# Removing the Scientific Self:
# Objectivity, Race, and Yellow Fever Immunity Theories in Nineteenth Century New Orleans

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**Contents**

## Introduction

In 1858, Dr. Charles Deléry challenged his rival, Dr. Jean Charles Faget, to a duel.[1] The two men were involved in a heated and public debate over the existence of creole immunity to Yellow Fever, which had ravaged the city of New Orleans since the turn of the nineteenth century.[2] The victor, in demonstrating his honor, judgement, and respectability, would then be entitled by the public to settle the medical dispute. Faget declined the challenge, citing his Christian values, which preserved and even bolstered his reputation given his frequent and outward demonstrations of faith.[3] This model of truth production, in which a scientist's honor and reputation made his theories credible, would go on to be replaced with an interest in the complete removal of the scientific self to illustrate veracity. The contest between these two men evolved over 15 years through pamphlets, speeches, and articles, and demonstrated a changing medical epistemology in New Orleans, as well as shifting logics of yellow fever immunity.

New Orleans was the center of scientific knowledge production on the subject of yellow fever throughout the nineteenth century, with its established theories circulating to other tropical corners of the world which were victimized by the "saffron scourge."[4] In this particular issue of creole immunity, Deléry and Faget, as prominent, French-trained physicians, defined the debate. In reference to their ongoing dispute, Dr. Rudolph Matas, a late nineteenth century physician and

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[1]Amy Forbes, ""A Little Seasoning Would Aid in the Digestion of Our Factums": Wit, Evidence, and the Evolving Form of Medical Debate in New Orleans, 1853–1868," Bulletin of the History of Medicine 91, no. 3 (2017): 539, doi:10.1353/bhm.2017.0059.

[2]Through the second half of the nineteenth century, physicians generally moved from talking about immunity, meaning one could not contract a disease, to a model partial immunity or resistance, indicating that one was less likely to contract the disease and would have a milder case were they to. However, throughout the literature from the time as well as the historiography on the subject, these two terms as used somewhat interchangeably, and often ambiguously. I will use these terms interchangeably, partially due to the difficultly of teasing out exactly which meaning my sources were implying.

[3]Rudolph Matas, "Torn Leaves from the Dead Foliage of Medical Louisiana," *Bulletin of the Medical Library Association* vol. 30,5 (1942): 446.

[4]Jo Ann Carrigan, *The Saffron Scourge: a History of Yellow Fever In Louisiana, 1796-1905* (Lafayette, La.: Center for Louisiana Studies, Univ. of Southwestern Louisiana, 1994), 2.

author remarked that "not a doctor in New Orleans but took sides and both factions inundated the city with a polemical wave of articles, brochures and books."[5] This was due to the high stakes surrounding the question of who was immune to yellow fever, as immunity had immense social and political significance for those who lived in New Orleans.[6]

Deléry and Faget began to express their mutual disagreement following the devastating epidemic of 1853, as evidence mounted against long-held notions of creole immunity. More and more well-to-do creoles, and especially their children, were appearing to succumb to yellow fever, despite its reputation as a "stranger's disease" which principally affected newcomers to the city.[7] Faget, in his 1855 pamphlet, continued to uphold the idea of creole immunity, explaining away statistical evidence of susceptibility as cases of misdiagnoses. He argued that creoles were immune to yellow fever, but could fall ill with "swamp fever," or malaria, which often had indistinguishable symptoms and occurred as a result of harmful miasmas linked to environmental conditions.[8] Therefore, he held that the data demonstrated an inability to properly diagnose, not a challenge to traditional immunity theories.

Deléry attacked Faget's views, characterizing them as "nativist" and biased.[9] He ridiculed the convenience of a separate illness which shared the exact symptoms of yellow fever and only occurred during epidemic years.[10] In articulating that fickle differences between the diseases would make diagnosis impossible without "the precious aid of the nationality of the patient," Deléry sarcastically pointed out the necessity of prior knowledge of the identity of the patient for

[5]Matas, "Torn Leaves from the Dead Foliage of Medical Louisiana," 446.
[6]Kathryn Olivarius, "Necropolis: Yellow Fever, Immunity, and Capitalism in the Deep South, 1800-1860" (Oxford: PhD thesis, University of Oxford, 2016), 13.
[7]Carrigan, *The Saffron Scourge,* 10.
[8]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 551.
[9]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 550.
[10]Tomlinson WK and J. J. Perret, "Jean-Charles Faget and the Yellow Fever Controversy in New Orleans" (Quebec: Proceedings of the International Congress for the History of Medicine, 1976), 1367.

diagnosis, and thus the preconceived theories embedded in Faget's argument. Ultimately, his criticisms were accepted by the professional medical community, and the idea of creole immunity was no longer upheld.

Deléry expressed skepticism of Faget's seemingly biased methods, as well as his possible use of perceived immunity to uphold the class status of the creole patient population in exchange for popularity and financial stability.[11] He both drew attention and assigned moral significance to Faget's reliance on interpretation and practical wisdom, contrasting it with letting nature, in this case unaltered statistical data, speak for itself. Deléry thus leveraged the language and tactics of the emerging epistemological value of objectivity to criticize Faget's theories, coloring them as subjective by comparison. The debate over creole immunity coincided with and contributed to debates over medical epistemology itself, particularly the emergence of objectivity, and both influenced and was influenced by shifts in how scientific theories were formed and proven. This contest between Deléry and Faget highlights the influence of the goal of objectivity on immunity theories, which continued long after their debate had been settled. Logics of immunity, which determined insider status and privilege, were shaped both by concurrent politics as well as evolving philosophies of science.

In the first half of the century, immunity was understood as a macroscopic, malleable, and multifaceted concept.[12] The idea of yellow fever immunity was predicated on the idea that bodies could universally adapt to various climates over time, through sheer exposure and adjustments of certain behaviors, leading to optimal health.[13] One's susceptibility or resistance to yellow fever was a complex, holistic, and individualized calculation, taking into account a

[11]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 532.
[12]Urmi Engineer Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, (Baton Rouge: Louisiana State University Press, 2017), 1239.
[13]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1608.

combination of creolism, nativity, race, class, cultural values, gender, diet, and social behavior at different moments in time.[14]

In the beginning of the century, those native to New Orleans, including freed people of color and slaves, were generally considered to be immune to yellow fever. Immigrants from both the northern United States and other countries were seen as especially susceptible, though because immunity was viewed as a malleable characteristic, newcomers could assimilate their behavior and reside in New Orleans for a number of years to achieve this badge of invulnerability.[15] This process in which a foreign body adjusted to the climate of New Orleans when exposed for long enough and by abiding by the local customs and conduct was referred to as acclimation, acclimatization, seasoning, or creolization. Eventually, however, by the end of the 1880's these ideas of immunity were replaced with theories that relied heavily on inherent racial difference, employing a more anatomically minded and deterministic logic.[16] The concept of race, once acknowledged as a fluid social and political construction, was thus brought into the purview of science. Racial difference was made to be the basis of investigations in which physicians looked to structural features within patients to explain immunity dynamics.[17]

I propose that the shift in immunity theories can be conceptualized in two steps which occurred in the second half of the nineteenth century. The first was the rejection of the universal idea of acclimation, which was baked into claims of creole immunity. In order to accept that racial types were inherently resistant or not, scientists first had to shed the idea of immunity as a malleable, achievable feature having to do with a given body, of any race, adjusting to the

[14]Ibid, 1215.
[15]The specific number of years it took one to become acclimated was hotly debated. Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans,* 1535.
[16]Ibid, 1725.
[17]This transition illustrates the historical contingency of viewing race as a medically relevant concept. Today, scientists acknowledge that race is at best a sloppy approximation for genetic relatedness, but the concept is still embedded in medical practice.

environment and customs of New Orleans. The second step was filling the theoretical vacuum left by the rejection of acclimation. An interest in finding a tangible seat in the body to explain apparent discrepancies in disease incidence and outcomes led to settling on a logic of anatomical difference between the races. This differed from prior environmental and behavioral explanations, as an understanding of the potential for the human body to be acclimated was replaced by a belief in inherent, structural differences which partitioned the human species into racial types. Individuals of African descent, both native and newly arrived, were eventually believed by the medical elite to be resistant to yellow fever, implying that disease incidence was lower and symptoms were milder within the demographic.

