

David Prince was a leading surgeon in plastic surgery and orthopedics in the nineteenth century when medical specialties were not common. His work ultimately received international recognition.

DAVID PRINCE PIONEER SURGEON

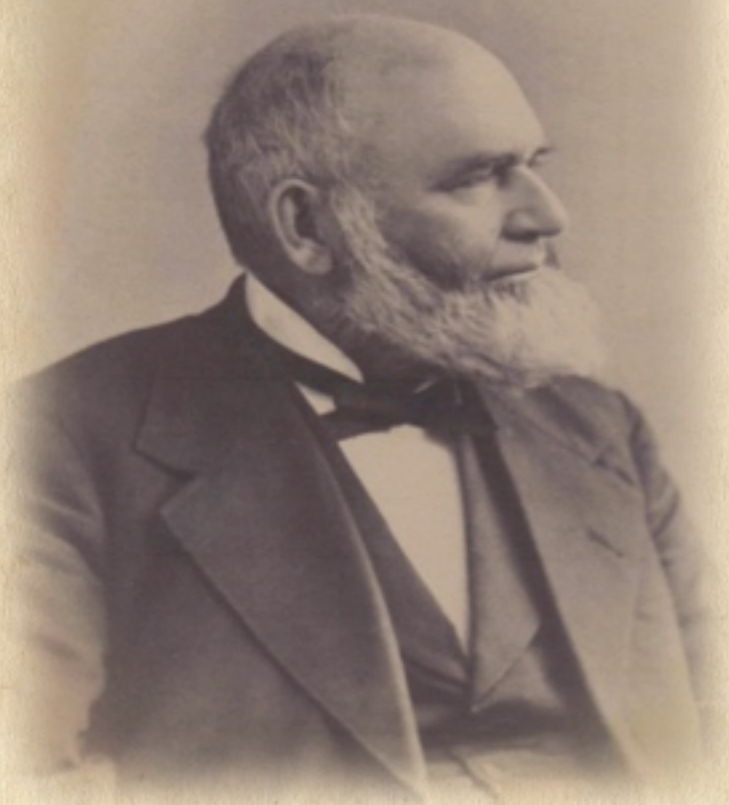
By Robert Berry

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**DAVID PRINCE
PIONEER SURGEON**



ROBERT BERRY

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I

Fairfield Medical School

“It is creditable to the professors of Fairfield, several of whom are not unknown to fame, that they are able in a village to attract larger classes than their brethren of the great city, who have over them so many natural and statistical advantages.”
The Western Journal, 1837

David Prince, as an adult, was of short stature “with a head that was large in proportion to his body and had an open countenance.” He is described as “remarkably strong and rugged.” Known to be blunt and direct, he was also approachable by patients and students as well as by other physicians. He was active in community affairs and had a deep interest in politics at the local, state and national levels. These characteristics are reflective of the people close to him, beginning with his father, David Prince Sr., and later his mentor Reuben Mussey.¹

More is known about Prince’s medical education than his early preparation. His father was a farmer in Brooklyn, Connecticut when David Jr., the first of six children, was born in 1816. The family’s New England history is traced to 1662. David Prince was at least the seventh in his family to be given that name. His mother, Sophia Ellsworth Prince, was a relative of William W. Ellsworth, who served as governor of Connecticut from 1838 to 1842. David’s youngest brother, Edward, born in 1832, served with distinction as a lieutenant colonel in the Seventh Illinois Cavalry during the Civil War. Edward was inspired perhaps by

his grandfather, Maj. Timothy Prince, who served in the Revolutionary War.²

The family moved before David's fourth birthday to Bloomfield, New York, twenty-four miles southeast of Rochester in the Finger Lakes district. Western New York was a popular destination for many Connecticut families seeking better lives. They named several villages after ones they left in Connecticut. Prince received a high school education at Canandaigua Academy, a private school for boys founded in 1791 near Bloomfield. He attended classes in the winter and worked on his father's farm the rest of the year.³

Prince was nineteen when he graduated from the academy in 1835. His father decided that year to move farther west, relocating in Payson, Illinois, about twenty miles southeast of Quincy. Members of Sophia Prince's extended family had settled in Payson previously. Preparations for the move included loading a wagon with merchandise to sell when his father would open the first dry goods store in Payson.

