly to historical approaches.

My interest has always been, fundamentally, in a broad-minded interdisciplinary study of hard questions at the intersection of gender and science. My PhD was in an interdisciplinary program called Modern Thought and Literature at Stanford. In that program, we used approaches from cultural studies, from gender studies, from science studies, and certainly from history and philosophy of science, to marshal together the disciplinary methods and resources needed to ask questions on the intersections

of disciplines.

When I got to Stanford, I continued to gravitate toward history and philosophy of science approaches. I comprised a dissertation committee made up of two historians of science and two philosophers of science, and was able to drill down and study the core literatures in those fields as well as get the science background I needed, to be able to be seriously engaged with that literature and have a strong understanding of the evolution of thought around critical approaches to gender.

Q: Why gender studies? What got you interested in the field at the end of your undergraduate career? Was it a specific experience, or a natural culmination of studies in the classroom?

A: I went to Columbia, which is a school that has a strong reputation for activism, and I got drawn into work around a lot of issues, including campus sexual assault, an issue I've been involved with for more than 15 years. It was through on the ground experiences that I became interested in the space between theory and practice. The questions outside of the classroom. I remember taking a philosophy of biology course with Philip Kitcher, an eminent philosopher of science, and writing my final paper on sociobiology, and feeling very unsatisfied, like I'd only scratched the surface. I somehow ended up in a gender studies classroom and I started to see that I could ask and answer the questions I'd been trying to explore in a philosophy context in a much richer way there. It was a bit of both, but certainly the experience with important issues in feminist activism added

to my personal sense of the importance of sophisticated, rigorous, smart, work on this extremely contested area around gender and science.

Q: Was your interdisciplinary approach at Stanford unique?

A: There are many well-formed interdisciplinary fields, though it's rare at the doctorate level that you get to actually study in one of them. More often someone will get a history degree, or a philosophy degree, and then dabble in interdisciplinary spaces, but I had the opportunity to be trained from the ground up doing translational work in an interdiscipline. I was following in the footsteps of an earlier generation of feminist scholars, such as Donna Haraway, Evelyn Fox-Keller, Helen Longino, Anne Fausto-Sterling, who forged this interdisciplinary space. It is still a marginal space, in the sense that it doesn't have its own journals, it doesn't have its own conferences; we do it on the edge of gender studies and science studies. I was lucky in that I was able to train up in it, a second generation approach. That was special in a way. I was able to work with scholars who thought these questions were important and interesting, and who in some cases had spent a lifetime already exploring and breaking ground in that field. The question for my generation is: what are the important next questions and next steps that need to be asked? How can we carry this program further, and also make it connect to other interesting areas of inquiry? For example, how can we make it connect to the practice of science?

Q: What has been the reception to your work? Have things changed over time?

A: My first book was on the history of human sex chromosomes, the X and Y chromosome, and my interest there was to look at the X and Y as gendered objects of scientific knowledge, and to try to understand the emergence of the new way of thinking about sex differences that was advented by the discovery of the X and Y. I bring that all the way up to current-day discussion as we enter a genomic, and even post-genomic age, in which genomic ways of thinking are foundational across the life sciences; where genomic conceptions of sex differences are starting to supersede the older models that were more rooted in hormones. It was a historical project; it was a critical gender studies project; it was a project that was also interested in the ethics of contemporary research.

That book has only been out about a year, year and a half, and I've been really pleased with the conversations that it has started. It's a deeply critical book in that it asks questions such as whether we should even call the X and Y the sex chromosomes? It looks at episodes in the history of X and Y chromosome research that for some, are difficult to acknowledge as being part of the history of genomics. For example, researchers famously assumed that an extra Y chromosome was like an extra dose of maleness and a whole generation of individuals with this disorder were assumed to be extra aggressive, extra criminal, even extra sexual, in a highly stigmatizing way. It represented a simplistic understanding of sex as rooted in these biological objects or

artifacts like the X and Y. If having one Y makes a man, a man, having two Ys makes him a “superman.” The book also engages contemporary science, the work of living scientists, who, I argue, inherit this already gendered set of concepts around sex differences that are updated for genomic age but contain within them longstanding debates about the nature of sex and gender.

I’m a very young scholar, but the reception has been very warm. One thing that was very fascinating to me was the wide range of communities that have been interested in [my book], and have taken the arguments still further than I even imagined. I have seen some uptake in interest by transgender and intersex individuals who are interested in my critique of essentialisms around the X and Y chromosomes. I’ve had interesting broader conversations with people thinking about the changing constructs of difference in a genomic moment more broadly, as this connects with precision medicine and pharmacogenomics. We are now focusing on variations and difference more than on sameness and similarity. The conversation is ongoing.

Q: Have you seen different reactions from scientists and historians? Do you think there is a dichotomy between science and history?

A: At first when my book came out I was nervous because it’s quite a critical book. It asks uncomfortable questions sometimes, and questions that to some in the sciences may seem like they’re coming from left field. It’s not conventional for scientists to think historically, socially, politically about their

work -- as caught up in these broad debates about the nature of human difference, for example. However, the reception has been most engaged, most interested, from working scientists, who are, in my conversations with them, grappling for conceptual tools to think through the implications of their work. I feel there are not enough venues and opportunities for those conversations. They seem genuinely intellectually curious and I found much less resistance than I thought. In fact, many scientists are intrigued with the idea that perhaps we shouldn’t call the X and Y the sex chromosomes!

Among historians of science, the book has also been warmly received. There’s sometimes a conception of history of science where you’re working on people who are dead, you’re working on questions that don’t have any present import, and that’s not my methodology and my approach, although I value that approach as well. There’s a question, when you’re an interdisciplinary scholar, of category. What kind of book is this? I think in some ways, scientists are more used to this trans-disciplinary space. You get the tools you need to ask the question. For my book, I find that sometimes historians are reading it one way because they’re looking for the history spine of the book, and the philosophers are looking for the argument, the analytical intervention, the science studies scholars are looking for the analysis of classic STS questions such as controversy or the role of social conceptions in scientific knowledge. So each community is taking up a different aspect of the narrative. That’s been an intriguing and exciting, and intellectually challenging, part of continuing the conversation around the book since it’s been out.

Q: What are you currently working on? Right now you're teaching and researching. What future projects do you have in mind?

A: For me, the research and teaching go strongly together. When I'm teaching, I'm learning, and growing. It is often through my teaching that I begin to refine and define questions that are of the moment and are important to clarifying key debates.

My current research is a project on the history of maternal effects. This is the study of how a mother's phenotype, her constitution, including perhaps her experiences, behaviors, and exposures, influences the growing fetus, and in some ways can be conceptualized as a form of inheritance, beyond the DNA, that can have persistent effects for the individual offspring, even for future generations.

This is a very old idea in a broader sense. It goes back to the earliest medical texts, the notion that the mother gives something constitutional to the infant, something that is distinct from what it receives from the father, and special and ineffable in certain ways, which is why I'm currently calling the book *The Maternal Mystique*. Yet that idea persists in the 20th and 21st centuries in new and transmogrified forms. This idea is intimately connected with notions that women's political freedom is complicated by their reproductive bodies. It's this intersection between the politics of reproduction, theories of inheritance, notions that there's more than inherited than just the gene (anti-genetic determinist discourses), and really challenging ideas about the body as able to imbibe aspects of its social environment, that excites me about this new project.

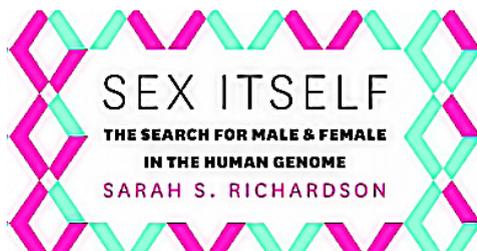
Q: How did you pick this topic? What about motherhood drew you to write about it?

A: The standard line in history of the genetics is that the 20th century is the century of the gene. It was a genetic determinist time in which the leading goal of the elite biological sciences was to understand the core biochemical elements of heredity as entirely encapsulated within the nuclear DNA. I think that this is a valid large-scale view of the history of genetics over the past 100 years. But what has been less told and documented is the very rich set of anti-genetic determinist ideas and strands of research at that same period of time. I'm interested in maternal effects as one very strong example of a field that was at the margins of genetics and offering really strong counter currents to the notion that "it's all in the genes." This is a history of genetics project in the sense that it's writing the history of anti-genetic determinism. And as a gender studies scholar, I'm equally intrigued that one of the main pillars of this anti-genetic determinist discourse has been this interest in women's bodies and what they add to the mix. This has been a very challenging and provocative question for me. It hasn't yet unraveled for me. There's a gendered element and there's a history of genetics element. In that sense it is actually continuous with the set of interests that motivated me to look at the sex chromosomes.

Q: What do you think is the most important piece of advice for those interested in pursuing an education in history of science and more specifically, gender studies?

