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Perspectives on Epidemic: The Yellow Fever in 1793 Philadelphia

Abstract

This article discusses the Yellow Fever epidemic of 1793, and how there are several different accounts of what happened then. It also notes that the official descriptions given by the doctors of the time are not the entire story and that they leave some important things out.

Perspectives on Epidemic: The Yellow Fever in 1793 Philadelphia

By Katherine Polak

In August of 1793, Dr. Benjamin Rush of Philadelphia was called to Water Street to assist in the examination of an unusually ill woman, sick with fever, who “vomited constantly, and complained of great heat and burning in her stomach.”¹ The woman’s strange condition bothered Dr. Rush, and he mentioned to his colleagues that he lately “had seen an unusual number of bilious fevers, accompanied with symptoms of uncommon malignity.”² Indeed, Mrs. Le Maigre was the seventh such patient of his in just two weeks.³ “I suspected,” Rush writes, “all was not right in our city.”⁴

Dr. Rush’s fears, as melodramatic as they may sound, were not without merit. For the past few weeks, he and his fellow doctors had been treating the earliest victims of what was to become a citywide epidemic. In just a few months, Yellow Fever spread throughout Philadelphia, killing thousands, driving thousands more from its borders, exposing the limitations of medicine, and, as catastrophes often do, shedded light on both the best and worst aspects of society. Rush and a Philadelphia printer named Mathew Carey wrote two of the most oft-cited pieces of primary literature on the subject, and both of them give significant consideration to that last part: the best and worst aspects of society. This paper does the same. Using Rush and Carey as its core, it attempts to reconstruct the social response to the Yellow Fever, and to describe how different people and different classes behaved when faced with a life-threatening epidemic. Yet Rush and Carey, as valuable as they are, are not infallible and other sources are necessary to keep their accounts in perspective. “Imanacs, personal letters, and other narratives of the fever help to counter the somewhat biased white, middle-class perspective found in both of their works. This combination of sources allows for a relatively close approximation of historical truth, though the nature of history dictates that the complete truth can never be entirely known.

According to Dr. Rush’s *An Account of the Bilious Yellow Fever*, the disease was first recognized as more than the usual autumn fever immediately after Mrs. Le Maigre was examined. Dr. Hodge, a colleague, informed him that in addition to his seven patients, “a fever of a most malignant kind had carried off four or five persons within sight of Mr. Le Maigre’s door.”⁵ His comment called to Rush’s mind another serious fever that had struck Philadelphia in 1762 and, giving the matter some thought, the doctor noticed that the two illnesses shared certain symptoms in common. Upon this realization, Rush writes, “I did not hesitate to name it the *bilious remitting yellow fever*.”⁶ He also did not hesitate to encourage others to leave the city or to inform them that he believed the fever to originate from the “noxious effluvia” given off by an amount of putrid coffee deposited on a wharf near Water Street.⁷ Initially, and much to Rush’s dismay, he was ignored, and his theories and warnings “treated with ridicule and contempt.”⁸

His wounded pride, however, was no doubt restored just a few days later. The putrid coffee theory created a great controversy among other prominent city

physicians, many of whom favored the (correct) idea that the disease had been imported from the West Indies.⁹ The publication of a cautionary statement from the College of Physicians (that he wrote), combined with the rapid spread of the disease beyond the vicinity of Water Street created what Rush saw as a more appropriate amount of distress among his fellow citizens. Indeed, Rush writes, “[fear] and terror now sat upon every countenance.”¹⁰

Fear and terror likely did “sit on every countenance,” or most countenances, at least. Carey’s *A Short Account of the Malignant Fever, Lately Prevalent in Philadelphia* mentions such apprehension as does *Banneker’s Almanac for the Year 1795* and a personal letter from Philadelphians Miers and Samuel Fisher. Numerous responses (most in opposition) to Rush’s putrid coffee theory and to Mrs. Le Maigre are scattered throughout the literature as well. These aspects of Dr. Rush’s account are probably accurate. In his case, the bias lies not so much in what is discussed, but in what is omitted. What *Medical Inquiries* fails to emphasize is that Dr. Rush’s patients were not the first to fall victim to the disease. According to J. H. Powell, a historian of the fever, at a time when Rush was seeing his very first Yellow Fever patient, Dr. Isaac Cathrall had already “begun to notice an unusual concentration of sickness and deaths around Richard Denny’s lodginghouse in North Water Street.”¹¹ *Banneker’s* almanac reports that seven people took ill and died there within the course of two weeks.¹² Powell notes, however, that these victims were all members of a lower class—sailors, innkeepers, and foreigners—and the doctors who treated them were of no special distinction.¹³ Few writers paid attention to their plight at the time and it seems they were forgotten even in retrospect.