David Prince Jr. did not leave with his family. He decided to pursue a career in medicine and enrolled in the College of Physicians and Surgeons of the Western District of New York in Fairfield, east of Utica. The school was commonly referred to as the Fairfield Medical School. At the time, Fairfield Medical School terms lasted twelve weeks each. The school charged students \$157 for a room, \$1.25 a week for board and \$7 for use of the library. Research reveals few details of Prince's financial arrangements, except that he did odd jobs in the summer and received aid from a family friend when he moved to Fairfield. He also may have qualified for the school's policy of accepting indigent students. Prince spent two years at Fairfield, but left before graduating to follow Dr. Reuben Mussey to the Medical College of Ohio in Cincinnati.⁴

A Prince biographer characterized him as having wide interests and being widely read. A book from his extensive personal library is inscribed on the front page: “D. Prince, Jr. Fairfield Oct 1836.” The book by Baron Dominique Jean Larrey (1766-1842) is *Observations on Wounds, and Their Complications by Erysipelas, Gangrene and Tetanus, and on the Principal Diseases and Injuries of the Head, Ear, and Eye*. The English translation was published in Philadelphia in 1832. Baron Larrey, a close friend of Napoleon, served in the Napoleonic Wars as chief surgeon of the Grand Army. The text gives detailed descriptions of a variety of surgical procedures in hospitals and on battlefields. Larrey is noted for creating a system of ambulances and moveable hospitals where he and his assistant surgeons performed operations. Especially noted is his belief that lives could be saved by performing amputations on the battlefield in the heat of battle, instead of waiting for the battle to be over to tend the wounded.⁵

In the first chapter of *Observations on Wounds*, focusing on gunshot wounds, Larrey describes his justification: “I never, from the first commencement of the hostilities of that war, dreaded to carry the comforts of my art in the midst of the combatants. It was then that I created those light, itinerant hospitals, which have so much reduced the number of victims to the deadly blows of the fatal sisters; and it was then, also, on the fields of glory and carnage, if I may venture thus to express myself, that I became convinced of the necessity of operating, immediately, upon those whose limbs had been mutilated or destroyed by projectile weapons.”⁶

Fairfield Medical School began to confer medical degrees when it was chartered in 1812. Enrollment grew, and the school attracted talented physicians, many from New England. Among

the notable professors when Prince attended, in addition to Mussey, were Lyman Spalding, George Shattuck, John Delamater and Frank Hamilton, later a U.S. medical inspector who specialized in fractures. Fairfield graduates were in demand as the western population grew. At the same time, the faculty was being recruited by other schools.⁷

Spalding was widely known for his abilities as a physician, surgeon, lecturer and teacher. He led the convention that released the first publication of *United States Pharmacopeia* (1820). His presence on the faculty was important for recruitment. Spalding stressed the importance of dissection as essential to the study of anatomy and surgery. Josiah Noyes, Fairfield's distinguished professor of chemistry, mineralogy and materia medica, recruited Spalding in a letter dated October 2, 1810 wherein he described the academy's medical department and proposed school of medicine:

The number of students besides Medical Students is generally from 90 to 115. It is expected that the Academy and Medical Institution connected will take the name of College soon. The instruction at present is about the same as is given in the most respectable college in the United States. There is, besides, one Tutor and an assistant who attends to the lower branches. We have three buildings, one of stone called the Laboratory, containing 14 elegant rooms. There are two lecturing rooms, one for Anatomy, and another for lectures on Chemistry. These two rooms perhaps are better than any others built for the same purpose in the United States, except Philadelphia. Our Chemical Apparatus is more complete than any in the City of New York, and

*the Anatomical Museum is equal to Nathan Smith's at Dartmouth.*⁸

Prince's professional interest in dissection first developed at Fairfield. Spalding, distinguished professor of anatomy and surgery, had been a student and colleague of Dartmouth Medical School founder Nathan Smith. Smith taught that experience was more important than theory in the study of anatomy. As a result, dissection became a focus of anatomy classes at Fairfield. In an 1816 letter Spalding mentioned he had performed fourteen dissections during the previous school year.⁹

As with all medical schools in the eighteenth and nineteenth centuries, Fairfield had difficulties from time to time getting "subjects" for dissection. Instructors usually were responsible for procurement, but Fairfield also employed an administrator to supply bodies for dissection. The school's policy held that students could not obtain dissecting material without the administrator's approval. Nevertheless, enterprising students were known to engage in grave robbing that had dangers beyond sparking the anger of families and the community. On one occasion, some students contracted smallpox from a cadaver whose death apparently was caused by the disease. In 1826, Fairfield was granted permission by the New York legislature to obtain the bodies of executed criminals from Auburn State Prison. That arrangement was ended in 1833 because of political machinations by competing medical schools.¹⁰

By the time Prince enrolled in 1836, Fairfield's winter term had been reduced to twelve weeks, and dissection material was in short supply. At Fairfield, Prince became acquainted with two students who became lifelong friends and colleagues: Nathan Smith Davis, who was involved in organizing Northwestern University Medical School, and Daniel Brainard, who started Rush Medical College in Chicago. All three were involved with

establishing the Illinois State Medical Society. They helped lead the effort to establish legal ways for medical schools in Illinois to obtain cadavers. They also sought legislation to license Illinois physicians who graduated from chartered medical schools to set them apart from quacks.