A: The first thing is, there isn't a single path into these questions. There are many valid and important routes into questions at the intersection between gender and science. The way that I have proceeded is deeply satisfying to me, but other approaches need to be cultivated and welcomed as well. I think in general, at the undergraduate stage, I encourage students to take classes and undertake projects that lead them to question their own assumptions, to embrace and surround themselves with a diversity of perspectives, and to take risks. That's the stage at which you can mess around a little bit. Also, to read challenging texts. I think that this is something we've pushed to the edge, picking up old, challenging, long texts, or foundational theoretical works from old-school history of science. This is the time to sit down and have the spaciousness to really engage with those texts.

Finally, I really welcome approaches that engage current questions. Look at the world around us, use your everyday experiences and issues that you think are important to formulate research questions. There are so many areas in which the rigorous interdisciplinary perspective and the questioning about the foundations of the authority of science that history of science can offer can bring a new perspective or approach.



More than a “Girl-Hour”

Female Astronomers at the Harvard Observatory, 1922-1932

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IN LATE JUNE OF 1932, PREPARATIONS FOR THE INTERNATIONAL ASTRONOMICAL Union’s meeting were disrupted when the secretary of the local planning committee, 32-year-old astronomer Adelaide Ames, drowned in a boating accident in Squam Lake, New Hampshire.² Ames had been the first woman to earn a Masters degree in Astronomy from Radcliffe, and at the time of her death was still working as a research assistant at the Harvard College Observatory.³ Her arrival at the Observatory on a fellowship ten years before her death marked the beginning of the transition out of the highly gender-segregated tenure of Observatory director, Edward C. Pickering.⁴ Under Pickering, female employees at the Harvard Observatory, collectively known as “Pickering’s Harem,” worked on routine computations in a separate part of the building than the men.⁵ After Pickering’s death in 1919, Harlow Shapley assumed directorship and applied his “youthful enthusiasm” to expanding opportunities for women at the Observatory, including offering graduate fellowships to women like Ames.⁶ Historians who have studied Shapley’s directorship highlight his new administrative policies,

which objectively created more diverse roles for women in the Observatory. However, this paper will argue against existing scholarship that despite the prevailing historiographical understanding of Harlow Shapley as the desegregator of gender in the Harvard College Observatory, the social culture which he cultivated in the workplace undermined his institutional changes by creating subtle avenues for gender-based segregation which were detrimental to the early careers of his female employees.

In order to accomplish this, I will first describe the various pathways which Shapley created for the advancement of women astronomers at the Observatory. Then, I will examine how these changes are portrayed in current historiography, before using letters and oral histories to complicate the established narrative of Shapley's tenure. In doing so, I will reveal the latent gender discrimination in Observatory culture and its effect on the women's work. I will note the ways in which the Observatory remained a highly gendered space by examining demeaning, sexualized, and paternal attitudes toward the women. Finally, I will compare the Observatory to another contemporary space of science, Thomas Hunt Morgan's *Drosophila* laboratory, to contextualize the ways in which Shapley's Observatory was gendered.

I will focus on the period of Shapley's tenure from 1922-1932 – the former the year in which Adelaide Ames arrived at the Observatory; the latter, in addition to being the year of her death, was the year Shapley referred to as the “peak” of his tenure.⁷ These ten years comprise the bulk of his institutional changes and allow for a focus on the beginning of the shift away from the segregated Observatory which had existed

before Shapley's arrival. Evaluating the period between the female computers under Pickering and later female professors of astronomy not only illuminates the factors contributing to the striking transition but also reveals the difficulties faced by the women as the transition occurred.

Harvard astronomer Cecilia Payne-Gaposchkin wrote in her autobiography that she and Adelaide Ames “used to say jokingly that [Shapley] had found a Dear Little Observatory, and intended to leave it a Great Institution.”⁸ Indeed, Shapley's changes to the Harvard Observatory – especially in the field of women's work – were impressive. Noticing the potential to hire employees who were educated in astronomy, but nevertheless willing to do rote work and less likely to demand promotions than men, Shapley made a concerted effort to attract female assistants and graduate students to conduct research at the Observatory.⁹ Between 1922 and 1932, four out of seven PhD candidates were women, an even higher percentage than the five out of thirty-eight between 1952 to 1962 under the subsequent director, Donald Menzel. Shapley also encouraged women to conduct their own research, rather than limiting them to data interpretation as Pickering did in the decades before.¹⁰ Astronomer Dorrit Hoffleit recalled: “Shapley suggests a topic, and then you dig into the literature and into the plate vault and see what you can do.”¹¹ Henrietta Swope, another astronomer, similarly declared: “I was working with myself. I mean [Shapley] did supervise me, and he was over it, and did the whole job, but still — I did my own work and published it. Except when I got a very interesting variable or two. He'd stick his nose into it!”¹² Female employees at the Observatory such as Hoffleit and Swope felt that they had agency over their own work,

even when the work was guided, supervised, or directed by Shapley.

Another area in which Shapley extended opportunities for women was publishing. Historian Margaret Rossiter notes that through the early 20th century “outstanding women often had lowly titles and were recognized only belatedly, as in their obituaries,” a trend which Shapley worked to change.¹³ He introduced the 1931 Annual Report of the Director of the Observatory by writing that:

during the past ten years...the number of workers has trebled, and the fields covered by the investigations of the members of the staff have expanded and become more complicated. Each year between fifty and a hundred papers embodying the results of these investigations are published from the Observatory.¹⁴

Within those fifty to a hundred papers were papers authored and coauthored by members of the female Observatory staff. They were published in Observatory monographs, Harvard College Observatory Circular, Harvard College Observatory Bulletin, and Publications of the American Astronomical Society, among others. The effect of increased publishing can be seen in a letter from Shapley proposing a Miss Anger – later the prominent astronomer Dr. Carol Jane Anger Rieke – for Radcliffe College’s Carolyn I. Wilby Prize, which was established in 1897 and awarded yearly for the “best original work in any department.”¹⁵ He wrote: “Already we find in the astronomical literature frequent references to Miss Anger’s work. [...] She has published various papers during the year and one or two are in the press at the present

time.”¹⁶ Even as a graduate student, Miss Anger was published in journals with wide enough reaches that her work was utilized by others in her field. The publications were not only valuable in creating name recognition and promoting the work of the Observatory women, but could also be used as evidence for a woman’s worthiness in receiving honors which would enable them to progress in their work. Accordingly, having established an objective basis for Miss Anger’s aptitude by virtue of her publications, Shapley was also prepared to speak directly and personally to Miss Anger’s abilities:

As I stated last year we consider Miss Anger the most competent graduate student we have at the present time in astronomy in Radcliffe or Harvard. She is one of the two or three women in astronomy who show high ability in original thinking; and at the same time her routine technical work is of good quality.¹⁷

His personal testimony to Miss Anger’s talents inverts the values of Pickering’s era: Shapley praises Miss Anger first for her “original thinking,” and mentions her facility with “routine technical work” only afterwards. Nor does he qualify his judgment of her abilities by comparing her only to other women. He specifies that she is more competent than his male Harvard graduates students as well, while avoiding explicitly mentioning gender by using the names of institutions as proxy.

Shapley’s role in increasing institutional support for his female employees is well documented in historiography. In some works, such as *Women Astronomers: Reaching for the Stars*, Shapley is portrayed as a heroic champion of women and their rights

in the workplace. Contrasting sharply with Pickering's restrictive policies about publishing and awarding credit to his female employees, Shapley enters the scene and "immediately" rights Pickering's wrongs: "Two years later, Harlow Shapley became director of the Observatory. He recognized the importance of [Antonia] Maury's [stellar] classifications and put them to use immediately."¹⁸ In an article entitled "E. C. Pickering, Lydia Hinchman, Harlow Shapley, and the Beginning of Graduate Work at the Harvard Observatory," historian Peggy Kidwell also credits Shapley with the institutional changes which allowed for the shift from "Pickering's Harem" to female graduate students. Kidwell casts Shapley as the agent of desegregation, the man who made the increase of women workers possible: she writes that Shapley actively "planned" and "sought" ways to bring women to Radcliffe by organizing work and securing fellowship money. Even when Kidwell phrases sentences so that the women themselves are the subjects rather than the objects, the women are still being "persuaded" by Shapley or pursuing courses of study "suggested by Shapley." Shapley's agency as the Observatory desegregator in Kidwell's essay does not only manifest in her subtle syntactical choices. On the contrary, Kidwell explicitly argues that Shapley facilitated women's careers as in the model posited by Margaret Rossiter, in which males made funding and opportunities available for women.

In another article, Kidwell acknowledges some tension in the relationship between Shapley and astronomer Cecilia Payne-Gaposchkin, but nevertheless credits Shapley with "encouragement" and institutional interventions on her behalf, including higher pay and support in

completing the first PhD from Radcliffe in Astronomy.¹⁹ According to Kidwell, these interventions compensate for the pre-existing barriers Payne-Gaposchkin faced as a female astronomer; Kidwell suggests that they enticed her to remain at the Harvard College Observatory, continue to pursue and publish her research, and quickly establish herself as a leading astronomer of her time. Kidwell's argument is limited, however, because it does not situate the interpersonal tension in the social context of the workplace, or suggest that similar issues were faced by other female employees.