The shift in logic surrounding immunity and resistance occurred during a moment of immense change and upheaval in the nature of science itself, a moment in which one can recognize the emergence of objectivity as the novel goal and guiding epistemological value of science. In the initial move away from the idea of creole immunity and acclimation to the eventual acceptance of the model of stagnant, racial resistance, the emergence of objectivity can be traced as a key influence in these shifts in scientific theory. Through the aforementioned ongoing debate between Deléry and Faget, I will demonstrate both the rise and acceptance of objectivity as an epistemological value of science in the elite medical circle of late nineteenth century New Orleans, as well as its impact on the first necessary conceptual shift in inching towards a model of racial resistance. I will then show how the acceptance of objectivity as the goal of evolving science aided in the rise of racialized immunity theories through implementing practices such as privileging statistics and pathological anatomy, as well as calling directly upon the concept itself to strengthen claims.

Objectivity is taken today as a self-evident scientific value which upon further investigation appears entirely progressive and benign. In actuality, the change in medical epistemology towards a seemingly more modern version of science in part led to destructive theories of yellow fever immunity which not only contributed to scientific racism, but also had tangible human rights impacts on the black community. This project serves to problematize the historical bias that scientific progress is necessarily linear, categorically promotes truth, and is productive for a just society through an analysis of professional medical discourse in nineteenth century New Orleans. In seeking a more objective science, immunity theories became one-dimensional in their reductionist, anatomical nature and became destructive in their faulty essentialization of race.[18]

**Yellow Fever, Immunity, and Identity**

In antebellum New Orleans, traditions surrounding death included the semi-annual decoration of graves and extravagant tombs, elaborate funerals with long precessions, and dressing in accordance with various stages of mourning.[19] In many cases, funerals included singing, dancing, and rejoicing, as noted by Benjamin Henry Latrobe, an architect who spearheaded waterworks projects to combat yellow fever, made early observations linking the disease to mosquitos, and eventually fell victim to the saffron scourge himself. In 1819 he stated,

> In going home to my lodgings this evening about sunset, I encountered a crowd of at least 200 negroes, men and women, who were following a corpse to the cemetery. Of the women, one half at least carried candles, & as the evening began to be dark, the effect

[18]This "progress" also came at the expense of the environmentalist approach. Given that yellow fever infects humans via mosquitos, environmental observations and efforts to control ecological changes were the closest nineteenth century physicians got to effective public health endeavors. The severity of New Orleans' yellow fever problem was in many ways a direct result of said ecological transformations. Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans,* 323.

[19]"Antebellum Louisiana: Disease, Death, and Mourning," Louisiana State Museum Online Exhibits, 2018, https://www.crt.state.la.us/louisiana-state-museum/online-exhibits/the-cabildo/antebellum-louisiana-disease-death-and-mourning/index.

> was very striking, for all the women & many of the men were dressed in pure white. The funerals are so numerous here, or rather occupy so much of every afternoon in consequence of their being, almost all of them, performed by the same set of priests, proceeding from the same parish Church [St. Louis Cathedral], that they excite hardly any attention.[20]

He went on to describe the event ending in noise and laughter, defying expectations of a somber mood.[21]

There is a history of celebrating life at funerals in New Orleans which continues on today, as families employ brass bands and form second lines after the passing of their loved ones. The tradition of New Orleans' funeral practices can be traced back to African and West Indian religious rituals melding with those of European Christianity.[22] It seems fitting to begin the story of evolving yellow fever immunity theories, drawn along differing lines of identity, with a description of a New Orleanian funeral, which represents the unique melding of cultures between European settlers, African slaves, Caribbean émigrés, and others who made up the heterogeneous body of the city.

Creolism, racial identity, and nativity were all somewhat amorphous concepts throughout the early nineteenth century in New Orleans, and their transformations went on to shape disease conceptions, and vice versa. Latrobe also spoke to the ubiquity of death in nineteenth century New Orleans, where the realities of endemic disease shaped its reputation as a "necropolis" and the way of life of its citizens.[23] Theories surrounding yellow fever help to reveal the social and political realities of the time, as well as to the unique moment of scientific transformation occurring in the background of the century defined by "yellow jack."[24]

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[20]Ibid.
[21]Matt Sakakeeny, "Jazz Funerals and Second Line Parades," 64 Parishes, June 29, 2019, https://64parishes.org/entry/jazz-funerals-and-second-line-parades.
[22]Sybil Kein, "The Celebration of Life in New Orleans Jazz Funerals," *Revue Française D'études Américaines*, no. 51, (1992): 19–26, www.jstor.org/stable/20872233.
[23]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 118.
[24]Carrigan, *The Saffron Scourge*, 8.

Engraving of two men dying on a park bench in Jackson Square[25]

Given the ubiquity and severity of yellow fever epidemics, New Orleans was essentially a disease society.[26] The impact of yellow fever on the city cannot be overstated, with outbreak years occurring in what appeared to be random patterns from 1796 to 1905. Yellow Fever plagued New Orleans, leading to its infamy as the sickliest city in the United States, earning it titles such as "wet grave," and making it especially feared by nonresidents.[27] Travel literature from the time is filled with remarks similar to those of Irish native Thomas Ashe who wrote, "on average nine strangers die out of ten, shortly after their arrival in the city, and those who survive

[25]*The Great Yellow Fever Scourge — Incidents of its Horrors in the Most Fatal District of the Southern States*, Bettman Archive, via Getty Images, accessed February 22, 2021.
[26]In general, "outbreak" and "epidemic" are used in the historiography as interchangeable terms. Outbreak, however, implies a more local event. For this reason, I use both "outbreak" and "epidemic" interchangeably with the exception of when I speak about the epidemics of 1853 and 1878, which were notably far reaching, and in the case of 1878 especially, devasting for the greater Mississippi Valley. These two events I refer to exclusively as epidemics.
[27]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 117.

are of a shattered constitution and debilitated frame."[28] Though these descriptions were partially dramatized, they represent the horror surrounding the deadly pestilence which could cause harrowing experiences of illness and immense suffering.

The city essentially shut down during the fever season from July to October, with many people of privilege fleeing the New Orleans metropolitan area, and so many dying that grave diggers often simply could not keep up, littering the streets with bodies. Roughly 41,000 people died of yellow fever between 1817 and 1904 in New Orleans, with over ten percent of the population wiped out during the dramatic epidemic of 1853, and 20,000 people dying in the Mississippi Valley in 1878.[29] These two especially destructive and shocking epidemics both served as catalysts for investigating and fervidly debating previously held logics of immunity.