Fairfield Medical School closed in 1841, merging partly with Albany Medical College and partly with Geneva Medical College. Fairfield had given instruction to 3,123 students and graduated 589. The last class numbered 164, thirty of whom were graduates.¹¹

Prince had already moved on. While at Fairfield, Prince became impressed with Mussey, who at the time was professor of anatomy and surgery. Prince followed Mussey when Mussey left in 1837 to teach at the Medical College of Ohio in Cincinnati.

Prince visited his parents in Illinois before entering the Ohio school. Prince's cousin, Philo Thompson, mentioned Prince's visit to Payson in a letter to his brother Samuel Thompson in Connecticut: "Dr. David Prince is here practicing his profession, makes himself quite useful – no other physician in the place – he is really a fine young man."¹²

A year later, Prince's sister Mary wrote to her cousin (Philo's sister Emily) in Connecticut: "Brother David is going to start for Cincinnati tomorrow to spend six months. He has very good success here. We shall miss him very much so. There is no Physician in this place at present – it has been rather unhealthy during the warm season."¹³

ENDNOTES

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⁵ Ross, J. C., M.D., M.CH. "Napoleon's Chief Surgeon and His Times." *The Ulster Medical Journal*. 104.

⁶ Larrey, Baron Dominique Jean. *Observations on Wounds, and Their Complications by Erysipelas, Gangrene and Tetanus, and on the Principal Diseases and Injuries of the Head, Ear, and Eye*. Philadelphia. 1832. 1. This book is the first of three volumes under the title of *Clinique Chirurgicale*, published in Paris from 1829-1830. It is one of the seventy-one books returned to Illinois College in 2013 from the 1941 donation to the American College of Surgeons by the Morgan County Medical Society.

⁷ O'Donnell. *Tip of the Hill*. 50-58.

⁸ Spalding, Dr. James Alfred. *Dr. Lyman Spalding*. Boston. W.M. Leonard, Publisher. 1916 195.

⁹ Spalding, James. 241.

¹⁰ Spalding, James. 238. Letter from Willoughby to Spalding, Jan 27, 1816; O'Donnell. *Tip of the Hill*. 111, 241.

¹¹ Spalding, James. 242; Polk's Medical Register and Directory of North America. 1914-1915 Thirteenth Revised Edition. Publisher: R. L. Polk & Co., Publishers-Detroit, New York, Chicago. Copyright: 1914.

¹² Philo Thompson to Samuel Thompson. September 20, 1837. Scarborough, Jared. Payson, Illinois. Family papers and letters. David Prince was related to the Scarborough family through his mother's aunt, who married into the Scarborough family.

¹³ Mary Prince to Emily Thompson. September 1838. Jared Scarborough Family papers and letters.

VII

Libby Prison and Aftermath

“While the wounded remained near the battle fields, they were under the orders of Gen. Lee and his subordinates, characterized with some of the elements of magnanimity. This could be better appreciated after arriving in Richmond and coming under the tender mercies of Gen. Winder under whose administration of affairs on prisoners we have subsequently had the horrors of Andersonville.”

David Prince, “Medical notes
of the Peninsular Campaign 1862”

The Battle of Malvern Hill ended July 1, 1862, with Gen. George McClellan’s forces retreating to Harrison’s Landing on the James River, where they stayed for six weeks until called back to Washington.

David Prince had moved with the army to Harrison’s Landing after the Union defeat at Savage’s Station on June 29. A small number of the sick and wounded were able to be included in the retreat, but several hundred more were left behind to be captured. Two days after the defeat at Malvern Hill, Prince wrote to Confederate General J.E.B. Stuart, volunteering to be a prisoner with the sick and wounded at Hoxall’s Landing.

*In the Vicinity of Battlefield of July 1,
Near the James River, Thursday July 3, 1862*

Brigadier General Stuart, Commanding C.S. Army

SIR: It is proper for me to state to you that while the U.S. Army was retreating during the night of the first of July, it became known to me that a hospital depot containing over a hundred men too severely wounded to follow the army would be left without any care whatever. I chose to remain with them to do what I could to care for them, and the following enlisted men (most of whom had been connected with the hospital depot before) volunteered to remain with me and throw themselves upon the magnanimity of the government of the Confederate States: [list of Union names and units included].

All but the first three of these and the fifth making four in all were taken from us yesterday as prisoners of war.

We are without food, and if attendants and food are not sent to us, we must starve.

Respectfully yours,

David Prince, Brigade Surgeon, U.S. Volunteer.”¹

Prince wrote about the confusion that enveloped the Union Army after Malvern Hill in his report to the U.S. Sanitary Commission after the war. Prince and two other Army surgeons, Drs. Hammond and Milhaus, had set up a hospital in a two-story house near the James River.