The social culture under Shapley does get mentioned, though, in John Lankford's *American Astronomy*. Lankford includes a paragraph in a chapter on "Power and Conflict" which notes Shapley's corrosive social culture, writing that "Shapley was, by turns, a tyrant and a father figure. He presented himself very differently to men, women, and graduate students," using Payne's autobiography as evidence.²⁰ However, instead of focusing on the effects of Shapley's personality on the women's careers, Lankford examines how it affected the future management of astronomy departments. He quotes Jesse Greenstein, who recalled that there were "such dreadful things about the stress within the Observatory [HCO under Shapley] that I modeled all my management" of the astronomy program at the California Institute of Technology "on the opposite – love your colleagues, think you're all great, you're all in the best place in the world."²¹ Though he acknowledges the Observatory women, Lankford's focus still lies on men; the implications of Shapley's role as a "tyrant and a father figure" for female Observatory employees is not addressed.

By considering Shapley's institutional

integration of women separately from the social environment which he cultivated, historiography has ignored the implications of the Observatory's social culture on impeding women's careers. Vestigial institutional gendering of work in the Observatory during Pickering's tenure laid the groundwork for continued social distinction between men and women, which remained even after Shapley's institutional interventions. Under Shapley, for example, women's jobs at the Observatory lacked official titles and clearly delineated responsibilities. Payne wrote in her autobiography that "the position [she] held at the Observatory was a very indefinite one, and [she] never succeeded in getting [her] duties defined."²² As a point of comparison, Shapley's correspondence with Donald Menzel, an astronomer who had recently completed graduate work at Princeton under Henry Norris Russell, reveals careful attention to titles and duties. On June 20, 1932, Shapley sent a letter inviting Menzel to come to Harvard "to help in the instruction and research work" and included the particulars of salary and job specifications. Menzel replied four days later: "I feel that my seven years' apprenticeship should entitle me to higher rank than assistant professor, especially since my appointment to associate astronomer (equivalent of associate professor) will almost certainly go through sometime next year." Similarly, a letter from Shapley to Dean Bernice V. Brown of Radcliffe College shows Shapley's unconcern with even the most indisputable of Payne's titles. He refers to the probable success of "Dr. Cecilia Payne" in securing a grant to pay for an assistant; four lines later, she becomes "Miss Payne."²³ This was not a single error: a similar verbal demotion of "Dr. Cecilia Payne" occurs in the 1930 Annual Report, though the male PhDs retain their titles

throughout.²⁴

The diminution of Shapley's female assistants was more than just a vestige of Pickering's Observatory culture; Shapley himself was responsible for some new ways of gendering the space. In his autobiography, Shapley recalls one of the reasons Harvard Observatory was able to accomplish so much:

I talked to some friends, made some new acquaintances, and took away some of their spare money to buy girl-hours for these jobs. The variables require a tremendous amount of measuring. I invented the term "girl-hour" for the time spent by the assistants. Some jobs even took several kilo-girl-hours. Luckily Harvard College was swarming with cheap assistants; that was how we got things done.²⁵

Shapley continues the trend of dehumanizing his female assistants with the use of the word "swarming" – a word connoting insects or vermin, the implications of which would not be lost on Shapley, who famously studied ants in his spare time. The measurements in "girl-hours" are also striking in their blatant gendering of Observatory culture. The women are cheap labor, and collectively form an impersonal unit of measurement so non-human that their work can be objectively calculated. The term "girl-hours" was not personal or private nomenclature, nor was it applied only in retrospect. Payne herself was familiar enough with the term to include in her autobiography that "Dr. Shapley cynically measured his projects in 'girl-hours'.²⁶ The concept of "girl-hours" appeared often enough in the workplace to help shape its gendered culture: no parallel concept of

“boy-hours” or “man-hours” existed.

Shapley’s letters, as well as the oral histories and memoirs of Harvard’s female astronomers, form a rich source base for examining the Observatory’s social culture. Shapley’s own words reflect a latent, perhaps subconscious but nonetheless present, perception of the women he hired: he saw them as a group of workers rather than individual researchers. In a 1922 letter to Caroline Furness, the head of the astronomy department at Vassar College, Shapley wrote: “We are hoping within the next few weeks to employ a new computer to take Miss Leland’s place. Probably we can supply that need locally.”²⁷ Not only does he view Miss Leland herself as replaceable, but the impersonal phrasing of hoping to “supply that need” relegates the female assistant to the place of an instrument lacking agency by using the diction of commodity rather than employee. In this letter, Shapley’s dismissal of the women assistants as commodities echoes the Taylorist characterization of the computers in “Pickering’s Harem” as a collective group, a vestigial attitude from an era which had only recently ended.²⁸ And while Shapley’s policies evolved over the course of his tenure to guide the women out of the institutional restrictions of the Pickering Era, his social treatment of them did not evolve in parallel. The females employed by Shapley were always “girls” rather than “women;” ten years after the note about replacing Miss Leland, a letter from May 23, 1932 describes the women as “girls who are interested in continuing astronomical studies of a graduate sort.”²⁹ Despite his administrative orchestrations on their behalf, Shapley’s female assistants had a different identity in his personal letters, where his assertions that they were qualified for a fellowship or degree faded into ambiguous

statements about “interest” rather than intent and “studies of a graduate sort” rather than the concrete, decisive pursuit of a graduate degree. In another letter, Shapley mentions a “Miss Phyllis Hayford, of the University of California, daughter of a famous geodesist of Northwestern University and an exceptionally competent young woman.”³⁰ Shapley situates Miss Heyford’s personal accomplishments as secondary to the influence of her male relatives.

While the working women were collectively seen as a machine-like unit producing vast quantities of data, they also had to contend with a social culture which simultaneously sexualized and infantilized them as individuals. This is most notable in their respective relationships with Shapley himself. Jesse Greenstein, a contemporary graduate student of Ames and Payne at the Observatory, recalled:

Harlow Shapley was a great man, but he also was ruthlessly cruel. He used these women, beginning before my time [...] and there were these three or four adoring, bright people. [...] All these women were balanced against each other by Shapley — they were all in love with him, in an asexual way, but they were all dependent on his praise and devotion, and he would give them hell sort of once a month. Cecilia would burst into tears, and she would get hold of me, and we would read T.S. Eliot and talk about things.³¹

Greenstein’s recollection includes reference to the subtle eroticization of the women, whom Shapley “used” but who were nevertheless “in love with [Shapley], in an asexual way.” That the women were “dependent on his

praise and devotion” casts them as weak and emotional creatures who rely on a strong male figure for support. Meanwhile, Greenstein’s portrayal of Shapley contrasts strongly with the historiographical character of the heroic desegregator; instead of supporting the women, Greenstein suggests that Shapley manipulated them. Though Greenstein’s recollection is limited both by temporal distance from the events and subjectivity of a personal perspective, the refraction of Shapley’s infantilization and eroticization of the female employees in Greenstein’s statement indicates a social culture pervasive enough to endure in the memories of other Observatory employees.

Part of the infantilization of female employees was based on the paternalistic relationship between Shapley and the female employees. The Shapley children’s presence at Observatory events, as well as Shapley’s continuous reference to them in letters, helped to establish his role as a father figure in the Observatory. Throughout his letters, the men and women of the Observatory staff inquire after the children, and Shapley supplies information about their well-being or interests in post-scripts or the bodies of the letters themselves. Shapley’s paternalism was also reinforced by external figures. Payne’s own mother wrote frequent notes to Shapley urging him to supervise her daughter’s working hours and health.³² Shapley also corresponded with Ames’ parents, keeping them updated on Adelaide’s travels to Leiden, for example.

The father-child relationship is also frequently reflected in the memoirs and oral histories of the female assistants. While recalling a year in which her income tax was calculated erroneously, for example, Observatory assistant Frances Woodworth

Wright says: “I happened to tell Shapley – the way you would tell your parents.”³³ Particularly striking is the way Shapley could utilize the ambiguity of his paternal position. He switched between the role of supportive father as described by Wright, and a dominating father, as in Henrietta Swope’s recollection of his somewhat Freudian interactions with Payne: “On the whole [Payne] was kept down or kept in her place – kept down very much. And I think she was very fond of Dr. Shapley, and I think he could use her. And he could also disturb her, very very much.”³⁴ The filial devotion of the female staff was part love, part subservience – and it wasn’t always willing. Wright, who was at one point a roommate of Payne’s, said: “[Shapley] just called upon the staff. This used to drive Cecilia wild at times [...]. She didn’t feel she had a choice. Nobody said ‘no’ to Shapley, and most of them enjoyed doing it. He made everything you did seem very important.”³⁵ Perhaps even more detrimental than the explicit boundaries of women’s roles set by Pickering, Shapley asserted his control over his female assistants in the mental domain. According to the recollections of Wright and Swope, Shapley’s persuasive techniques would be particularly difficult to note in a critical analysis of Observatory culture, because they affected the ways the women themselves conceived of Shapley and his role in directing their work. Female employees like Payne may have recognized Shapley’s corrosive tactics of gendering the workplace, but rationalized or excused it because they “enjoyed” acquiescing to him.