This oversight may have something to do with the fact that Rush was a prominent, well-established physician, and his patients were usually of a comparable social standing.¹⁴ Except for Mrs. Le Maigre and a fellow doctor’s child, all of his original seven fever patients lived away from the narrow, crowded, “ill-aired and, in every respect. . .disagreeable”¹⁵ Water Street, where the disease originated.¹⁶ As a result, Rush’s account of his reasonably well-to-do patients and their experiences cannot presume to speak for the city as a whole, only, perhaps, for that fraction of society of which the doctor was a part.

Carey’s account, likewise, is biased somewhat towards the upper or middle-class. He does mention briefly that “[i]t was some time before the disorder attracted public notice [and] [i]t had in the mean while swept off many persons”,¹⁷ but of these persons he says little. No names, no professions, no list of symptoms. “The first death that was a subject of general conversation,” he writes, “was that of Peter Aston, on the 19th of August, after a few days illness.”¹⁸ Aston had not been a sailor or a foreigner, but Rush’s patient and friend.¹⁹ What Carey means to say here, it seems, is that Aston’s death was the first of general conversation among his social peers. Seven sudden deaths in two weeks should have made for general conversation among those frequenting Denny’s lodginghouse.

Once well-respected citizens like Aston started to die and once the disease began to spread beyond Water Street, frightened Philadelphians began to heed Rush’s advice and leave the city. Carey estimates that 17,000 Philadelphians left

their homes and headed to the Pennsylvania countryside.²⁰ “Those who stayed,” notes one observer, “were cautious how they went about the streets, so that the city appeared in a degree to be depopulated.”²¹ The remaining citizens belonged mostly to the lower and middle classes of society. They were the servants, the merchants, the smiths and the urban poor; the people who had no country estate to flee to and no money to pay exorbitant rents that some rural landlords had begun to charge.²² Save for the few elites who stayed out of a sense of duty or a desire to protect their property, these common citizens were left without city officials, doctors, and other traditional pillars of the community.²³

Yellow Fever is a terrifying disease, characterized by a suite of grotesque symptoms that have been described countless times by Rush, Carey, and nearly every writer of the epidemic. Jean Devèze, a doctor practicing in Philadelphia at the time, describes victims who suffered everything from red urine to yellow eyes, bleeding gums and nose, and green, yellow, or an ominous kind of black vomit.²⁴ Frightened and abandoned by a majority of their leaders, many remaining in the city began to panic. Confidence in modern medicine was low, writes one observer, “[t]he physicians differed about the mode of treating the disorder... many of *them* were taken sick, and it became difficult to procure a visit...and many perished without any aid at all.”²⁵ Deaths became so frequent that the college of physicians, in a published address to the mayor and the citizens of the city, asked “[t]o put a stop to the tolling of the bells [for the dead]”²⁶; the constant sound was too depressing. “In walking for many hundred yards,” Rush remarks, “few persons were met, except such as were in quest of a physician, a nurse, a bleeder, or the men who buried the dead.”²⁷ Public meeting places were closed. People burned fires in the streets and shot off cannons in desperate attempts to slow the course of an enemy they could not understand or control.²⁸ It was all to no avail, though, and as the number of dead increased, the living began to fear more and more for their own safety, often abandoning sick family or friends in a last effort to save their own lives. According to Carey:

Who, without horror, can reflect on a husband...deserting his wife in the last agony—a wife unfeelingly abandoning her husband on his death bed—parents forsaking their only children...servants abandoning tender and humane masters who only wanted a little care to restore them to health and usefulness...yet they were daily exhibited in every quarter of our city; and such was the force of habit that the parties who were guilty of this cruelty, felt no remorse themselves.²⁹