An ambulance load of canned soup, condense milk and other nutrients and appetizers ... were prepared for administration to the men –

exhausted by hardship and hunger as well as the lack of blood and the shock of injuries, but another ambulance filled with rice, sugar, coffee and crackers was turned back in the chaos of the retreat.

It was in the vexation of this disappointment that I saw a long train of ambulances come out from a field near McClellan's headquarters on the river bank and go empty down the road as a part of the grand retreat. For every one of these departing empty ambulances from two to four men went to Richmond who with ordinary management might have been got upon boats and sent north.

Having thus full notice of the retreat of the Army I succeeded by dint of much waiting and perseverance in getting my horse up the road to my hospital. After an hour consultation was had by the medical officers the result of which was many consented to remain with the men and share their fate. After they had gone with the Army and daylight had appeared, I walked over to the house where I had the day before seen Dr. Hammond and Milhaus consulting about the establishment of a hospital. The floors were filled with men having all kinds of wounds, but every medical officer and every nurse had deserted. At first sights there appeared to be but one man with two sound hands and good lower limbs capable of waiting upon the rest and he was a faithful white servant waiting upon a wounded Major who soon

died. As the morning waned however several skulkers came out of their holes and gladly joined the column which continued its retreat down the road, the rear guard remaining until ten o'clock in the morning. For two or three days, however skulkers continued to come out of the woods inquiring for their Regiment, pretending to have had colic or some other equally grave malady.²

Prince and the other physicians sent away all the ambulatory soldiers, which left them with 110 men too severely wounded to walk. That afternoon, however, Stuart's cavalry sent seven of Prince's ten nurses to prison in Richmond.

To Richmond

At this point I went to Richmond. It was as much as the confederates could do to bury the dead and feed the living and carry away their own wounded without stopping for the tender offices of nursing Yankee soldiers.

The journey of the men to Richmond was in Army wagons. They came without straw but as we were at the side of a field of wheat which had just been harvested, we succeeded in getting some of this unthreshed wheat into the wagons. Some of the straw was carried into our prison in Richmond, but its place was never supplied. When this became stale and unfit for use the naked floor was the cleaner resort. It was no little surprise that I looked on and saw the beginning of the packing of this room.

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WOUNDED PRISONERS Richmond Dispatch,
7/8/1862

Two hundred wounded Federal soldiers were brought to this city yesterday, in ambulances, from a place called Hoxall's Landing, on James River, and were lodged in the C. S. Hospital. Many of them are wounded desperately, and can hardly hope to recover, while a number have lost either a leg or an arm, and in some individual instances both. Several hundred more, in like condition, will be brought in to-day. The following wounded officers were in the batch that arrived yesterday, viz: S. J. Thompson, Capt. Co. F, 22d Mass.; C. A. Woodworth, Capt. Co. H, 44th N.Y.; C. A. Jones, 2d Lt. Co. E, 1st U.S. Sharpshooters; Chas. Brestele, Capt. Co. C, 7th N.Y. Vols.; Jas. Brown, 2d Lt. Co. A, 62d Penn.; John Pullard, Capt. Co. E, 5th Michigan, Stephen Lang, 2d Lt. Co. E, 7th N. Y. Vols., (leg amputated on the battle-field,) David Prince, Brigade Surgeon U. S. Vols.; Ro. Allen, Jr.; 1st Lt. 1st U. S. Regular Cavalry.



FIGURE 3: Libby Prison, Richmond, Virginia. Gordon Granger. 1865. Library of Congress.

The Confederate government purchased three contiguous warehouses on a canal overlooking the James River from merchant Luther Libby in March 1862 and converted them to a prison. Libby Prison held captured Union officers. Enlisted prisoners were housed in tents on nearby Belle Isle. Conditions were primitive, although Prince credited Confederate administrators with making some efforts toward basic comforts. Prince's first step after arriving at Libby was to clean it up, as best he could.

Seizing some stumps of what had been splints made into brooms, and placing them in the hands of my aids or nurses who had been allowed to accompany the train, and calling in aid my old nurses who had been driven off and shut up in the same building, the dirt was partially removed from the place the next man was to occupy, before he got there.

This was a hospital – Hospital No 4. I inquired of the lieutenant of the guard how soon rations would be forwarded to the men. 'Have you made your requisition?' said he. This astonished me that under the authority of the confederacy I should be expected to make requisition for everything these men could get: except water. Let the rebels in Richmond be praised, even though the soul of Gen. Winder should get a share, for having introduced a liberal supply of water into all the Richmond prisons. This came from the James River some miles above, through the general supply for the City.