This is particularly evident in Payne’s own treatment of Shapley in contemporary letters and later recollections. Though many of her contemporaries noted the tensions which frequently arose between Payne and

Shapley, Payne echoes her colleagues' feelings of love for and duty to Shapley, even allowing the father-child relationship to verge on the religious. In her autobiography, Payne recalls conversations in which she compared Shapley to Caesar in George Bernard Shaw's *Caesar and Cleopatra*, asking "Can one love a god?", and to Shakespeare's Henry V ("a largesse universal like the sun / His liberal eye doth give to everyone").³⁶ Shapley was a god-like figure, doling out rewards, approbation, and commandments to his disciples. Even if his commands weren't explicit, he nevertheless retained a strong hold on his female assistants' decisions and ideas. Payne had written a note to Shapley a few years into her work at the Observatory, saying: "You have turned me from a schoolgirl into a scientist, from a child into a woman."³⁷ Characteristically, her sentiment evokes an exacting father figure, sexual awakening, and filial gratitude all in one.

The effects of the social culture in creating barriers for Observatory women's achievement is difficult to gauge, as it would entail a certain amount of speculation about what work they might have produced had the workplace environment been different. It is possible, however, to examine the effects of the social culture on the reception of work which the women did do. Ames' obituary in *Popular Astronomy*, for example, provides striking evidence for the negative effects of a culture which diminished women's achievements: "I collect only the facts. The theories are Dr. Shapley's," was the modest way in which [Ames] dismissed any reference to the reputation that came to her."³⁸ That the obituary chose to highlight her "modesty" was not under Ames' control, nor is it worthwhile to speculate whether her "modesty" was a personality trait, a product of the workplace

culture, or a product of societal expectations of women. Regardless, the assertion that her job was computational rather than theoretical echoes the limited role of women computers during Pickering's time. In reality, Ames theorized about the uneven distribution of galaxies as well as compiling observational data. The statement Ames made immediately following reveals that she also recognized that her role went beyond pure data collection, though she did not initially admit it outright: "There is a very definite satisfaction in finding a thing you are looking for, if you are doing a thing which requires a great deal of measurement and after putting all the data together you find some sort of correlation."³⁹ Ames' own words indicate that the subtle misogynistic culture of her workplace was internalized, even as it was resisted, by the women it affected. Yet equally as striking is the fact that the quotes were selected as part of an effort to memorialize Ames' life. The choice to cast her as a computer rather than theorist not only reflects the writer's – whether Shapley himself or another member of the astronomical community – conception of her but also attempts to suggest that she herself was the one who established and supported that image.

The social culture of Shapley's Observatory, as well as its effects, can be contextualized by comparing it with other roughly contemporary spaces of scientific inquiry. A comparison between the Observatory and Thomas Hunt Morgan's *Drosophila* laboratory, for example, illuminates the ways in which Shapley's Observatory both diverged from and conformed to other early 20th century American spaces of science, and thereby highlights which elements were products of Shapley's social culture rather than of scientific workplace culture in general.

Though both Shapley and Morgan employed graduate students, their respective social approaches to hierarchy within their institutions were vastly different. Historian Robert E. Kohler writes that the *Drosophila* lab dismissed notions of “formal hierarchy” and remarks that the doors inside lab were kept open – there were no individual offices.⁴⁰ In contrast, Shapley was hyper-aware of the hierarchy of his Observatory, noting who was assisting whom and arranging the offices accordingly. The numerous strikeouts of names as he arranged new offices in his 1931-1932 notebook attest to the fact that he took office organization seriously. Similarly, Morgan’s “lassaiz-faire attitude to graduate students” contrasts with the attention Shapley gave to assigning the graduate students specific research projects; Shapley kept and updated detailed master lists of who was working on what.⁴¹ In both cases, the formal hierarchy – or lack thereof – is reflected in the institution’s social culture.

The dominant social culture of the *Drosophila* laboratory revolved around the notion of Morgan and his “boys,” prompting laboratory visitor Tove Mohr to remark that “they were like a bunch of students having a good time together.”⁴² The deference of the “boys” to “the Boss” in matters of work contrast with the general veneration Payne and Ames held for their “Dear Director,” Dr. Shapley.⁴³ Instead of casting themselves as Morgan’s children, Morgan’s “boys” were at once the collaborators and companions of their mentor. While, like Shapley, the relationship between Morgan and his employees verged on paternal, unlike Shapley, his paternalism was not infantilizing as the “boys” became part of what functioned similarly to a gentlemen’s club, and were on a social footing equal to their boss.⁴⁴

As illustrated by the narrative of Morgan and his “boys,” Kohler notes that the laboratory’s “formative psychosocial relationships were male: master and disciple, father and son, Boss and ‘boys’.”⁴⁵ However, there were also female assistants present in the *Drosophila* laboratory, most of whom were unpaid volunteers. Excluded from official photographs and lacking official titles, the women of Morgan’s *Drosophila* lab supported, rather than comprised, the institution’s workers.⁴⁶ Shapley’s female employees, in contrast, were very visible and often appeared in both official and candid photographs of the Observatory staff. Though these female astronomers had to contend with a demeaning social culture in the workplace, the fact that they were institutionally recognized and supported enabled them to be recognized by the broader astronomical community. As shown in Morgan’s laboratory, this was not necessarily reflective of women across other disciplines and spaces of science.

Most importantly, however, Morgan’s *Drosophila* laboratory provides justification for investigating a laboratory’s culture in addition to its institutional hierarchy, structures, and roles. Kohler’s book demonstrates that the social culture and moral economies of a particular laboratory affect the activities of its individual workers. In particular, the brotherly camaraderie of Morgan’s laboratory shaped expectations around knowledge production and communication. Like Mohr’s impression of the boys socializing and working “together,” work in the *Drosophila* laboratory was viewed as communal; ideas were seen as “a common good” and individuals were expected to make decisions beneficial to the group as a whole, rather than themselves as individuals.⁴⁷ This is evident in the case of Jack Schultz, whom Morgan convinced to

“serve the group” by mapping *melanogaster* stocks instead of pursuing his own research on the biochemistry of chromatin.⁴⁸ Examining the work of an individual who worked in Morgan’s *Drosophila* laboratory, such as Schultz, without accounting for the expectations around knowledge production risks discounting invisible barriers to pursuing scientific opportunities. Similarly, evaluating the output and research of women under Shapley demands a thorough understanding of the culture in which it was created.

The implications of complicating the conventional narrative of Shapley as the desegregator of the Harvard Observatory are potent. An examination of the effect of social culture on women working under Shapley highlights the fact that the transitional period of women’s entrance into the astronomical workforce was much longer than usually estimated, occurring over the course of his tenure rather than just at the beginning. Over half a century after Maria Mitchell won the title of Director of the Astronomy Department at Vassar, women were still socially – and to some extent, institutionally – barred from advancement in the field.⁴⁹ That the gender discrimination occurred in ways which were mostly invisible – for example, mental manipulation, social interactions, and subtle linguistic choices – makes identifying these barriers to women astronomers’ success more difficult. Yet it is also more important: neglecting to acknowledge the barriers in the historiographical narrative of how these women did – and did not – succeed in pursuing their science risks continuing the trend of misrepresenting their work and minimizing their accomplishments.

Unlike the women of Pickering’s Harem, whose narrative of institutional repression has entered into popular culture

with appearances in the television show *Cosmos* and Lauren Gunderson’s play *Silent Sky*, the women of Shapley’s tenure have been left to tell their story themselves. This is one reason that their oral histories and autobiographies have proven to be such valuable sources. Yet as the oral histories of Wright and Swope, as well as quotes from Ames, suggest, the most devastating effects of Shapley’s tenure lie in the women’s own testimonies, which are colored by the misogyny they contended with and, in some cases, internalized in their workplace. To contextualize their claims about Observatory culture is to acknowledge the resistance – both tangible and mental – they faced as early entrants into a male-dominated field and celebrate the immensity of their achievements. However, this essay does not seek to vilify Shapley as Observatory Director. In fact, Shapley’s framework of institutional support for women was important for subsequent progress (such as Payne’s eventual professorship) and public acknowledgement of women’s scientific work via journals and other publications. But the individual success of women under his directorship occurred in spite of, rather than because of, the culture of Observatory under his tenure.

Notes

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19 Peggy Kidwell, "Cecilia Payne-Gaposchkin," in *Uneasy Careers and Intimate Lives: Women in Science, 1789-1979*, ed. Pnina G. Abir-Am and Dorinda Outram (New Brunswick: Rutgers University Press, 1987), 221; Idem, "Three Women of American Astronomy," *American Scientist* 78, no. 3 (1990): 249, <http://www.jstor.org/stable/29774031>.

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38 *Popular Astronomy*, "Research Astronomer Lost by Drowning," 448.

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42 Kohler, *Lords of the Fly*, 92, 98.

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44 Kohler, *Lords of the Fly*, 131.