Indeed, passages like this one are found in almost all of the primary literature. Abandonment is mentioned in the Fishers’ letter, Banneker’s almanac, and other narratives of the fever; that it occurred is almost certain. Yet Carey, who is perhaps the most censorious chronicler of them all, was not even present in the city throughout the full course of the epidemic. He was elected as a member to a committee established to aid the sick poor, but according to critics and contemporaries Absalom Jones and Richard Allen “quickly after his election, [Carey] left them to struggle with their arduous and hazardous task, by leaving the city.”³⁰

The Committee for Relieving the Sick and Distressed was appointed on

September 14.³¹ The fever, for the most part, remained in Philadelphia until early November, around which time most self-exiled citizens returned.³² Assuming that he returned with the bulk of these people, Carey was absent for approximately one and a half months of a three-month epidemic. Though he may not have abandoned his family or friends, a behavior he describes in a chapter entitled “[a] frightful view of human nature”,³³ he did abandon his fellow citizens for a time. Not only, then, is his criticism somewhat hypocritical, but his absence (which he never mentions) renders certain aspects of his “first-hand” account of the events in Philadelphia a little less credible.

However, Carey was still residing in the city when one of the first major concerns of the epidemic arose. He writes that the Guardians of the Poor needed a way to deal with those infected who could not afford or obtain medical treatment from physicians, family members, or friends. They eventually obtained a house on the northern outskirts of town, known as Bush Hill, and used it as a makeshift hospital.³⁴ All but three of the Guardians then fled the city, leaving both their more steadfast colleagues and the poor to fend for themselves.³⁵

Bush Hill soon fell victim to corruption and neglect. Fear of infection was so strong that few nurses, let alone qualified ones, could be found to staff the hospital.³⁶ Those that were on staff “rioted on the provisions and comforts, prepared for the sick”³⁷ “and ignored their patients. The hospital was “in very bad order, and in want of almost everything.”³⁸ “It was, in fact” writes Carey, “a great human slaughterhouse, where numerous victims were immolated at the altar of riot and intemperance.”³⁹

At this time, the Committee for Relieving the Sick and Distressed, of which Carey was a member, was assembled to assist the three, extremely overwhelmed Guardians of the Poor.⁴⁰ Their first order of business was to reform Bush Hill, of which they had “heard repeated complaints.”⁴¹ Two men, Stephen Girard, a French merchant; and Peter Helm, a German cooper offered to oversee the renovation of the hospital themselves.⁴² This was widely regarded as an act of total selflessness among their fellow citizens and committee members, for it involved staying at filthy, overcrowded Bush-hill for an indefinite amount of time. Carey and Banneker are full of praise for them as, in the latter’s words, volunteering to reform the hospital “seemed like an immediate sacrifice to the lives of the undertakers.”⁴³ Helm, himself, told a neighbor that “he expected never again to return to the city alive.”⁴⁴

That the hospital was in a bad state I think there can be little doubt. Carey, Banneker, and others all criticize it, as does Powell, and the committee did send Girard and Helm to sanitize and organize it. According to Powell, however, “[a] writer in the *Federal Gazette* on September 11 [1793] complained that no accurate information was available to anyone”⁴⁵ regarding the hospital. The public’s opinion of Bush Hill seems to have been based primarily on gossip. Carey, Banneker, and even Rush did not frequent the hospital at this time, and their portrayals of it, though not necessarily incorrect, are second-hand and may be prone to exaggeration. Carey’s description, especially, with his flair for flowery language and his intent to sell his *Account* upon its completion may be somewhat suspect.⁴⁶ Yet my criticism of him may be just as suspect, I know nothing of his

character and am occasionally partial to flowery language, myself. My observations here are really little more than speculation.