During the century of yellow fever outbreaks, immunity was impossible to prove. Historian Kathryn Olivarius has described this invisible quality as "subjective and performative, a matter of faith as much as fact."[30] For this reason, residents of New Orleans theorized about what influenced immunity, and looked to cues in people's behavior, race, nationality, period of residence, gender, socioeconomic class, and a host of other features. Immunity defined societal belonging and citizenship. Perceived immunity, and eventually lack thereof, thus signaled who were the fortunate insiders within New Orleanian society. Theories surrounding yellow fever composed identities and both informed and legitimated power relations. Borrowing from historian Charles Rosenberg, disease construction was both a product of context, and simultaneously shaped context itself.[31]

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[28]Benjamin H. Trask, *Fearful Ravages: Yellow Fever in New Orleans, 1796-1905* (Lafayette, LA: Center for Louisiana Studies, University of Louisiana at Lafayette, 2005), 24.
[29]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1355.
[30]Olivarius, "Necropolis," 428.
[31]Charles E. Rosenberg, "Disease in History: Frames and Framers," *The Milbank Quarterly* 67 (1989): 14, doi:10.2307/3350182.

Up until the outbreak of 1853, medical authorities unanimously and firmly held the theory of acclimation: that universally, bodily constitution could adjust to the tropical climate through long term residence and proper behavior, such as temperance, or be attuned to the environment through nativity. To be immune meant that one was a native, or that one had at least committed to living the life of a native by residing in the city and taking on the proper customs, for which they were rewarded a badge of insusceptibility and spared from scapegoating and prejudice. Given that this process of acclimation was also described as "creolization," it is clear that embedded in this logic was the concept of inherent creole immunity.

The term "creole" is somewhat historically ambiguous. The word was namely used to distinguish descendants of both European settlers and African slaves in Colonial territories from American newcomers and their lineages, as well as those of European immigrants.[32] Due to New Orleans' long span under French rule, a strong sense of creole identity persisted well after the Louisiana Purchase in 1803. Up until 1830, the majority of the city's residents spoke French and had a strong connection to French colonial culture and customs. Historian Urmi Engineer Willoughby, in her work on race, identity, and yellow fever, put forth that creoles "constituted a social and culturally constructed category" which was initially comprised of a multitude of races.[33]

During the mid-nineteenth century, the term creole gained racial connotations and white creoles actively sought to exclude people of color from the category.[34] The novelist George Washington Cable responded to the question "what is a creole?" in 1844, stating, "even in Louisiana, the question would be variously answered." He went on to state that the term creole is

[32]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 16.
[33]Ibid, 1683.
[34]Ibid, 177.

"a proud appellation" designating "the French-speaking, native portion of the ruling class."[35] Historian Jo Ann Carrigan noted in her extensive work, *The Saffron Scourge*, that in historical writings on yellow fever immunity from the nineteenth century, "the term Creole took on a distinct meaning, referring specifically to whites whose families had lived in or around the city for a number of generations."[36] Creolism also served as a biological signifier, indicating that the body was properly adapted to the climate and environment, and thus the diseases, of Louisiana.[37]

For creoles, immunity was a badge of honor, marking their identity and status.[38] For this reason, the pestilence was referred to as the "stranger's disease" up until the Civil War, and immigrants were often stigmatized and scapegoated during outbreaks.[39] This dynamic was especially relevant given the huge influx of immigrants during the period. New Orleans' economic prosperity due to its positionality along the Mississippi River delta, connecting the United States to the Caribbean, South America, and Europe, led to a large increase in the population, including both freed and enslaved people. Between the years of 1803 and 1860, the population grew from 10,000 to around 170,000 people.[40] Of the population in 1854, which was over 120,000, roughly 40% were immigrants.[41]

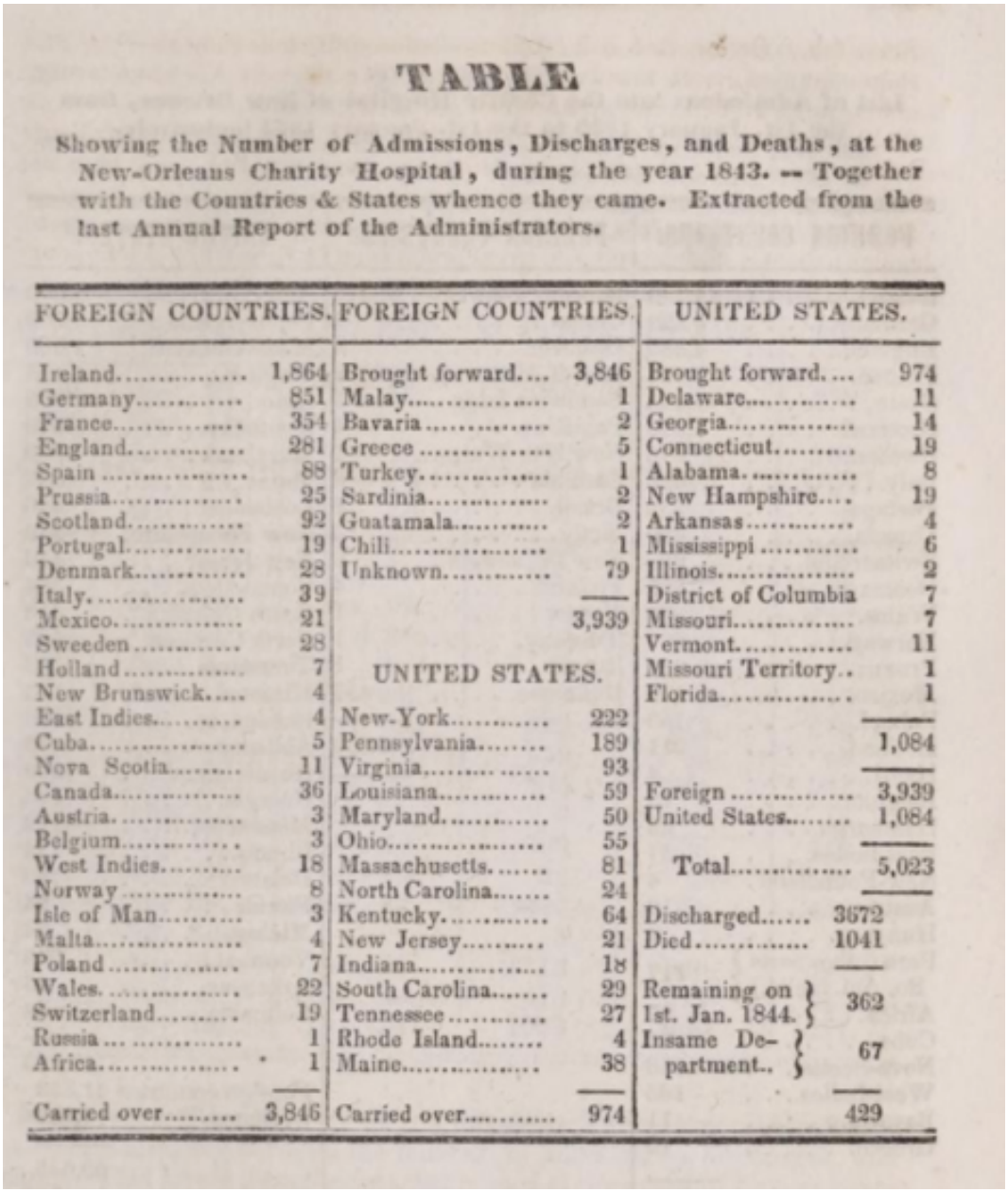
The privilege associated with perceived immunity, coined "immunocapital" by Olivarius, was granted to creoles by the very nature of their identity and awarded to foreigners through long term residence in New Orleans throughout sickly seasons and cultural assimilation.[42] It was