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Universal and Specific Childrearing in the Twentieth Century

A Case Study of Black Child Care at the Intersection of Two
Histories

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IN 1971, JOANNE DANN PUT FORTH A PUBLIC APPEAL FOR A BLACK DR. SPOCK for Black mothers. She claimed that the urban Black mother had few of the resources that were available to the middle-class white mother—like her pediatrician, trained nursery school teacher, child psychologist or psychiatrist, and Spock. Dr. Benjamin Spock was viewed as “the baby doctor” of the twentieth century. In *Raising America*, Ann Hulbert provides a detailed account of the evolution of childrearing expertise in America and recalls that millions of Americans born in the 1950s “grew up in the long shadow of Dr. Spock.”¹ She claims that he was “the only expert to reign alone in the 20th century.”² Despite her praise, however, Dann’s article indicates that Dr. Spock was not “the baby doctor” for all groups of people, especially not for Black mothers. Still, Hulbert’s purportedly comprehensive account not only equates “American” with “white middle-class,” but also fails to discuss any childrearing expertise that concerned Black children.³ Initially one might think that such expertise didn’t exist. However, in 1975, Drs. James Comer and Alvin Poussaint responded to Dann’s article with the

publishing of *Black Child Care*, demonstrating that increased attention was given to raising the black child in the 1970s. *Black Child Care*'s contribution to the child rearing literature came at an important moment in the history of childrearing expertise and Black history during the 1970s. Attention to the intersection of these two histories and the reception of *Black Child Care* amongst scholars reveals that there were tensions in America regarding the goals of childrearing advice, the need for universal or specific advice, and the factors that established the universality or specificity of such advice.

The Intersection of the History of Childrearing Expertise and Black History in the 70s

Before exploring Comer and Pouissant's contribution to the child rearing literature during this important time for Black children, it is important to understand how childrearing expertise as a profession came to be and how it's supposed exclusion of Black mothers led to a need for a Black childcare book.

Throughout the first half of the twentieth century, there were inconsistencies regarding whether childrearing advice should have relied on so-called common sense or on expertise. This so-called common sense had historically been the dominant approach employed by mothers to raise their children. Grant defines common sense as "a 'cultural system' that purports to derive its principles from the practices of everyday life...[that] is no less a cultural construct than expertise itself."⁴ Its primary meaning prior to the 1920s was "grandma's theories of child-rearing," which were exactly those day-to-day strategies employed to raise those parents now seeking their own parental advice. Grant

quotes women who associated their parents' child rearing with concepts like repression of negative emotions, authoritarianism, corporal punishment, and even "ethnic old wives' tales" like "wiping babies' faces with their wet diapers to improve their complexions."⁵ Eventually, new mothers began to disregard these old ways. For some, their mothers' "rule of thumb practices" were simply too old-fashioned and did not reflect scientific knowledge.⁶ There began to be a shift from reliance on the grandma's common sense to the scientific expert's advice.

The development of childrearing expertise as a profession was no mere coincidence, but was greatly influenced by changing family structures and increased faith and praise in scientific knowledge. In *Raising Baby by the Book*, Julia Grant documents the rise of childrearing expertise and its rapport with mothers throughout the first half of the twentieth century. She states that during the 1920s, "women as a consumer group organized to demand child development expertise even before the profession was established, as they sought assistance in the increasingly complex and privatized enterprise of raising children."⁷ Their demand for childrearing expertise essentially created the profession. Still, they did not demand this expertise from people actually experienced in raising children themselves, but from men who were pediatricians and child psychologists and wrote baby books. Since American society was becoming "increasingly structured according to the mandates of scientific expertise," these men were viewed as the experts because they had the scientific knowledge on the mental and physical development of children that white middle-class mothers were seeking.⁸ And thus the scientific expertise of these pediatricians and psychologists was translated

into expertise on rearing children itself. It eventually became the primary approach utilized to raise children for decades to come.

Then, ironically and to the surprise of many parents and scientific authorities, one man challenged the notion that childrearing expertise and common sense were mutually exclusive. In his revolutionary book, *The Common Sense Book on Baby and Child Care*—published in 1946—child psychiatrist Benjamin Spock encouraged parents to rely less on science and more on common sense in his famous opening line, “Trust yourself. You know more than you think you do.”⁹ He also encouraged new parents to follow their own parents’ advice because they had the personal experiences. New parents’ instincts would probably come from their own upbringing anyhow.¹⁰ With a record-breaking sell rate of three quarters of a million copies in the first year and the fact that through the 1940s and 1950s, millions of middle-class parents had multiple copies of the book in their house, Dr. Spock became known as “the baby doctor” of the twentieth century.¹¹ At least for white middle-class parents. Especially for those mothers living in isolation from their parents, Spock’s book became a very important “mommy-substitute.”¹² A woman living on a Mississippi army base wrote to Dr. Spock, “I think your book is wonderful. Especially for a new mother away from home who doesn’t have her mother to run to every time something new arises.”¹³ For many middle-class suburban mothers, they lived too far from their mothers and grandmothers to rely on them for parental help.¹⁴ Grant notes that many of these mothers “confined to the home, with scant adult companionship... turned to women’s magazines and baby books for company, advice, and reassurance as they labored to rear their children.”¹⁵ While in

previous decades these mothers had turned to scientific expertise on their own accord, they were then compelled by new social conditions to rely on any advice that could match that of their mothers. For many, Dr. Spock provided that advice.

Despite his widespread popularity, there were some groups of American mothers who did not praise Dr. Spock, or any other expert. The above-described transition from the grandmother to the scientific knowledge holder as the child-rearing expert had not yet occurred with Black mothers. In a study to assess how mothers’ race, class, and education level related to their exposure to child-rearing literature, Zena Blau reported the results of asking mothers if they had read a later edition of Dr. Spock’s book, *Baby and Child Care*. Fewer Black mothers from the middle class (32 per cent) had read Dr. Spock’s book than white mothers from both the middle class (77 per cent) and working class (48 per cent). With 12 per cent having read Dr. Spock’s book, Black working class mothers constituted the smallest group of all the mothers. Grant reports Dr. Spock’s apparent frustration with Black mothers during the 1950s. While 95 percent of the mothers attending his family clinic at the Western Reserves were African American, few of them actually accepted his advice. In a letter to another child psychologist, he wrote that these mothers didn’t “seem to expect or want medical advice on infant feeding, weaning, toilet training, sleep arrangements, sleep problems.”¹⁶ They outright refused his advice. One reason is because, as Thomas Maier notes, they were merely attending the clinic to get a physical examination for their children.¹⁷ Furthermore, as Grant states, these “mothers knew more than Spock knew they did. They knew that Dr. Spock was not writing for them.”¹⁸ Joanne Dann quoted

urban black mothers who said that Dr. Spock was only for rich kids and that they were the only ones they could put their faith in.¹⁹ While Black mothers were aware of the parenting advice available, they did not feel that advice from a white doctor was applicable to them or their children.²⁰ Ironically, while many of them had not read Spock's book and refused to take his advice, they were indeed doing what he had encouraged mothers to do; they were following their own common sense.

Nonetheless, Blau found that overall "negro mothers [exposed] themselves less than white mothers to child-rearing literature and other sources of information, regardless of class position and, in most instances, of educational level."²¹ Thus, Black mothers were not specifically rejecting Dr. Spock's advice. They were rejecting the advice of all who claimed to have scientific expertise on child rearing. While the "middle-class white mother [tended] to accept norms and generalizations about child rearing...in the [black mother's] eyes the generalizations that they [rejected] fit white kids, not their kids growing up in crowded city blocks."²² Instead, the black mother "sensitive and caring deeply about her children...looks to her family, not to outsiders for the advice every mother needs...she consults her own mother, grandmother, aunt or sister when she's in doubt."²³ Not only did Black mothers reject childrearing advice from supposed scientific experts, but they also still relied heavily on family knowledge and tradition. Grant describes a survey conducted with African American mothers, in which the author determined that they were clueless about modern childrearing practices and still used their parents and grandparents' traditions.²⁴

Consequently, Dann's appeal for a Dr. Spock for Black mothers in the 1970s came as

a surprise to many. Its publication compels the question of what occurred for Black mothers to go from rejecting the expert's advice to there being a public appeal for one.²⁵ The answer lies in the improvement of the position of Black Americans during the 1970s. First, that Dann was even able to publish such an article demands attention. When Jim Crow hostility caused Blacks to be docile and complacent with their racist treatment in society for fear of the brutal consequences if they spoke out, Dann's article would have probably gone unheard or never published at all. Her ability to speak out on the belief that "Dr. Spock purveyed the kind of child-rearing advice appropriate for a white audience" could only be publicly expressed now that Black voices were becomingly increasingly represented in "mainstream discourse" compared to in the fifties.²⁶ This was largely due to the Civil Rights Act of 1964 and the continuing Civil Rights Movement.²⁷ These civil rights changes also led to a never-before-seen economic stability within the Black community in the early 1970s. With an unemployment rate of 6.7 percent in the 1970s, lower than in 1965 and lower than in 1975, the Black community had reached its economic peak during this time.²⁸

This "unprecedented expansion of the Black middle class" and "new level of black middle-class prosperity" heavily impacted the Black family structure.²⁹ Black family members began acquiring working positions that disabled them from providing the same family support that Black mothers had relied on. "Black mobility and the working grandmother [had] transformed [the black family] into a nuclear family of parents and child...[leaving] the mother, and the low-income mother in particular, stranded."³⁰ Now that the grandmother was working,

the mother could not rely on her continued presence to help raise her child. Even Comer expressed his fears that “changing family patterns within the African American community had weakened the extended family upon which mothers had relied.”³¹ Black mothers needed some sort of help, but since Black childrearing had been an ignored topic, there was no external help for them to turn to. Dann assumed that this weakened family structure necessitated the assistance of an expert.³² And in a revolutionary moment in history for Black children, the public appeal for a Black Dr. Spock received an answer. Two Black psychiatrists, Drs. James Comer and Alvin Poussaint, published *Black Child Care*.