One thing that can be said with a little more certainty is that, in desperation, white Philadelphia solicited the help of the city's black population, slave and free, to care for their sick. Dr. Rush trained black volunteers to administer his famous (or infamous) "bleeding and purging treatment" when the number of infected became more than he and his colleagues could handle.⁴⁷ Mayor Clarkson placed an advertisement in the one city paper that was still in print asking for "the people of colour to come forward and assist the distressed, perishing, and neglected sick."⁴⁸ Africans "were supposed not liable to the infection"⁴⁹ based on information contained in several published histories of the disease, including one by Dr. Lining of Charleston. "I never knew one instance of this fever among [African-Americans]," he writes, "though they [were] equally subject with the white people..."⁵⁰

The black community responded, under the leadership of Absalom Jones and Richard Allen who later wrote of their experiences in a short publication entitled *A Narrative of the Proceedings of the Black People during the Late Awful Calamity in Philadelphia*. According to Jones and Allen, black volunteers were instructed at first to devote "a strict attention to the sick, and the procuring of nurses."⁵¹ As the death toll increased, so did their responsibilities. Together they assisted Dr. Rush, they nursed the sick, they removed and buried the dead. All of these jobs were considered extremely dangerous and, according to Jones and Allen, the great majority were done free of charge or at a minimal cost to those who could afford it.⁵²

As the epidemic progressed, however, it became clear that African-Americans were not, in fact, as immune to Yellow Fever as initially thought. According to Rush (who, overall, comments little on the African-American's contribution), "They took the disease in common with the white people, and many of them died with it."⁵³ According to historian Philip Lapsansky, what slight immunity that did exist seemed to be confined to a portion of those blacks who were native-born Africans or islanders, presumably because they survived Yellow Fever outbreaks as children in Africa or the West Indies, giving them life-long immunity.⁵⁴ There is still some debate over this point, however, with certain historians holding that "in epidemic after epidemic... blacks [regardless of place of birth] seemed to enjoy some sort of special protection that went beyond acquired immunity."⁵⁵

As the city began to realize that all individuals of African descent were not immune, American-born blacks became alarmed and black nurses, let alone the preferred African-born ones, harder and harder to come by.⁵⁶ Still, men like Richard Allen continued to assist the sick, both black and white, often risking their own lives in the process. Their rather extraordinary efforts, however, went largely unnoticed when it came time to write the history of the epidemic. Jones and Allen were particularly offended by a passage in the first through third editions of Carey's "Account." Carey writes:

The great demand for nurses afforded an opportunity for imposition [taking advantage of the sick], which was eagerly seized by some of the vilest

of the blacks. They extorted two, three, four and even five dollars a night for such attendance, as would have been well paid by a single dollar. Some of them were even detected in plundering the houses of the sick.⁵⁷

Aware that history was being written and their role in it marginalized and misrepresented, Jones and Allen wrote their own version of events in their *Narrative*. In it, they draw attention to some of the "vilest" of the whites, emphasize that plunderers and extortionists made up only a small minority of black nurses, and remind Carey that blacks, despite popular opinion, had suffered along with whites:

When the people of colour had the sickness and died, we were imposed upon and told it was not with the prevailing sickness, until it became too notorious to be denied, then we were told some few died but not many.

Thus were our services extorted *at the peril of our lives*, yet you accuse us of extorting *a little money from you*.⁵⁸

Carey likely was not trying to offend the African American community, he does go on to commend briefly the work of "Jones, Allen, and [William] Gray, and others of their colour,"⁵⁹ but this mention, in the eyes of Jones and Allen, could give some the wrong idea. "By naming us," they explain, "he leaves these others, in the hazardous state of being classified with those who are called the 'vilest.'"⁶⁰ The authors of the "Narrative" were keenly aware that they who control the past control the future, and they felt that their entire race was being passed over, misrepresented to the whole of posterity. If their remarkable behavior during the autumn of 1793 was to have any positive effect on the future status of blacks in American society, it had to be made known. It is possible, then, that Jones and Allen went overboard and the *Narrative's* version of events overstates the contributions of the African-American community. Yet it can be said with some certainty that Rush's and Carey's versions, intentionally or otherwise, neglect the black experience, simply through omission. They are by no means required to include it, but its absence is an indication that their accounts are not the complete, universal truth of the Philadelphia epidemic.