This water kept off erysipelas and gangrene affording the means of rinsing the dressing to any extent though if contagion has one got into them, we had no boiling water with which to destroy its presence in the dressing, which could be thrown away. The appliances of my 'Hospital' was a floor upon to lie and lucky was the man who had a blanket of his own, else went without: a water cock in one end of the room flowing into a trough then exit pipe from which could be plugged so as to connect it with a wash tub, a sink in the basement to which those who could walk could go, and a hospital knapsack and its contents which we carried with us. But there were urgent necessities of urination and defecation. Some old bottles and pans used for this purpose in the field hospital had been left behind under the supposition that in a Richmond Hospital, similar appliances would be furnished.

I obtained from the lieutenant of the guard permission to go out into the city to see if I could buy some of these indispensables. After searching a long distance (accompanied by a confederate soldier walking behind me with a musket) I succeeded in purchasing three or four bottles for usuals and a couple of stoneware pans, in place of the regular appliances.

The theoretic daily ration for the men was a pound of bread and a pound of meat supplied in two meals, the work of the cooking and

distribution being done by union prisoners. This was of a good quality generally.

Later in this prison hospital some opium combined with other medicine were obtained from the medical supply in the Hospital in the Libby prison proper, and later our nurses were packed up and carried to a much less comfortable place without any apparent reason, and with none assigned. This of course made a new combination of patients, taking from new ones that I had taken an interest in and giving me many others that I had never seen before, breaking up all systems by which each nurse was held responsible for his men, and producing general confusion and discouragement.

It might as well be somewhere said for the benefit of those who have no other means of knowing that camp lice delighting in the seat-perfume of long worn garments are very little disturbed by cold water bathing. They are quiet for a while but as soon as the water has the time to dry off, they are as nimble as ever.

Living among the seams and other hiding places of the clothing and only going upon the persons for meals for which that have as is now the custom for oil and salt, and multiplying with wonderful rapidity in their fastnesses. Benzenes would probably be effective as it is to other parasites but they are not known to have been tried in Richmond.

A prisoner deprived of the use of hot water soon learns to appreciate the anti-lice performance of picking. Grounded upon their native leaning against the wall or a post, the whole congregation may be seen two or three times a day, with heads depressed like catholic devotees counting their beads, only that instead of beads rapidly fingered from one portion of a string to another, the rapid succession of audible snaps, indicates the destruction of life by the method of squeezing between two thumb nails. Continued picking keeps down the increase but the parasites are on the floor, walls and ceiling in their peregrinations in search of a better pasturage and they thus make their approach from every direction.

Woe be to the sick man whose energy is insufficient for the divine exercise of extermination, for though half dead, he soon becomes alive with new phenomena of motion, reaching up his garments gray with a new life drawn from his own blood. Prisoners who were ill, as opposed to wounded, suffered most.

It was horrible to see in these sad fights some of the men for whom their medical officers had in vain sought the privilege of sending them to the rear before the seven days fighting. ... Poor creatures, had they been struck with bombs or bullets instead of dysentery and fever, they might have gone to the hospitable shores of the North instead of the lice dens of Richmond.³

Prince spent twenty-four days in Confederate custody, including nineteen days at Libby Prison. He and twenty-two other Union surgeons and assistant surgeons were exchanged for about seventy Confederate physicians. The exchange agreement required that released prisoners not return to the battlefield, so Prince resigned from the Union Army on September 22, 1862.

“Dr. Prince – We learn with great pleasure that Dr. Prince, who was taken prisoner at Richmond, has been released and is again at his post of duty. The report that he was wounded is incorrect.”

Jacksonville Journal, August 2, 1862

“Dr. Prince. This gentleman who has been in the service since the commencement of the war as Surgeon, and for a time prisoner in Virginia, we learn, has resigned and is once more enjoying the privileges of civil life in our midst.”

Jacksonville Journal, October 30, 1862

Prince Returns Home

David Prince returned to Jacksonville in October 1862 and quickly re-established his medical practice. He published his card in the November 5, 1862 issue of the *Jacksonville Journal*. In addition to his regular medical duties, Prince served as an Illinois draft board surgeon from May 1 to August 1, 1863 (the military draft in Illinois ended in September 1863).⁴ He also began to refine his thoughts about ways doctors could have provided better care to their military patients, focusing on the importance of proper ventilation.

When the war ended in 1865, the U.S. Sanitary Commission invited medical men in each state to provide material for publication of *Hygienic Medical and Surgical History of the War*. From September to December 1865, Prince was hired for ten dollars a day to recruit contributions from doctors in Pennsylvania, West Virginia, and Maryland. Also, as part of the medical history, Prince prepared reports on his experiences in the war based on notes in his personal diary. Much of his report involved his role with the Army of the Potomac, published under the title “Medical Notes of the Peninsula Campaign.” The complete text is included in the twenty-five volumes of *Surgical Memoirs War of the Rebellion, Collected and Published by the United States Sanitary Commission* (1871).