In the introduction to the book, Poussaint and Comer claimed to have confidence in the “good sense” of parents and didn’t want them to “become dependent on this or any other book to the point that [they] didn’t think for [themselves].”³³ Still even with this “good sense,” it was possible to “lack certain insights into how children grow or why we as adults react to them in certain ways,” thus necessitating advice from the expert with scientific knowledge on the child’s development. Knowledge that Drs. Comer and Poussaint had. Fifty years after the rise of childrearing expertise as a profession, there were still incongruities concerning if children should have been raised using common sense or when rearing necessitated specific advice from the expert.

These co-authors acknowledged that Dann’s article “Wanted: A Dr. Spock for Black Parents” contributed to their realization that “both blacks and whites wanted to know about rearing black children, and thus the idea of this book emerged.”³⁴ Considering that Dr. Comer and Dr. Poussaint were in some sense

“responding” to Dr. Spock’s lack of specific advice for Black parents, I find it appropriate to compare and contrast the childrearing strategies that these doctors proposed to understand how Drs. Poussaint and Comer’s strategies were specifically beneficial for Black children.

Black Child Care and The Common Sense Book of Baby and Child Care

Attention to *Black Child Care* and *The Common Sense Book of Baby and Child Care* reveals discrepancies regarding the need for universal or specific childrearing practices. While Spock sought to provide universal childrearing advice, Comer and Poussaint challenged that more particular advice was needed when considering factors like race and other aspects of child development. All authors even gave specific advice concerning factors like fatherlessness and gender.

Black Child Care was written for all those “included in the important job of helping black children develop in a healthy way...beautiful and black.”³⁵ This “healthy way” involved positive social, psychological, and emotional development. Comer and Poussaint assigned themselves the task of providing a child-rearing approach that took into account important race and income-related issues.³⁶ To do this, they wrote a book in question-and-answer format to give advice on how to raise a confident Black child in a predominantly white and racist society that did not have their best interest at hand. The authors began with “America and the Black child,” a chapter in which they gave a brief account of the Black child’s place in society from slavery to the present day. Answering questions like “How were black children treated during slavery?”, “How have black

children fared since Emancipation?” and “How else does the black child’s welfare been influenced by social and economic factors?”, these authors sought to demonstrate that the social conditions in America had always made childhood a particularly tough time for Black children. In an interview with Dr. Poussaint, he expressed his dismay that the racism in Mississippi “didn’t look to spare Black children, or Black babies.”³⁷ He and Dr. Comer hoped that the book would provide answers on how to address these issues now that Blacks were no longer living during an era in which Jim Crow laws made victimization of Blacks legal, but still during an era of racism.

Comparisons of *Black Child Care* and *The Common Sense Book of Baby and Child Care* illustrate that while all authors sought to provide expertise advice on child development, the divisions lied in their discussions of different types of development. Dr. Spock primarily discussed physical development, while Drs. Poussaint and Comer mainly discussed social, psychological, and emotional development. Any parent could have used much of Dr. Spock’s universal strategies for physical development. However, it was not merely beliefs that his advice could only be utilized by white middle-class mothers, but his complete lack of discussion of the social conditions that affected the development of Black children that led to disuse of his book by urban Black mothers. What made *Black Child Care*’s childrearing strategies *particular* to Black children was that it included advice on how to foster positive social, psychological, and emotional development in Black children despite them living in a white racist society.

Examination of the books’ Table of Contents shows that they shared similarities, but were overall very different. The chapter titles of *Black Child Care* included “America

and the Black Child,” “The Black Child in School,” and “The Pre-School Child: Ages Two to Four.” The former two chapters show that some chapters specifically addressed the social issues of Black children. The latter chapter suggests that some social issues were universal and concerned any pre-school child. Still, one of the subchapters of “The Pre-School Child” was “Race and the Preschooler,” illustrating that even within some universal issues, these authors still deemed necessary specific prescriptions regarding race.

Discipline and Punishment

All three doctors agreed on universal approaches to discipline and punishment. In his chapter “Managing Young Children,” Dr. Spock discussed how discipline in the form of punishment should be used with precaution because it was not the most effective way to keep a child from misbehaving. Ultimately, he advised parents to “remember that what makes your child behave well is not threats or punishment but loving you for your agreeableness and respecting you for knowing your rights and his.”³⁸ Drs. Comer and Poussaint appear to have agreed with Dr. Spock to some degree. They too claimed that it was better for the child to be “helped to perform well without punishment.”³⁹ They believed that parents could “motivate [their] child to take responsibility for his behaviors in a way that spanking could never do,” because children would simply return to misbehaving believing that they had paid their debts with the actual act of being spanked.⁴⁰ However, Comer and Poussaint spent more time discussing spanking than Spock because they also discussed punishment as it pertained to race and sought to dismantle stereotypes about punishment in Black families. In

answering the question “Is it true that some child-care experts feel that black parents tend to be too strict,” they replied, “Yes. We believe that this is the case in too many families, although far from the majority.”⁴¹ They claimed that the stress of Black families often led to comments like “Get away from me, boy” and “Shut up.” On the question “Don’t many black parents feel that middle-income white parents are too permissive?” they replied, “Yes. We have heard this expressed among black parents of all income groups...we ourselves believe that too many middle-income people—more often than not white—have carried less strictness, sternness, less demand too far.”⁴² Drs. Poussaint and Comer recognized that there were different disciplinary strategies between Black and white parents. However they still prescribed the same disciplinary measures as Spock, advising that parents found the right balance between strictness and permissiveness. These doctors’ agreement on how to discipline children suggests that this parenting strategy was deemed universal.

The Fatherless Child

The topic of “fatherless child” was one of the most interesting because both books defined this child differently. In his subchapter, “The Fatherless Child,” Dr. Spock began “when a father is far away when his baby is born it doesn’t mean he can’t have a feeling of taking part in the baby’s care, or that the child will be seriously deprived.”⁴³ He went on to discuss how the mother should send lots of news and pictures when she was writing him and even ask his opinions on matters to make sure he felt like he had a part in raising his child. Considering that World War II had just ended in 1945, it appears that Spock may have been

considering a father who was away on war. He mentioned the possibility of the father being away as a result of death, but it is clear that he was primarily concerned with the absent, but involved, father.

On the contrary, Comer and Poussaint were not merely talking about a father who was “away,” yet still active in the child’s life. They described someone who was not involved in the child’s life whatsoever. When answering the question, “Can a child grow up to be healthy without a father?” they answered that it depended “on the mother’s ability to handle problems which [existed] when a male bread winner [was] not present.”⁴⁴ Their discussion of physical and financial absence meant that the father was not involved. Moreover, their focus on the topic of the fatherless child from the point of an altogether absent father reflected the discussions during the 1970s of Black family structures involving single female-headed households.⁴⁵ Dr. Poussaint notes the dramatic change in the Black family structures in the period between the early twentieth and late twentieth century. Quoting the Moynihan report, he recalled a change from 75% of Black families being two parent households to 75% of Black families being single headed.⁴⁶ Spock would not have been able to address this specific issue because it was not an issue of his time. However, his lack of discussion of even topics like the divorced family shows that he was not considering differences in family structures that may have required specific kinds of advice.

While all authors sought to prescribe universal advice for fatherless children—though their definitions were different—they also found it necessary to provide particular advice when it came to gender. Specifically, they warned about the matters of masculinity and femininity that could arise when mothers

raised fatherless sons. Spock cautioned that in any case of the fatherless child, if the mother spent all of her time on her son, and succeeded in “making her world more appealing to him...than the world of boys...then he may grow up precious and effeminate.”⁴⁷ Comer and Poussaint claimed that some single mothers “worked too hard to make their sons masculine...and in some rare cases, probably related to anger toward men, they make them ‘little girls.’”⁴⁸ While all the doctors encouraged mothers to trust their common sense, with the question of the fatherless son there appeared to be a distinction between the common sense of men and that of women. Thus even something supposedly universal like common sense needed particular attention when gender-related issues arose.

Fitting into the World/Society

While a discussion on fitting into society seems most relevant to social development, Comer and Poussaint, unlike Spock, believed that race required specific attention. In “Fitting into the Outside World,” Spock gave recommendations to help parents ensure that their children were making friends and could fit into larger society with skills like proper manners. However, there was no discussion about larger societal structures like those considered by Poussaint and Comer. In their chapter “The Preschooler and Society” the authors addressed questions like “What if my child seems overly aggressive with white children?” and “How can I tell if my child is being rejected for racial reasons?” For the latter question, they admitted that it was difficult to know, but that if a parent ever found that their child was being treated stereotypically or unfairly for what seemed like racial reasons, then it was appropriate to

remove them from the situation.⁴⁹ This sort of behavior was essential to the emotional and psychological well being of the Black child because they were being treated a certain way because they were Black. All of these authors addressed situations in which parents just needed universal advice for child’s play. Yet, Drs. Comer and Poussaint felt that for the Black child, sometimes play was not just play. It was racialized play and required special consideration. The authors’ prescriptions for these issues demonstrate their understanding that while some issues could be resolved with universal advice, others necessitated special attention.