Oversights, marginalizations, exclusions; these are the things that bias history. Exaggerations are important, too, but oftentimes what is excluded is more significant than what is added. Whether the result of ignorance or contemplation, an author's choice to include one passage over another detracts from the richness of the past. Opinion becomes fact and countless stories and experiences are reduced to that of one man, or one class, or one people. To read Carey or Rush is to assume that Africa-Americans were helpful but prone to theft and exorbitance and not of great significance, that Carey witnessed all he wrote about first-hand, and that the epidemic only began to be of interest after the death of Peter Aston. Such implications, however, are difficult to avoid. It is not possible (or prudent, for some) to include every aspect of an event in every work. All history, therefore, must be biased, no matter how noble the author's intentions. Carey, Banneker, Jones, Powell, Rush, Polak; they are all just variations on a theme. Put them together and you may have some idea what the truth was like, but you will never be able to completely recreate it.

Notes

- ¹ Benjamin Rush, M.D., *An Account of the Bilious Remitting Yellow Fever as it Appeared in Philadelphia in the Year 1793*, in *Medical Inquiries and Observations*, vol. 3, 4th ed. (Philadelphia: Griggs & Dickinsons, 1815; reprint, New York: Arno Press and The New York Times, 1972), 43.
- ² *Ibid.*
- ³ *Ibid.*, 41-42.
- ⁴ *Ibid.*, 43.
- ⁵ *Ibid.*
- ⁶ *Ibid.*, 44.
- ⁷ *Ibid.*, 43.
- ⁸ *Ibid.* 44.
- ⁹ J. H. Powell, *Bring Out Your Dead: The Great Plague of Yellow Fever in Philadelphia in 1793* (Philadelphia: University of Pennsylvania Press, 1949), 41.
- ¹⁰ Rush, 93.
- ¹¹ Powell, 15.
- ¹² Benjamin Banneker, *Banneker's Almanack for the Year 1795...Containing an Account of the Yellow Fever Lately Prevalent in Philadelphia*, in *Afro-American History Series*, vol. 1, *Black Thought in Early America* (Philadelphia: William Young, n.d.; reprint, Wilmington, DE: Scholarly Resources, Inc., n.d.), n.p.
- ¹³ Powell, 16.
- ¹⁴ Rush, 41-42.
- ¹⁵ Powell, 10.
- ¹⁶ Rush, 43.
- ¹⁷ Mathew Carey, *A Short Account of the Malignant Fever, Lately Prevalent in Philadelphia*, 4th ed. (Philadelphia: Mathew Carey, 1794; reprint, New York: Arno Press & The New York Times, 1970), 16.
- ¹⁸ *Ibid.*
- ¹⁹ Powell, 9.
- ²⁰ Carey, 77.
- ²¹ Miers Fisher and Samuel Fisher, *Philadelphia. Circular Letter*, dated 11th month, 18th, 1793 (Philadelphia: n.p., 1793), n.p.
- ²² Benneker, n.p.
- ²³ Powell, 55.
- ²⁴ Jean Devèze, *An Enquiry Into and Observations Upon the Causes and Effects of the Epidemic Disease Which Raged in Philadelphia from the Month of August till Towards the Middle of December, 1793* (Philadelphia: Parent, 1794), 42-45.
- ²⁵ Fisher, n.p.
- ²⁶ Rush, 46.
- ²⁷ *Ibid.*, 95.
- ²⁸ Carey, 21.
- ²⁹ *Ibid.*, 23.
- ³⁰ Absalom Jones and Richard Allen, *A Narrative of the Proceedings of the Black People during the Late Awful Calamity in Philadelphia, in the Year 1793; and a Refutation of Some Censures, Thrown Upon Them in Some late Publications*, in *Afro-American History Series*, vol. 1, *Black Thought in Early America* (Philadelphia: William Woodward, 1794; reprint, Wilmington, DE: Scholarly Resources, Inc., n.d.), 8.
- ³¹ Banneker, n.p.
- ³² Rush, 98.
- ³³ Carey, 21.
- ³⁴ *Ibid.*, 20.
- ³⁵ *Ibid.*
- ³⁶ *Ibid.*, 31.
- ³⁷ *Ibid.*, 32.
- ³⁸ *Ibid.*, 29.
- ³⁹ *Ibid.*, 32.
- ⁴⁰ Sally F. Griffith, "A Total Dissolution of the Bonds of Society": Community Death and Regeneration in Mathew Carey's *Short Account of the Malignant Fever*," in *A Melancholy Scene of Devistation*, ed. J.