[35]Ibid, 193.
[36]Carrigan, *The Saffron Scourge*, 97.
[37]Olivarius, "Necropolis," 454.
[38]In reality, the frequency of epidemics in New Orleans led to widespread mild, subclinical childhood illness and thus acquired immunity in natives, while newcomers from the northern United States and Europe were more susceptible because they were unlikely to have previously survived the illness. Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 411.
[39]Ibid, 1510.
[40]Carrigan, *The Saffron Scourge*, 235.
[41]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1358.
[42]Olivarius, "Necropolis," 4.

common for newly arrived young men to stay in New Orleans throughout the summer, attempting to earn their stripes as acclimated citizens.[43] The process of creolization bestowed upon one a sense of belonging and class status, so long as one also took on appropriate cultural practices.[44] Illustrative of these views of immunity as relating to both acceptable behaviors and evolving to tolerate the environment, a sanitary commission report from 1853 detailed descriptions of the "social condition" and "personal and social habits" of communities, such as temperance and crowding, in addition to descriptions of nearby environmental conditions including flora and fauna, weather, and irrigation.[45]

Yellow fever susceptibility was moralized and associated with the "lower orders," namely immigrants from Ireland and Germany.[46] An 1844 article in the New Orleans Medical and Surgical Journal stated "when we take into consideration the class of people whence these cases are derived, their recklessness, improvidence and ignorance; it is not really surprising that so many of them should fall victims to this pestilence," as "they go on eating, drinking and committing every imprudence; and even after they are taken sick, they neglect the timely care and attention, ever within their reach in New Orleans, without regard to which, the disease soon advances to an incurable stage."[47] Immunity theories exhibited the widespread xenophobia in this period of mass migration to the city, and the imperative for immigrants to acculturate to both New Orleans society and the climate.

[43]Ibid, 437.
[44]Carrigan, *The Saffron Scourge*, 108.
[45]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1374.
[46]Carrigan, *The Saffron Scourge*, 242.
[47]Erasmus Fenner, "The Health of the City— Together with Authenticated Reports from The New Orleans Hospital and Infirmaries", *New Orleans Medical and Surgical Journal*, no. 1 (1844): 76.



# TABLE

Showing the Number of Admissions, Discharges, and Deaths, at the New-Orleans Charity Hospital, during the year 1843. -- Together with the Countries & States whence they came. Extracted from the last Annual Report of the Administrators.

| FOREIGN COUNTRIES. | | FOREIGN COUNTRIES. | | UNITED STATES. | |
|---|---|---|---|---|---|
| Ireland | 1,864 | Brought forward | 3,846 | Brought forward | 974 |
| Germany | 851 | Malay | 1 | Delaware | 11 |
| France | 354 | Bavaria | 2 | Georgia | 14 |
| England | 281 | Greece | 5 | Connecticut | 19 |
| Spain | 88 | Turkey | 1 | Alabama | 8 |
| Prussia | 25 | Sardinia | 2 | New Hampshire | 19 |
| Scotland | 92 | Guatamala | 2 | Arkansas | 4 |
| Portugal | 19 | Chili | 1 | Mississippi | 6 |
| Denmark | 28 | Unknown | 79 | Illinois | 2 |
| Italy | 39 | | | District of Columbia | 7 |
| Mexico | 21 | | 3,939 | Missouri | 7 |
| Sweeden | 28 | | | Vermont | 11 |
| Holland | 7 | UNITED STATES. | | Missouri Territory | 1 |
| New Brunswick | 4 | | | Florida | 1 |
| East Indies | 4 | New-York | 222 | | |
| Cuba | 5 | Pennsylvania | 189 | | 1,084 |
| Nova Scotia | 11 | Virginia | 93 | | |
| Canada | 36 | Louisiana | 59 | Foreign | 3,939 |
| Austria | 3 | Maryland | 50 | United States | 1,084 |
| Belgium | 3 | Ohio | 55 | | |
| West Indies | 18 | Massachusetts | 81 | Total | 5,023 |
| Norway | 8 | North Carolina | 24 | | |
| Isle of Man | 3 | Kentucky | 64 | Discharged 3672 | |
| Malta | 4 | New Jersey | 21 | Died 1041 | |
| Poland | 7 | Indiana | 18 | | |
| Wales | 22 | South Carolina | 29 | Remaining on Ist. Jan. 1844. | 362 |
| Switzerland | 19 | Tennessee | 27 | | |
| Russia | 1 | Rhode Island | 4 | Insane Department | 67 |
| Africa | 1 | Maine | 38 | | |
| Carried over | 3,846 | Carried over | 974 | | 429 |

Mortality by nativity in 1843[48]

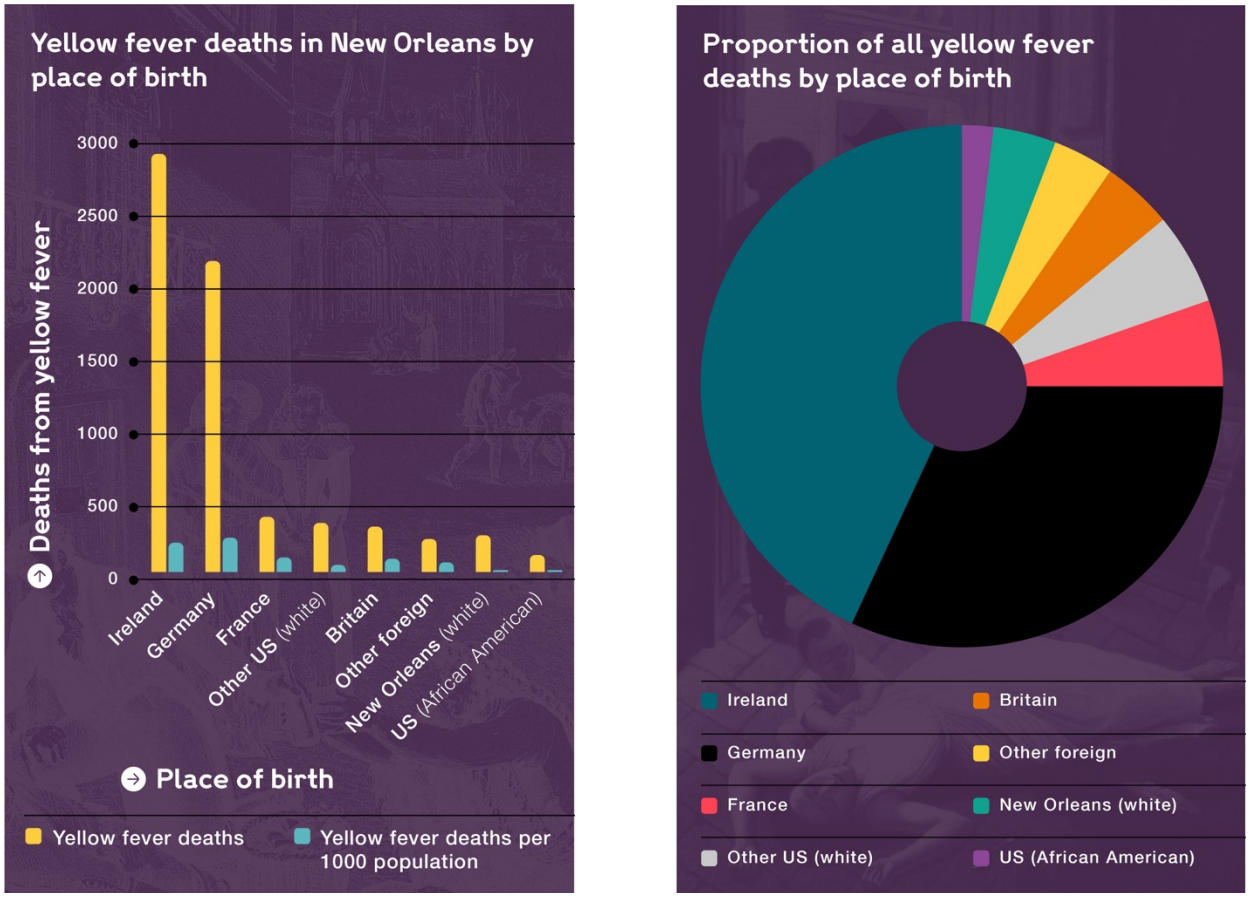
Creoles and white natives of European lineage who were assumed to be acclimated actively distanced themselves from non-native outsiders. This was in order to protect their privileged status as insiders who were both fit for the climate of New Orleans, and whose lifestyle and