The reception of Black Child Care

That *Black Child Care* was apparently such a revolutionary book for Black families necessitates attention to its reception. Dr. Poussaint recalls:

“The book sold very well...particularly to Black middle class parents. But it was also used almost as a textbook in community centers and so on where people were conducting parenting courses. And in fact, it helped propel the idea of parenting courses for Black mothers and fathers.”⁵⁰

He suggests that overall the Black community—specifically parents—welcomed the book. This may be the case, but my discussion will focus on published reviews, as those were the only ones I could obtain. While analysis of the strategies employed by Spock and Comer and Poussaint reveals discrepancies regarding universal versus particular childrearing strategies, analysis of *Black Child Care* reviews illustrates that

scholars also had different opinions on what constituted the universality of childrearing practices.⁵¹ While the discrepancies between these authors lied in their different definitions of child development, for others like the reviewers to be discussed, universal childrearing advice should have considered factors like socioeconomic class, the child's status as defined by the state (i.e. foster and adopted youth), mental health, etc. Even more, when some reviewers did agree on the social difficulties that Black children faced, they contested the ultimate goals of these childrearing strategies; this of course affected the specific child-rearing strategies they felt should have been employed. The following discussion of reviews written on *Black Child Care* reveals two tensions: the necessity for universal or specific childrearing strategies and the ultimate goals of child rearing.

In his review in the *New York Times*, educator and author Jim Haskins claimed that the book's intention was to identify the cultural biases of our society, explain how they could affect the development of Black children whether in ghetto or predominantly white middle-class environments—and to suggest ways to counter them.⁵² According to Haskins, all Black children regardless of class faced similar developmental issues because of the cultural biases of their society.⁵³ But more importantly, he distinguished between two different steps of child rearing. On one hand, there was the identification of cultural biases. On the other hand, there were the necessary approaches to deal with these biases as they pertained to the Black child's development. Herein lies much of the discrepancies between scholars about the most effective strategies in approaching childcare, and if Comer and Poussaint had actually identified them. Amongst scholars, there appeared to be

a consensus on the cultural biases that Black children faced. However there was tension about the strategies, or how to properly address those issues. This tension seemed to arise from different opinions about what the end goals of those parenting strategies were.

Some reviews on *Black Child Care* suggest that opinions about the appropriate end goals for raising Black children fall into the following two categories: 1) providing Black children with a sense of identity and self-esteem in a prejudice society and 2) teaching Black children the values and norms to assimilate into white middle-class culture. In Comer and Poussaint's introductory chapter they stated, "The responsibility of *all* parents is to help their children develop in a way that will equip them to function well as individuals, family members, and citizens."⁵⁴ They later went on to say, "We [black parents] ask ourselves to what extent is the adaptation [of white standards] compatible with black needs."⁵⁵ This statement suggests that they were ultimately trying to help Black families to adapt to white standards in a way that did not harm their children's emotional and psychological wellbeing because of their Black identities. Grant acknowledges, "parent education programs for immigrants and African-Americans served as a locus for the transmission of scientifically informed, middle-class child-rearing values to those who were considered ignorant of fundamental American social values."⁵⁶ So this idea that Blacks should be assimilated into mainstream white culture was not new. The real question I ask is about whether others believed that assimilation should have been the ultimate parenting goals of Black parents, with Comer and Poussaint's advice serving as a means to this end goal.

Social psychologists, Dr. Sandra Sims

best addresses this question in another review in the journal for the *National Association of Black Psychologists*. Sims' journal article was the longest and most detailed I encountered. Overall she was not very satisfied with *Black Child Care*. Her major critique of the book was its apparent assumption that "all parents, teachers, and others involved with the healthy development of Black children [aspired] to middle-class values, and accordingly, [suggested] child-rearing practices that [reflected] these values."⁵⁷ She called attention to the very important, but overlooked, question of what the objectives for raising Black children were. If Comer and Poussaint's goals were to show Black families how to aspire to white middle class values, then according to Sims, they had succeeded. However, she argued that the parenting goals of black parents "should be concerned [with] building strong, positive, Black self-concepts in our children first without relying on features and aspects of the white world."⁵⁸ She felt that Blacks could create their own concepts and models independent of mainstream white culture.

Because Dr. Sims believed that Comer and Poussaint's goals for Black children involved assimilation into this mainstream white culture, she further criticized that the book was "obviously not written for the greater mass of Black families, but for middle and upper income Black families."⁵⁹ Here she made important distinctions. She implied that the greater mass of Black families was not middle and upper income and furthermore that there was not one unified mass of Black families when it came to child rearing *strategies*. On the contrary she claimed that there were universal race related issues that Black children experienced everyday, "regardless of income level, and parents of the Black children need

guidelines about those "special ways" in dealing with such situations."⁶⁰ Still, because there was an economic division within the Black class, the *strategies* employed needed to consider income levels although the *issues* faced by Black children were nearly universal. She claimed that Comer and Poussaint successfully identified these issues, but did not properly address them considering class distinctions.

Overall, Dr. Sims was not very convinced by the book and criticized that "the book's strongest assets were discussions of child developmental issues that were not necessarily specific to Black children, but applicable to all children, regardless of race or income level."⁶¹ Dr. Sims was doing a few things here. She implied that Dr. Comer and Dr. Poussaint did not fulfill their mission of addressing child rearing as it pertained specifically to Black children. But she also indicated that child development issues were multi-faceted. Some issues were universal and applicable to all children based on physical development. According to her, these basic concepts included "motor control, language development...safety precautions...and problems specific to the infancy period" to name a few.⁶² Yet some child development matters should have specifically addressed different factors like race, class, etc.

Other reviews of this book held different opinions. Another reviewer from the Philadelphia Tribune, Marilyn Jewett, recalled, "until recently, books on child care have been written for middle-class white families, and white child behavior has been assumed to be the norm."⁶³ One of two important distinctions was being made here. Because of the single mention of "middle-class white" families and subsequent description of "white" children, the author

was either equating “middle-class white” with “white,” or she was claiming that the behavior of the white child was universal, irrespective of class. Attending to this distinction is important because it provides insight into what the author may have thought about Black children. Did she equate “Black” with a specific class or did she believe that there was a universal concept of the Black child, irrespective of race?

Subsequent analysis suggests that it was the latter case. She quoted the “eminent” Dr. Ward’s “enthusiastic” comment:

Black Child Care seems to have captured the universal concerns of Black parents in the questions used as well as embraced sound development principles and the essence of societal pressures on Black families in the answers. This combination is rare in any publication known to me.⁶⁴

Dr. Ward approved of Comer and Poussaint’s questions and answers to this book because they addressed racial and developmental principles, which she deemed the universal concerns of Black parents—these two principles alone. She did not mention class or any other factors for that matter. That Jewett quoted Dr. Ward in her own praise of the book suggests she agreed with her. Not surprisingly Jewett also failed to mention class in her review, except for the above-mentioned white middle class. In their opinions, childrearing strategies in the book that addressed race and development sufficed.

Lucia Robinson, from the New York Amsterdam, held similar views in her assertion that with *Black Child Care*, “Black parents, across all economic and social lines, can pick up a book that will help them with he ever-

growing problem of raising a healthy child in a still-unhealthy environment.”⁶⁵ Unlike Jewett, she actually mentioned socioeconomic lines as they pertain to race. But she still thought that despite these factors, the book applied to *all* Black families. That she thought the book applied to all Black parents despite only socioeconomic factors also implies that she considered the most important factors for universal childrearing practices to be racial and socioeconomic.

Interestingly, while Jewett stated that the book “[filled] a previously unmet need of Black parents” she also stated, “white parents could benefit from much of the advice in the rearing of their children.”⁶⁶ This unmet need that she spoke of was a result of, as already noted, previous books on child care that were written for middle class white families. The advice for these families did not and could not encompass the social needs of Black families. Hence the need for Dr. Comer and Poussaint’s book. However, she claimed that this book written for Black families could apply to white families, thus implying a unidirectional applicability of child rearing strategies. Still, she quoted one Harvard Professor who said, “The book will greatly benefit parents of any race.”⁶⁷ Jewett’s own contradiction and the subsequent discrepancies on how universal the child rearing strategies of Comer and Poussaint were further demonstrates the existing tension between the universality of child rearing strategies.

In a journal called *Social Work*, Jane Edwards pointed to another discrepancy about how Comer and Poussaint’s child-rearing strategies did not address all Black families because “the dividends it offers on every page make it the most extensive, almost inclusive guide written so far.”⁶⁸ It was only *almost* inclusive because it “unfortunately...

leaves out foster care despite the hundreds of thousands of Black children being reared this way.”⁶⁹ Edwards was the only one of the many reviewers I read to mention “other groups” of Black children left out of Comer and Poussaint’s book besides lower class Black children. She further went on to criticize that the authors, “both mental health practitioners, did not seize the opportunity to suggest to parents ways of getting professional help for their serious problems.”⁷⁰ Thus she thought that mental health was another specific factor that needed to be considered in childrearing advice.