Worth Estes and Billy G. Smith (Canton, MA: Science History Publications, 1997), 52.

⁴¹ Banneker, n.p.

⁴² Powell, 146.

⁴³ Banneker, n.p.

⁴⁴ Powell, 146.

⁴⁵ Ibid., 147-148.

⁴⁶ Griffith, 45-46.

⁴⁷ Philip Lapsansky, ">Abigail, a Negress': The Role and the Legacy of African Americans in the Yellow Fever Epidemic," in *A Melancholy Scene of Devistation*, ed. J. Worth Estes and Billy G. Smith (Canton, MA: Science History Publications, 1997), 63.

⁴⁸ Jones and Allen, 2.

⁴⁹ Fisher, n.p.

⁵⁰ Rush, 81.

⁵¹ Jones and Allen, 4.

⁵² Ibid., 6.

⁵³ Rush, 81.

⁵⁴ Lapsansky, 66-67

⁵⁵ Kenneth F. Kiple, "Response to Sheldon Watts, >Yellow Fever Immunities in West Africa and the Americas In The Age of Slavery and Beyond: A Reappraisal,'" *Journal of Social History* 34.4 (Summer 2000): 971.

⁵⁶ Lapsansky, 68.

⁵⁷ Carey, 63.

⁵⁸ Jones and Allen, 15.

⁵⁹ Carey, 63.

⁶⁰ Jones and Allen, 12.

Primary Sources

Banneker, Benjamin. *Banneker's Almanack for the Year 1795... Containing an Account of the Yellow Fever Lately Prevalent in Philadelphia*. In *Afro-American History Series*. Vol. 1, *Black Thought in Early America*. Philadelphia: William Young, n.d. Reprint, Wilmington, DE: Scholarly Resources, Inc., n.d.

Carey, Mathew. *A Short Account of the Malignant Fever, Lately Present in Philadelphia*, 4th ed. Philadelphia: Mathew Carey, 1794. Reprint, New York: Arno Press & The New York Times, 1970.

Deveze, Jean. *An Enquiry Into and Observations Upon the Causes and Effects of the Epidemic Disease Which Raged in Philadelphia from the Month of August till Towards the Middle of December, 1793*. Philadelphia: Parent, 1794. Fisher, Miers, and Samuel Fisher. Philadelphia. Circular Letter, dated 11th month, 18th, 1793. Philadelphia: n.p., 1793.

Jones, Absalom, and Richard Allen. *A Narrative of the Proceedings of the Black People During the Late Awful Calamity in Philadelphia, in the Year 1793; and a Refutation of Some Censures, Thrown Upon Them in Some late Publications*. In *Afro-American History Series*. Vol. 1, *Black Thought in Early America*. Philadelphia: William Woodward, 1794. Reprint, Wilmington, DE: Scholarly Resources, Inc., n.d.

Rush, Benjamin, M.D. *An Account of the Bilious Remitting Yellow Fever as it Appeared in Philadelphia in the Year 1793*. In *Medical Inquiries and Observations*, vol. 3, 4th ed. Philadelphia: Griggs & Dickinsons, 1815. Reprint, New York: Arno Press and The New York Times, 1972.

Secondary Sources

Griffith, Sally F. ">A Total Dissolution of the Bonds of Society': Community Death and Regeneration in Mathew Carey's *Short Account of the Malignant Fever*." In *A Melancholy Scene of Devistation*, ed. J. Worth Estes and Billy G. Smith, 45-59. Canton, MA: Science History Publications, 1997.

Lapsansky, Philip. ">Abigail, a Negress': The Role and Legacy of African Americans in the Yellow Fever Epidemic." In *A Melancholy Scene of Devastation*, ed. J. Worth Estes and Billy G. Smith, 61-78. Canton, MA: Science History Publications, 1997.

Kiple, Kenneth F. "Response to Sheldon Watts > Yellow Fever Immunities in West Africa and the Americas In The Age of Slavery and Beyond: A Reappraisal." *Journal of Social History* 34.4 (Summer 2000): 969-974.

Powel, J. H. *Bring Out Your Dead: The Great Plague of Yellow Fever in Philadelphia in 1793*. Philadelphia: University of Pennsylvania Press, 1949.