[48]Ibid, 101.

customs were thought to be ideal for health maintenance.[49] In 1850, author Oakley Hall described scenes in which those secured by acclimation drink and "laugh at the passing terrors."[50] Carrigan goes as far as to claim that many who had achieved insider status saw yellow fever as a disease serving to "weed out undesirable immigrants who were unlikely to assimilate to New Orleanian social and cultural standards."[51] In Charles Gayarre's 1866 *History of New Orleans* he notes, "there were even some who felt friendly to the scourge, as, in their opinion, it checked that tide of immigration which, otherwise, would have speedily rolled its waves over the old population, and swept away all those landmarks in legislation, customs, language and social habits to which they were fondly attached."[52]

The prevailing immunity logic in the first half of the nineteenth century was illustrated well by Dr. Charles Caldwell's remarks in 1836. He claimed that yellow fever was brought on by "the extraordinary assemblage of ignorant and intemperate, unacclimated and reckless inhabitants," as opposed to "native, acclimated, and orderly citizens" who lived with "sound and uninterrupted health."[53] Yellow fever susceptibility was largely associated with recent white immigrants, namely from the northern United States and Europe. These theories seemed to align with empirical evidence, as European immigrants were disproportionately killed by yellow fever due to their lack of previous exposure.[54] This perception cemented the advantaged status of the creole social class through defining the unacclimated as alien outsiders, however, free people of color and slaves in New Orleans did not fit neatly into the model of acclimation and immunocapital.

[49]Carrigan, *The Saffron Scourge*, 97.
[50]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1525.
[51]Carrigan, *The Saffron Scourge*, 124.
[52]Charles Gayarré, *History of Louisiana* (Gretna, LA: Pelican Pub. Co., 1974), 636.
[53]Charles Caldwell, *Thoughts on Hygiène, as Applicable to Hot Climates, More Especially to the Mississippi Region, and to New Orleans* (New Orleans: 1836), 86.
[54]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1631.




Yellow fever deaths in New Orleans by place of birth, 1 May to 31 October 1853 and the proportion of yellow fever deaths in New Orleans by place of birth, 1 May to 31 October 1853[55]

Though race was not a primary focus in scientific immunity theories in the early nineteenth century, there were some discussions among prominent physicians surrounding the immunity of *gens de couleur libre* and enslaved people.[56] Free people of color were considered immune either as a result of being native to New Orleans, or their hailing from the Caribbean, which similarly had a tropical climate.[57] On the whole, they stayed in the city proper during the sickly season,

[55]Given the large discrepancy in death rates, some life insurance companies went as far as recognizing the "stranger" factor, charging higher premiums to unacclimated travelers to New Orleans. Anna Faherty, "The stranger who started an epidemic," Wellcome Collection, June 15, 2017, https://wellcomecollection.org/articles -/WsT4Ex8AAHruGfXH.
[56]Olivarius, "Necropolis," 426.
[57]Ibid, 429.

without the option to flee, also strengthening their perceived immunity.[58] This notion of resistance was somewhat lumped into the category of creole immunity up until white creoles actively began to distance themselves from people of color towards the middle of the century.[59]

Generally speaking, race in New Orleans was a flexible and multifaceted concept up until the mid-nineteenth century.[60] Constructing and defining one's race depended on a multitude of factors such as language, ethnicity, nativity, and even freedom, rather than a handful of outward physical traits.[61] Freed people of color held real estate, were recognized in courts, and even owned slaves, though they were prohibited from voting and marrying whites.[62] Though freed people of color were undeniably disadvantaged in many regards, their otherness was not a focus of immunity theories, and they were seen as generally resistant to yellow fever.

The assumed immunity of black slaves was also seen as the result of "seasoning."[63] In fact, most slave owners refused to buy slaves without a guarantee of their being acclimated, despite seasoned slaves being worth up to 25% more than those not believed to be immune.[64] The logic of immunocapital was twisted by those in power not to award belonging and status to said acclimated enslaved people, but rather to increase the capital of those who owned and exploited them.[65] Similarly, ideas of immunity were also employed to justify the institution of slavery on

[58]Ibid, 1574.
[59]Ibid, 176.
[60]Ibid, 145.
[61]Ibid, 161.
[62]Ibid, 160.
[63]Many slaves coming from West Africa, other points along the Gulf Coast, and the Caribbean were quite possibly exposed to endemic yellow fever before arriving in New Orleans. Ibid, 1631.
[64]Olivarius, "Necropolis," 453.
[65]Proponents of creole immunity, such as Jean Charles Faget, often also believed in the immunity of the black slaves and servants that worked in creole homes, making them more valuable and thus creoles more prosperous. Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 532.

the whole, as cheap white labor from European immigrants would be too deadly, and thus too costly over time.[66]

The model of acclimation, and thus the assumption of creole immunity, was not seriously questioned by the medical elite until 1853, when the devastating epidemic victimized creoles, and especially creole children, on a larger scale than ever before. The anomalous cases stacked up to a degree to which they could no longer be ignored, shaking the logic of immunity to its core. Eventually the model of acclimation was replaced with an understanding of acquired immunity through survival of the disease, and ideas of differential immunity and resistance were explained through biological, racial logics. The dynamic of belonging shifted at the end of the century, and a focus on nativity was replaced with ideas of racial determinism.

During the second half of the century, largely as a result of the Civil War and reconstruction politics, an increasingly rigid and dichotomous system of racial classification took hold. Segregation policies lumped together freed slaves with those who were previously considered creoles of color, as well as whites of all backgrounds who then formed social bonds.[67] These hardening ideas of race contributed to the emerging focus on blackness as an indicator of immunity.[68] During these years of racial violence and political strife, whites were now the in group, and black immunity was used to both demonstrate and prove racial difference, deepening the divide between races.[69] Social and political influences such as mass immigration and

[66]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1562.
[67]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2267.
[68]Ibid, 2243.
[69]Jessica Wells, "The Suffering South: 1878 Yellow Fever Narratives and Post-Reconstruction Southern Identity," Scholar Commons, March 19, 2021. https://scholarcommons.usf.edu/etd/7106/.

reconstruction played a large role in shaping the construction of yellow fever immunity theories, as has been explicated in the literature.[70]

Changing dynamics of belonging and identity helped to inform logics of resistance to the ongoing pestilence. At the same time that these logical shifts occurred, medical epistemology itself was evolving in New Orleans, similarly determining the path of which theories were discovered, presented, and accepted among elite physicians. The influence of epistemology, and specifically the budding value of objectivity, has up until this point not been studied in the evolution of yellow fever immunity theories.