Prince’s essays covered subjects ranging from skull injuries to foot amputations, sometimes including brief descriptions of other physicians’ unique methods. His reports contained minute details of many topics, none more comprehensive than an essay on “Posture Dressings and the Daily Care of Wounded Parts.” “This subject must be one of the most important in Surgery and most worthy of full elucidation, especially in the relations, as it involves the form and principles of what is to be done every day and every hour to save life and to avoid deformity,” he wrote. The material from many of these reports was later published in medical journals. In addition to the Peninsula Campaign reports, Prince submitted other documents describing battlefield surgical procedures performed by him and others.

Early in 1865, Prince corresponded with Dr. John Snyder, who had recently settled in Virginia, Illinois. Their letters discussed patient cases and sharing of medical books. Snyder (1865-1921) was born in Belleville, Illinois and graduated from MacDonald’s Medical School in St. Louis in 1853. While starting

a practice in Illinois, he also was involved in Democratic state politics (a topic of interest to Prince). During the Civil War, Snyder served as a line officer with Confederate forces from southern Missouri. After the war, Snyder returned to Illinois to find a place to establish a practice. Petitioners in Virginia wished to have him “because the only good doctor in Virginia was Republican.” As a member of the Illinois legislature in 1878, Snyder supported the creation of the Illinois Historical Library. He also helped establish the Illinois State Historical Society and served as its third president in 1903.⁵

In a June 25, 1865 letter to Snyder, Prince shared a personal note: “I am going to be absent from Jacksonville for a while and perhaps permanently. I am soon going with the employment of the Sanitary Commission in making up its statistics and other information of a hygienic and medical character with reference to publication. It is probable that I shall change my place of residence when I am through with that work.”⁶

In his travels for the USSC, Prince kept in regular contact with Dr. Elisha Harris, secretary of the Sanitary Commission, through registered mail and occasional trips to the New York office. Sanitary Commission records show Prince sent Harris nineteen letters and seven essays. Prince was provided with a list of doctors and their locations. In addition to interviewing doctors, Prince distributed a circular that noted the information would be collected and revised in order not to interfere with the history being prepared by the Medical Bureau of Washington. The circular listed four areas of interest: I. Organization and character of volunteer forces in battle. II. Military hygiene and camp diseases in the field, hospitals, and naval vessels. III. Surgery of the war. IV. hospitals, ambulances, water transportation and

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battle field succor, with the history of improvements in methods and appliances.⁷

Hamburg Sunday ^{Evening} 24th 1865
Dr C Harris
New York Dear Sir
Dr George Brock of
Hamburg formerly Prof
Surgery in Philadelphia Med
ical College and a man
of good acquirements and
very considerable Surgical
reputation in this part of
the Country and whose mili
tary experience has been
in connexion with the Camp
at this place presents a

Communication upon
Ophthalmic and
Venereal diseases
I have no doubt he
will give us a valuable
Communication
He says that he was
once engaged in preparing
a work on Surgery but his
health failed after he had
advanced a good way in
his task, and he had been
don it.
Yours Truly
David Prince

FIGURE 4: David Prince to Elisha Harris. September 24, 1865.

More than once, Prince requested additional circulars in packages to be picked up at USSC offices in hospitals, among them two hundred for Philadelphia and sixty to one hundred he anticipated needing for Maryland. Letters Prince sent to Harris indicated “there is much interest in our enterprise.” His encounters with doctors varied greatly. He described one doctor as “considerably talented,” but also “indolently inclined.” The physician told Prince he did not keep notes. Another, however,

had done extensive medical writing and told Prince he might submit as many as two hundred papers about surgery that was “carefully observed.” In Harrisburg, a doctor suggested Prince contact Dr. Cresson Stiles at Kisp Hospital in Long Island, who was described as “a careful observer and a good writer.” At least one doctor inquired about compensation and was referred to Harris for an answer.⁸

In his travels for the Sanitary Commission, Prince had long train rides with time to reflect on his personal experiences. One issue on his mind was the unhealthy conditions he reported on in Washington, D.C. in January 1862. Prince noted the contribution of overcrowding and lack of ventilation to high rates of sickness among Union soldiers. The incidents he saw in Washington and throughout the Peninsula Campaign contributed to Prince’s later preoccupation with the importance of air quality and ventilation to his patients’ chances for recuperation.

Prince wrote an out-of-the-ordinary letter to Harris during a long wait for a connection at the junction of the Northern Central and Gettysburg Railroad in Pennsylvania on September 28, 1865. The letter included a drawing of a patient on a bed with a crude ventilating system; Prince called it a “homely picture” of a sleeping patient.