Drs. Comer and Poussaint claimed that Dr. Spock did not address the social, psychological, and emotional needs of Black children living in a racist society. However, although their book aimed to address the needs of Black children, other scholars criticized that this book did not address the needs of *all* Black children because it excluded factors like socioeconomic status, foster and adopted youth, mental health issues, etc. These reviewers’ critiques that some of the advice in *Black Child Care* was not particular enough suggests that as Sims mentioned in her review, “it is difficult to write a child care book that will adequately address the needs and concerns of all Black families.”⁷¹ While Drs. Poussaint and Comer attempted to address the needs of all Black children, the above-mentioned comparisons between *Black Child Care* and *The Common Sense Book on Baby and Child Care* indicates that even when the authors meant to provide universal advice, they sometimes still ended being very particular. And vice versa. Thus the great debate still concerned when childrearing advice needed to be specific or universal and how to achieve such specificity and universality.

Conclusion

By tracing the history of childrearing expertise and its intersection with Black history in the 1970s, I aimed to use *Black Child Care* as a case study to demonstrate that the 20th century was an era of incongruities on when universal or specific child rearing practices were deemed necessary.

That Dr. Spock, Drs. Poussaint and Comer, and these reviewers all gave attention to specific characteristics of child rearing that were important to them demonstrates that people held very different ideas about the goals of child rearing and what factors constituted universal versus specific child rearing strategies. Even when authors have prescribed advice that they have found to be universal, some specific factor will have been ignored. And while Spock, and Comer and Poussaint tried to offer common sense as the remedy to this fact, even common sense sometimes ignored specific factors that required scientific expertise. Grant said it best with this comment:

“Race, class, and ethnicity are not the only salient factors affecting a woman’s approach to raising children, although they are highly significant. Even women from seemingly similar backgrounds may display striking differences in their child-rearing beliefs, an indication of the importance of such factors as age, region, religious affiliation, mother’s family of origin, education, marital situation, and individual temperament.”⁷²

She suggests that the goals of child rearing and how universal or specific these practices need to be depends on the family’s identity. This identity is complex and can be made up of an infinite combination of diverse factors. Thus no child rearing strategy could ever address *all* the needs of a child

when considering social factors. Yet over the last century we have been obsessed with child rearing and finding the answers to do it “right.” Even today, we constantly see new magazine articles and books being published that tell us we’ve been approaching child rearing all wrong and this author has the right answer.⁷³ Nevertheless, the history of child rearing expertise demonstrates rearing children requires consideration of a variety of factors—cultural and historical, social and personal, physical and psychological, and more. And as the number of social factors contributing to one’s identity continue to increase—such as sexual orientation, gender identification—to reflect the diversity of society, the childrearing literature will continuously need to be updated to reflect those changes. When it comes to raising children, there will always be new factors to consider and more work to do.

Notes

- 1 Anne Hulbert. *Raising America: Experts, Parents, and a Century of Advice About Children* (New York: Knopf, 2003), ix.
- 2 Ibid., 12.
- 3 Ibid., 364.
- 4 Ibid.
- 5 Ibid., 205
- 6 Ibid., 71.
- 7 Julia Grant. *Raising Baby by the Book the Education of American Mothers* (New Haven, Conn: Yale University Press, 1998), 6.
- 8 Ibid., 3; 4; 6.
- 9 Benjamin Spock. *The Common Sense Book of Baby and Child Care* (New York: Duell, Sloan and Pearce, 1946), 3.
- 10 Spock, “Values and Limits of Parent Education” as quoted by Hulbert, *Raising America*, 254.
- 11 Ibid., 12; 226.
- 12 Paraphrase from Grant, *Raising Baby by the Book*, 221. “Mommy-substitute” is not a term used by Grant.
- 13 Mrs. H.W. of Roela as quoted by Grant, *Raising Baby by the Book*, 221.
- 14 Ibid., 203.
- 15 Ibid.
- 16 Spock as quoted by Grant, *Raising Baby by the*, 225.
- 17 Thomas Maier. *Dr. Spock: An American Life* (New York: Harcourt Brace & Company, 1998), 255.
- 18 Grant, *Raising Baby by the Book*, 203.
- 19 Dann, “Dr. Spock for Black Mothers,” SM78.
- 20 Ibid., SM87.
- 21 Blau. “Exposure to Child-Rearing Experts,” 596.
- 22 Dann. “Dr. Spock for Black Mothers,” SM78.
- 23 Ibid.
- 24 Grant, *Raising Baby by the Book*, 226.
- 25 It is unclear if Dann’s appeal was made because she knew mothers were asking for such a type of advice. Rather it seems that her article was based on literature from Black psychiatrist who were starting to acknowledge that Black children needed different types of advice. SM78.
- 26 Grant, *Raising Baby by the Book*, 226.
- 27 The Civil Rights Act of 1964 outlawed discrimination based on race, color, sex, religion, and national origin in public places, voting registration, among other things.
- 28 Grant, *Raising Baby by the Book*, 33.
- 29 Laretta Henderson. “‘Ebony Jr!’ And ‘Soul Food’: The Construction of Middle-Class African American Identity through the Use of Traditional Southern Foodways.” *MELUS* 32, no. 4 (December 1, 2007): 81.
- 30 Dann, “Dr. Spock for Black Mothers,” SM78.
- 31 Comer as quoted by Grant, *Raising Baby by the*, 226.

32 While the absence of the grandmother's assistance in the home did not directly necessitate expertise advice, the point is that now that family members were working and couldn't help, Black mothers needed help from somewhere. Since the rearing of Black children had been previously ignored, they had nowhere to turn to for help. Dann, aware of the childrearing literature movement with white families, probably suggested an expert for Black parents because that is where her knowledge lied.

33 James P Comer and Alvin F Poussaint. *Black Child Care: How to Bring up a Healthy Black Child in America: A Guide to Emotional and Psychological Development* (New York: Simon and Schuster, 1975),4.

34 Comer and Poussaint, *Black Child Care*, 1.

35 Ibid.

36 Ibid., 4.

37 Dr. Alvin Poussaint, telephone conversation with author, November 21, 2014.

38 Spock, *The Common Sense Book*, 272. Spock also says, "If you seem to be needing to punish your child frequently...you need a wise outsider to help you—a child's psychiatrist...a very understanding and successful teacher." Again we see the discrepancy between when child rearing can rely on common sense as opposed to on the expert.

39 Comer & Poussaint, *Black Child Care*, 71.

40 Ibid., 51.

41 Ibid., 55.

42 Ibid.

43 Spock, *The Common Sense Book*, 488.

44 Ibid., 102.

45 Frank F. Furstenberg, Jr., Theodore Hershberg, and John Modell. "The Origins of the Female-Headed Black Family: The Impact of the Urban Experience." *The Journal of Interdisciplinary History* 6, no. 2 (October 1, 1975): 213.

46 Dr. Alvin Poussaint, telephone conversation with author, November 21, 2014.

47 Spock, *The Common Sense Book*, 492.

48 Comer & Poussaint, *Black Child Care*, 103.

49 Comer & Poussaint, *Black Child Care*, 91.

50 Dr. Alvin Poussaint, telephone conversation with author, November 21, 2014.

51 Scholarly reviews are used here because readers' letters on *Black Child Care* were inaccessible.

52 Jim Haskins. "Black Child Care." *New York Times*, (June 15, 1975): BR8.

53 Jim Haskins does not specify what he means by cultural biases, but I ascertain that "cultural biases" is a euphemism for "racism."

54 Comer & Poussaint, *Black Child Care*, 1.

55 Ibid., 3.

56 Grant, *Raising Baby by the*, 89.

57 Sandra Sims. "Black Child Care by James P. Comer and Alvin F. Poussaint (Book Review)." *National Association of Black Psychologists*, no. 1 (1977): 123.

58 Ibid., 118.

59 Ibid., 115.

60 Ibid., 116.

61 Ibid., 115.

62 Ibid., 117.

63 Marilyn Jewett. "Black Child Care,' a New Book for Black Parents." *Philadelphia Tribune* (May 31, 1975): p 13.

64 Ibid.

65 Lucia Robinson. "A Book Review." *New York Amsterdam* (July 2, 1975): B14.

66 Jewett, "Black Child Care," 13.

67 Ibid.

68 Jane D Edwards. "Review of The Case of the Black Family: A Sociological Inquiry by Jerold Heiss; Young Inner City Families: Development of Ego Under Stress by Margaret Lawrence; Black Child Care: How to Bring Up a Healthy Black Child in America: A Guide to Emotional and Psychological Development by James P. Comer; Alvin F. Poussaint." *Social Work* 20, no. 6 (November 1, 1975): 495.

69 Ibid.

70 Ibid.

71 Sims, "Black Child Care," 123.

72 Grant, "Raising Baby by the Book," 6.

73 *Parents*, 2014, <http://www.parents.com/parents-magazine/>.