**Changing Medical Epistemology and the Value of Objectivity**

Yellow fever generally confounded physicians over the course of the nineteenth century. In his 1843 essay on the subject read before the Louisiana Medico-Chirurgical Society, J. F Beugnot opened with the statement, "Since I began the practice of Medicine in New-Orleans, I have often been astonished with one fact which has doubtless struck you as well as myself; I allude here to the diversity of opinions among Medical Gentlemen on the subject of Yellow Fever, and in regard to everything connected with it."[71] Through the majority of the fever years, medical writings demonstrate this multiplicity, with theories constantly evolving and disagreement ubiquitous. This was further evidenced by various shot-in-the-dark public health efforts, and a lack of standard treatment.[72]

[70]For more see Edward J. Blum, *Reforging the White Republic: Race, Religion, and American Nationalism, 1865—1898* (Baton Rouge: Louisiana State University Press, 2015), 148. Urmi Engineer Willoughby also speaks to this phenomenon in *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*.
[71]J. F. Beugnot, "An Essay on Yellow Fever, by J. F. Beugnot D.M.P., read before the Louisiana Medico-Chirurgical Society, Sept. 1843," *The New Orleans Medical Journal*, (1844).
[72]Carrigan, *The Saffron Scourge*, 2.

Without the scientific tools to isolate the definitive cause and transmission dynamics of yellow fever, theories were taken on and replaced over the century as physicians debated the most accurate logics and most effective practices in the public scientific forum. These disagreements and the lack of shared scientific grounds were most pronounced after the more dramatic epidemics of 1853 and 1878 in which expectations for immunity patterns were broken. The scope of disagreement was narrowed at the end of the nineteenth century due to modernizing scientific standards and practices, specifically the emerging epistemological value of objectivity. Certain practices were defined out of science, and the opportunity for judgement limited, leading to fewer theoretical clashes. However, for the majority of the epidemic years, and especially those following major outbreaks, yellow fever was as enigmatic as it was omnipresent.

The same trend of dizzying progress, characterized by theories being constantly overturned, facts seeming to contradict one another, and the violent progress of science appearing less linear than in the past can be seen on a larger scale in mid-nineteenth century science as a whole.[73] There seemed to be no theories safe from this upheaval, and scientists became increasingly cautious of metaphysical claims given the expiration of so many scientific theories.[74] Objectivity and subjectivity were novel conceptual tools which aided in reconciling the goal of scientific advancement with the resulting instability.[75] Due to this immense uncertainty, scientists shifted from viewing their quest as one for absolute truth, to one for objectivity. In other words, their concern was now how to properly acquire knowledge, rather than the "ultimate constitution of nature."[76]

[73]Lorraine Daston and Peter Galison, *Objectivity* (Cambridge, MA: Zone Books, 2007), 211.
[74]Ibid, 213.
[75]Ibid, 211.
[76]Ibid, 215.

In historians of science Lorraine Daston and Peter Galison's work, *Objectivity*, they speak to this general trend in the mid-nineteenth century in which scientists began to see the self as an "obstacle to knowledge," and strive for its total removal from scientific practice.[77] By the 1860's and 1870's, the epistemological value of objectivity had been taken up by science, alongside its counterpoint of subjectivity, painting the scientific self as untrustworthy.[78] The "truth to nature" approach, which required the scientist act as a mediator and stabilizer of empirical evidence to get at the essential, underlying essence of something was no longer acceptable within the scientific community.[79] Rather, knowledge without traces of the knower, coming forth through untouched, unperfected, and unreasoned data became the new standard.[80] This idea of "mechanical objectivity" required scientists who exercised restraint and self-denial.

In this shift, observations without preoccupations went from being seen as useless to a sign of necessary restraint.[81] Pruning, simplifying, and or otherwise manipulating data, such as excising an outlying data point, once the sign of a skillful scientist's ability to see beyond the anomalous to the essential form, became a sign of arbitrary intervention and an ethical failure on the part of the scientist.[82] The very concepts of rationalism and judgement had largely transformed within science from the expression of practical reason to an epistemological danger in the form of subjectivity.[83] Scientific techniques, or objective methods, were thus developed to mitigate the influence of the scientist himself on the production of truth.[84] Protocol,

[77]Ibid, 34.
[78]When using the term "objectivity," I am referring to Daston and Galison's concept of ""mechanical objectivity." Ibid, 198.
[79]Ibid, 323.
[80]Ibid, 198.
[81]Ibid, 187.
[82]Ibid, 195.
[83]Ibid, 19.
[84]Ibid, 38.

measurement, and mechanization were expressions of the epistemological value of objectivity, which shaped not only the science, but also the scientist.[85]

Daston and Galison use the analogy of an avalanche to describe the emergence of epistemic virtues, in which scattered instances of scientists aspiring towards a certain value through practice and speaking of its merit occur, but proper conditions eventually trigger immense downward momentum.[86] In this process, as "fears are articulated and alternatives realized," science changes dramatically not only in its practices, but also in its goals. The greater historical trend of objectivity being taken on as an epistemological value took place in local pockets, such as the elite medical circle of New Orleans.[87] Following the trend set forth by Daston and Galison, the story of yellow fever immunity theories showcases the emergence of objectivity as an epistemological value in the middle of the century during a period of immense scientific instability. Objectivity's firm grip on scientific aims and practices is evidenced by the formation and acceptance of immunity theories near the end of the century.

In the first half of the nineteenth century, physicians in the American south employed a model of "library medicine," in which traditional, largely Hippocratic, medical theories were studied and employed in practice using the reasoning and judgement of the physician.[88] Established medical truths were privileged over novel or anomalous empirical observations, and rational deliberation on the part of the physician to formulate theory was an essential feature of medicine. However, beginning in around 1815, an increasing number of well-born, aspiring New Orleanian physicians went to France to be educated in what was considered the center of

[85]Ibid, 233.
[86]Ibid, 49.
[87]Ibid, 47.
[88]In the eighteenth century, medical practice itself had changed very little since the medieval period despite theoretical advances. John Duffy, *Sword of Pestilence: The New Orleans Yellow Fever Epidemic of 1853* (Baton Rouge, LA: Louisiana State University Press, 1966), 147.

modernity and enlightenment in medicine.[89] Training in Paris as an American awarded one immense merit, so for young creole men, especially those who had the advantage of speaking French, an education at the Paris School of Medicine was essentially a guarantee of professional success.[90] Upon their return, the epistemology of the Paris clinical school was brought to their home communities.[91]

During the middle of the nineteenth century, the Paris School of Medicine, in its revolutionary clinical model, came to stand for "radical empiricism."[92] This meant an emphasis on sensualism and denunciation of dogma, theories taken for granted, and epistemological authority. The new model was a conceptual departure from the aforementioned system of library medicine, in which ancient texts and doctrines were privileged and built upon, never to be replaced, but rather to be applied by a skillful practitioner exercising judgement. Objectivity emerged as a core value, expressed through careful observation, privileging said observations over existing theories, and an emphasis on self-restraint and discipline as necessary qualities of physicians. In shifting the source of medical knowledge, the role of the scientist evolved into a passive, methodical observer of nature.[93]

Two defining practices of the Paris School of Medicine, statistical methods and pathological anatomy, served as techniques of objectivity. Physicians painstakingly correlated symptoms with findings in the tissue during post-mortems, looking for anatomical seats in the body to explain illness. They also increasingly relied on novel tools which aided in

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[89]John Harley Warner, *Against the Spirit of System: The French Impulse in Nineteenth-Century American Medicine* (Baltimore, Maryland: Johns Hopkins University Press, 1988), 214.
[90]Upon their return, the designated themselves with the title "DMP," for Doctor of Medicine of Paris. This served to differentiate them from those who had attended American medical schools, which had virtually no admissions standards and very little requirements for receiving a degree.
[91]Ibid, 210.
[92]Duffy, *Sword of Pestilence the New Orleans Yellow Fever Epidemic of 1853,* 149.
[93]Warner, *Against the Spirit of System*, 181.