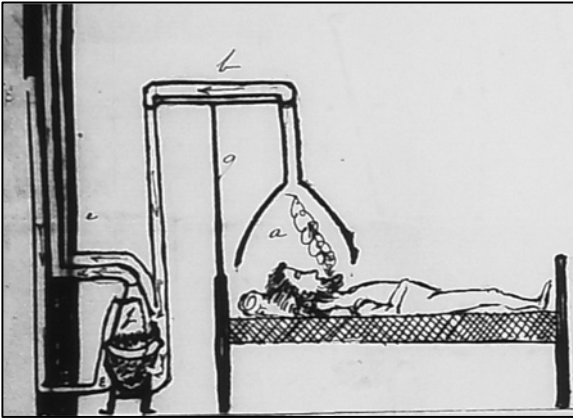


FIGURE 5: Ventilator drawing in David Prince to Elisha Harris. September 28, 1865.

His description lists: “a) a funnel receiving the expired air; b) Tube leading off supported by the rest; c) Flue carrying away so much of the vitiated air as back to enter stove; d) smoke pipe represented alongside of the other but better enclosed by the vitiated air flue; e) Entrance of outdoor air which is more pure if brought from a height from the ground to be free from emanations; f) a common stove covered in front by an apron which obliges it to receive its air for combustion from the tubes to carrying vitiated air. This enters the vent below as well as the opening above the flames when opened to moderate the heat. The remainder of this vitiated air goes up the tube c. (What is represented here as being done for one room may be done for a whole house by conducting tubes to the furnace in the basement. While fires are kept up, this is the most practical method, it would seem, but with fires in the warm weather an exhaust fan moved by machinery amount to the most reliable.)”⁹

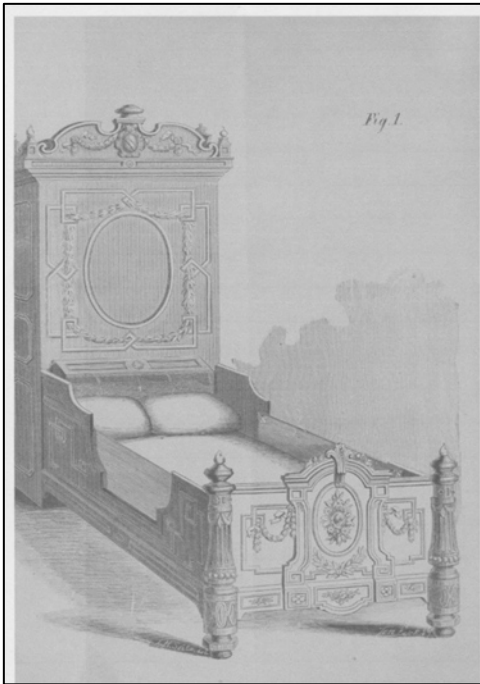
Up to the 1860s, conventional wisdom held that sickness and fevers were attributable to malaria (colloquial Italian for “bad air”) or miasma (noxious air from rotting vegetation). Generally, the question of how infection endured in dwellings, hospitals, and other overcrowded places puzzled physicians in the early nineteenth century, prior to the development of bacteriology and virology. This mystery was solved in the second half of the century by the research of Louis Pasteur in microbiology, followed by Joseph Lister in antiseptic surgery.

For Prince, ventilation was a key piece of the hygiene puzzle. In an 1866 article for the *Chicago Medical Examiner*, he reported: “Upon the subject of ventilation, the problem has been how to secure the comfort of a home with the purity of outdoor air. It has been supposed that this was the utmost possible attainment. More than this has been achieved. It has been found practicable to make an artificial mountain air without its rarity.

“Mr. A.S. Lyman has, through twenty years of study and experiment, finally perfected an arrangement of chemical agents, so as to deprive the air of all its impurities and make it equal to that found above the influence of emanations from the surface of the earth.” Among the first beds with the purifying attachment were those operated at Bellevue Hospital “to the very great satisfaction of those who have watched the progress of the cases submitted to the influence of the purified air,” Prince wrote.¹⁰

Azel Storrs Lyman (1815-1885), an inventor in New York City, patented an air purifier for ventilating beds, desks, and rooms of all sizes in 1865. (Lyman also was one of the first to invent a fountain pen, holder and nib (1848); later he invented a steam boiler alarm, an air pump and an improved metal can for preserving food.)