standardization, such as stethoscopes, thermometers, and microscopes. This systematized method of observation served as an opposition to prior medical practices which relied heavily on the judgement of the physician and amorphous, abstract theories such as vitalism and miasma theory.[94] Similarly, in the 1830's and 1840's, many students took up Pierre Louis' "numerical" method, going on to employ statistical analysis to gauge the effectiveness of treatments. Again, this practice opposed rationalist traditions and the temptation of imposing systems by attempting to remove the scientific self from the quest for medical truths.[95] Through these techniques of statistics and pathological anatomy, medicine was increasingly professionalized and standardized with the epistemological value of objectivity serving as an aspiration.[96]

New Orleanian trainees adopted these practices, and in their repeated performance, objectivity came into being within their local medical spheres. Exemplary of this pattern, Dr. Joseph Jones, upon his return from Europe, began the immense undertaking of conducting a large sample of postmortem exams on presumed victims of yellow fever in Charity Hospital.[97] He carefully analyzed a host of specimens under the microscope and wrote detailed descriptions, using the neutral language of the scientist striving to remove his influence from his work.[98] This observation without interference, uninformed by prior theories, and following methodical

[94]In 1844, physicians expressed the impossibility "in the present state of science, to determine the nature of these miasms, and to say what are the material causes and conditions of their development." They went as far as to say, "We know that they exist by their effects upon our organism, and further than that, we know nothing." This led to widespread debate over nearly every fact surrounding yellow fever prevention, transmission, and treatment. Erasmus Fenner, "The Health of the City— Together with Authenticated Reports from The New Orleans Hospital and Infirmaries", *New Orleans Medical and Surgical Journal*, no. 1 (1844): 7.
[95]Warner, *Against the Spirit of System: the French Impulse in Nineteenth-Century American Medicine*, 172.
[96]Ibid, 334.
[97]Carrigan, *The Saffron Scourge*, 260.
[98]This style of writing was also a tactic of objectivity. Virtual witnessing through detailed reports that were thought to convey proceedings exactly as they happened, without the influence of the author selecting what was important to include, effectively made it so that one's peers could "witness" the experiment firsthand and thus be convinced of its rigor and legitimacy as untainted by the scientist's personal biases. Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*, (Princeton, NJ: Princeton University Press, 1985), 82.

procedure was an attempt at what those who aimed for objectivity hoped for: to let nature speak for itself. This narrowed the grounds for acceptable practices and evidence, and thus the scope of disagreement within the scientific community.

The interest in pathological anatomy, as well as allowing empirical data such as statistics to inform novel theories, began to define scientific norms as the removal of the self and elimination of subjectivity in scientific endeavors became mainstream. During the Civil War, southern physicians were given the opportunity to implement the practices of clinical medicine on a larger scale than ever before, as they encountered novel and abundant injuries and illnesses.[99] Through practices and an ethos imported from France and solidified during the Civil War, physicians in New Orleans reformed their medical epistemology to one centered around objectivity. This led to more pointed, specific debates, as a boundary was drawn around what qualified as objective science.

**Acclimation, Creole Immunity, and the Emergence of Objectivity**

Despite the global trend described by Daston and Galison, the local acceptance of objectivity as an epistemological value in nineteenth century New Orleans was not a necessary outcome. This example has a specific history of epistemological conflict, which very possibly could have resolved differently were it not for the social and political context. Following the introduction of Parisian medical epistemology in New Orleans in the mid-nineteenth century, the values of "truth to nature" and "mechanical objectivity" confronted one another, forcing difficult choices during this intermediary period. Both values could not be simultaneously sought after,

[99] Physicians placed a large emphasis on pathological anatomy throughout the civil war. More about the medical transformations propelled by the war can be found in the following source. Shauna Devine, *The Civil War and the Rise of American Medical Science* (North Carolina: UNC Press, 2014), 76.

and the discourse between physicians at the time demonstrates the struggle that took place, changing the aims, practices, and ethos of science in the community. This conflict and the eventual acceptance of objectivity as a goal of science in New Orleans' elite medical circle is documented in the previously mentioned story of Faget and Deléry's ongoing contest over the existence of creole immunity.

The two physicians employed braided discourses in their arguments through the years of epistemological and theoretical uncertainty, as their ways of knowing, standards of evidence, and relationships to the scientific self evolved. This was representative of the epistemologically transitional moment they existed in; however, Deléry frequently and consistently called upon objectivity and its techniques in both critiquing Faget's science and promoting his own findings. Faget appeared to resist objectivity as an epistemological value, as well as its associated practices. He refused to acknowledge subjectivity as a danger to truth production, but rather saw judgement and practical wisdom as necessary aspects of science as scientists had for centuries before.

Ultimately Faget's theories were rejected by the medical community as a result, marking a key moment of transition in medical epistemology. This historical moment illustrates the acceptance of objectivity as a value of science, and thus subjectivity as the enemy of truth. Also demonstrated is the influence of objectivity as a goal in the forming of immunity theories, and their eventual trend towards racialized logics. Scientists had to shift from this universalist, multifaceted, and malleable understanding of immunity to eventually associate it with stagnant and anatomical, in this case racial, features.

In the debate between Deléry and Faget over the issue of creole immunity, the two men can be seen to leverage different epistemological values. This was also a struggle over the role of

the scientific self, demonstrated in two central arenas. The first is how novel data was positioned in relation to prior theories, and the second is who scientific theories were presented to, which then informed what qualified as acceptable evidence. Deléry's use of objectivity as the aim of his practices in many ways secured his eventual victory within the medical sphere. The outcome of this debate was not a simple step towards truth, but a historically contingent ontological victory.

The question of creole immunity came to the forefront of the medical community in New Orleans following the epidemic of 1853, which was the most devastating outbreak to date in terms of morbidity and mortality, due in large part to its occurring after a six-year period free from disease.[100] Within the year an estimated 8,400 people, 10-15% of the city's total population, were eradicated. Though most of those who perished were newcomers to the city, mortality data still challenged the expectations of physicians, and eventually led to reconfigurations of immunity theories, as well as the logics upon which they were founded. [101] Increasingly, physicians noted the high number of creole cases of yellow fever and resulting deaths tabulated from many sources.[102] To make sense of this, most physicians at the time looked to the debate between two of their colleagues who exemplified opposite stances on the issue of creole immunity and variously interpreted the statistical data at hand.

Deléry and Faget had contrasting philosophical approaches to said novel empirical data, and thus divergent understandings of the role of empiricism and the relationship between scientific progress and tradition. Faget demonstrated his privileging of theoretical foundations over empirical data and an interest in fixing data to fit his preconceptions. As larger numbers of creoles were thought to be suffering from yellow fever, rather than amend the traditional

[100]Carrigan, *The Saffron Scourge*, 55.
[101]Carrigan, *The Saffron Scourge*, 58.
[102]E. D. Fenner, *History of the Epidemic Yellow Fever, at New Orleans, La., in 1853* (New York: Hall, Clayton & Co., printers, 1854), 56.

philosophy of creole immunity, he sought to modify the empirical data before him through claims of misdiagnosis, and thus faulty statistics. He stated, "that all these fevers with black vomiting," were truly the result of "poisoning by the odors" which were "very apt to imitate yellow fever," and thus the "cause of a host of diagnostic errors."[103] Rather than use the emergent empirical evidence to formulate a fitting immunity theory, he sought to fix the data in front of him while keeping established theories in mind.