The process, Prince wrote, begins “by passing air over unslaked lime, which absorbs carbonic acid and some water and organic impurities, and elevates its temperature, giving it a tendency to rise. It then passes through fresh-burned charcoal, losing most of the impurities which the lime had not taken up. The purified air then ascends to the top of the apparatus, and, turning to descend, it passes over ice, which cools it and accelerates the current, which next passes out through orifices in which the current is divided up by wire screens, so as not to blow in one compact current.”¹¹



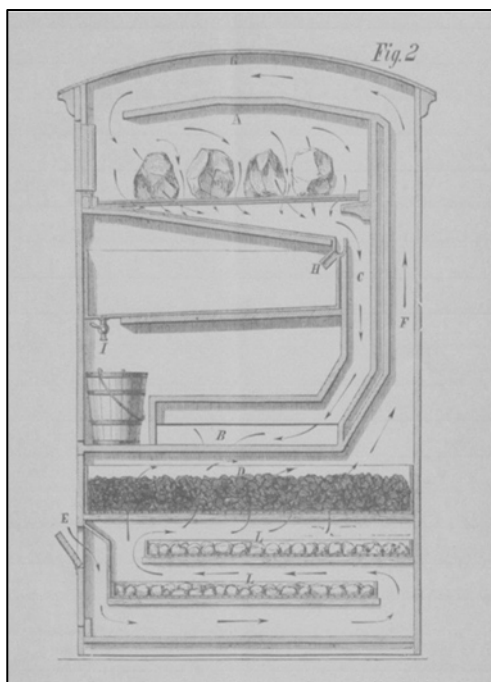


FIGURE 6: Illustrations from Prince's "Lyman's Air Purifier."

When the war and his work for the Sanitary Commission ended, Prince focused on rebuilding his medical practice in Jacksonville, contributing to medical journals, and re-establishing the Morgan County Medical Society. In 1867, Prince applied his understanding of ventilation and air purification to the operation of his own sanitarium.

ENDNOTES

¹ David Prince to Gen. J.E.B. Stuart. July 3, 1862. Official Records, Series II, Vol. 4. 118.

² United States Sanitary Commission Medical Archive. Item 511, Reel 4, Frames 0126-0144.

³ U.S. Sanitary Commission. Film records. Reel 5, Frames 1031-1099. New York Public Library.

⁴ "No Draft in Illinois." *Jacksonville Journal*. October, 1863.

⁵ Pearson, Emmet F. "A Pioneer Illinois Physician and Scholar: John F. Snyder, MD" *Illinois Medical Journal*. November 1988. Vol. 174:5. Passim.

⁶ Prince to John Snyder. June 25, 1865. Abraham Lincoln Presidential Library. Dr. John F. Snyder Papers. Box 4, Correspondence.

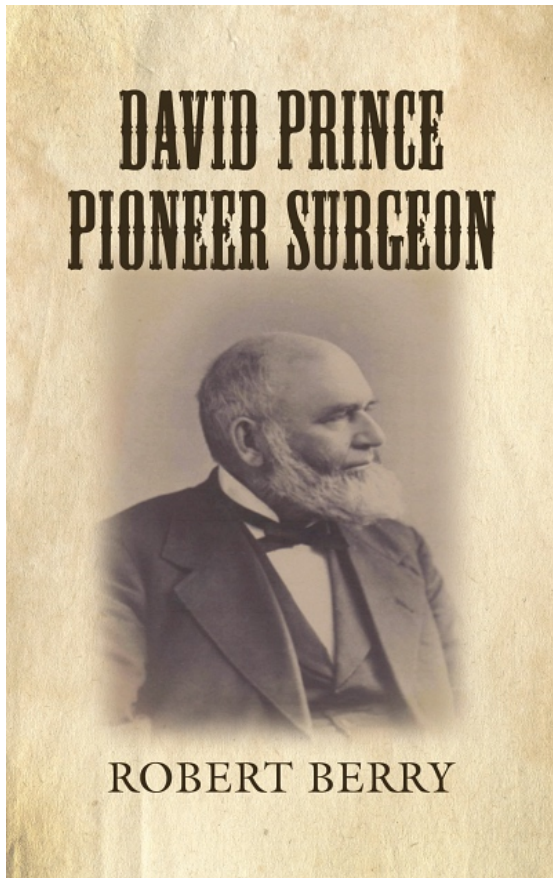
⁷ USSC Film Records. Reel 2, Frame 0945.

⁸ USSC Film Records. Reel 5, Frame 0851.

⁹ USSC Film Records. Reel 2, Frame 0962; Prince to Elisha Harris. September 28, 1865. USSC Film records. Reel 2. Frame 0962.

¹⁰ Prince. "Lyman's Air Purifier." *Chicago Medical Examiner*. February 1866. Edited by N. S. Davis, M.D.

¹¹ Prince. "Lyman's Air Purifier".



David Prince was a leading surgeon in plastic surgery and orthopedics in the nineteenth century when medical specialties were not common. His work ultimately received international recognition.

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