Faget's stance on how to interpret these statistics was informed by his alignment with the traditional model of medicine, and thus stark opposition to "sensualism," or empiricism.[104] Like many of his contemporaries in the mid-nineteenth century as well as his predecessors, Faget upheld "the Hippocratic Doctrine, founded on common sense, and transmitted by tradition."[105] He went as far as to argue that there was "no true science outside of it," and that any "new Doctrine [was] therefore necessarily a medical heresy."[106] Prior to 1853, no doctor would have even considered the question of creole susceptibility to yellow fever. He thus put forth that either his "predecessors were grossly mistaken," or that "yellow fever [had] changed in nature," and cites both of these scenarios as being impossible given his view of tradition and scientific authority as the arbiters of truth.[107] For Faget, arriving at laws of nature required a previously held doctrine or logical axiom, and thus data must be pruned and interpreted with an eye towards said dogma.[108] This was the role of the scientist, to uncover truth that lay beyond anomalies and

[103]J. C. Faget, *Etude Médicale de quelques questions importantes pour la Louisiane et Exposé Succint d'une endémie paludéenne*, de forme catarrhale (New Orleans: Imprimerie Franco-Américaine, 1859).
[104]Ibid.
[105]Ibid.
[106]Ibid.
[107]Ibid.
[108]Ibid.

misconceptions, and to "coordinate the new facts with the old doctrine."[109] Faget attempted to produce a reasoned statistic, and thus a "truth to nature" approach.[110]

Unsurprisingly, Faget attacked the alternative tactics of "mechanical objectivity," which he associated with privileging observations that were incommensurable with established theories. He believed that this disproportionate focus on "raw, isolated, particular facts," would lead to a fickle and disjointed science. Ultimately, Faget looked to reconcile empirical observations and apparently incommensurable statistics with prior logics of disease. He stated, "it is the old tradition of the country that I come to support, a tradition according to which the yellow fever has never struck the creoles."[111] For Faget, science had a metaphysical aim of extracting the truth from nature through the intervention of the scientist, and traditional systems were the best protection against the trap of irregular and misleading observations.

This approach to arriving at scientific truth stands in stark opposition to that of Deléry, who saw breaks from traditional doctrine as an inevitable feature of progress, and thus privileged empirically derived observations, particularly statistics, over the previously accepted theories they appeared to contradict. Deléry saw the cases of creoles with yellow fever as building anomalies which overtime necessitated a shift in the theoretical basis of immunity. He sought to passively observe nature, employing the techniques of "mechanical objectivity" to arrive at a truth free from preconceptions and imposed systems.

Deléry's views on medical epistemology are demonstrated through his attitude towards the future and to previously accepted scientific truths. He stated that his goal was to "transmit to the doctors who will succeed us, and to the generation who will follow us from facts observed

[109]Ibid.
[110]Daston and Galison, *Objectivity*, 34.
[111]Faget, *Etude Médicale de quelques questions importantes pour la Louisiane et Exposé Succint d'une endémie paludéenne, de forme catarrhale.*

impartially, without being [taken as] preconceived, but nevertheless, with the imperfection which is attached to everything that proceeds from the judgment of men." Here he invokes the language of the subjective scientific self, and positions judgement and partiality as a barrier to truth, rather than a tool to get at the true nature of things. He ridicules Faget's efforts, pointing to his loyalty to arbitrary theory by asking his readers to "remember the painful and futile efforts of Dr. Faget to discover some differential signs" of yellow fever in the rest of the population versus swamp fever in creoles.[112] For Deléry, controversy and change were "inevitable accidents of the progress of science," and to resist them was to oppose the production of truth.[113]

Ultimately, Deléry's idea of establishing truth laid in empiricism unshrouded by doctrine and unaltered by the scientist, specifically through the "numerical method." Upon writing his 1867 pamphlet, he put forth his notion of creole susceptibility as evidenced by a host of repeated observations and statistics, all part of his "scrupulous and in-depth study," described further in the later portion of this section.[114] His effort was not only to show the compatibility of data with his theory and to demonstrate his theory as organically arising from empirical observation without manipulation, but also to openly challenge the tactic of fitting data to preexisting models.

Deléry, like his colleagues in France, saw something fundamentally wrong with these attempts to shape data to established doctrines, and viewed this as a failure of the scientist to

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[112]Charles Deléry, *Mémoire sur l'épidémie de fièvre jaune : qui a regné à la Nouvelle-Orléans et dans les campagnes pendant l'année 1867* (New Orleans: Nouvelle-Orléans : L. Marchand, imprimeur, 1867).
Eventually it became clear that though Faget was wrong about creole immunity, he was right his proposed clinical sign for distinguishing yellow fever from malaria. After his theory, which posed that the relationship between pulse and temperature indicated yellow fever specifically, was ridiculed, he went on to use a thermometer and the watch to track the two data points, recording them and charting their relationship in 1870. This use of instrumentation and statistical analysis won over his collogues, and his diagnostic sign was accepted. Jean-Charles Faget, *The Type and specificity of yellow fever, established with the aid of the watch and thermometer* (New Orleans: J.-B. Ballière [sic] and Sons), 1875.
[113]Ibid.
[114]Ibid.

exercise moral restraint rather than a legitimate alternative epistemology.[115] In this way, Deléry was exemplary of the budding value of objectivity. He upheld the emerging idea of the neutral, disciplined, and cautious scientist who uncovered truths through careful observation and statistics, and who saw any traditional basis for medicine, including Hippocratic doctrines, as a potentially faulty premise.

In addition to their positioning of novel empirical findings, the two physicians also diverged in their views on the intended audience and jury of science, and thus the appropriate forms epistemic currency to be considered in the acceptance or rejection of theories. During much of the eighteenth century up until the first half of the nineteenth century, medical accuracy and legitimacy was awarded less from the actual evidence presented in the myriad of pamphlets, newspapers, and French language journals, but rather from the appearance of personal morality and credibility to thus decide judiciously on medical matters.[116] This was largely the result of the public serving as the audience of medical writings, and thus the judges of medical authority and truth.[117] Witty rhetoric, undermining a competitor's reputation, self-presentation, manipulation of language, appeals to tradition, and simplicity of argumentation were all essential for this honor-based model of scientific evidence.[118] Over time, scientific theories would be presented with little trace of the scientist as a sign of their veracity, replacing the importance of individual character with objectivity in medical debates. [119] In this process of shifting the audience of scientific theories, and the power to deem them factual, from the public to a guarded community

[115]Ibid.
[116]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 536.
[117]Ibid, 539.
[118]Ibid, 534.
[119]Ibid, 539.

of professionals, standards of evidence evolved, and the self was viewed as a barrier to discovery, rather than the most essential feature.

The early model of medical epistemology served Faget well, given his upright reputation, evidenced by Matas who stated, "Dr. Jean Charles Faget (1818-84) was known to me personally as one of the most dignified, scholarly and pious men in the profession."[120] Faget ran a successful practice for creole patients, and his views on creole immunity ingratiated him even more with the prominent social class. Demonstrated in his writings, he bought into this model of scientific truth and appealed openly to the public, highlighting his character and judgement. In his 1858 pamphlet, he explained his avoidance of a more detailed and technical study by arguing that "doctors alone would have given themselves the worth reading it," and that he aimed to directly address the educated public.[121] He played the role of the judicious doctor-philosopher, stating that he had been "strengthened by [his] convictions, supported by proofs which seem to [him] within everyone's reach."[122] He also stated that he deemed it "necessary to hasten to assert them, in the interest of the truth and of the public."[123] His open appeals to the public involved leveraging his own identity in forming and presenting scientific theory. Faget upheld the importance of a physician's judgement and personal credibility, equating the decline of medicine with the erroneous belief that "material research [is] sufficient" and thus "a high culture of intelligence [is] no longer necessary for the medical profession."[124] He continued to insist on the importance of the "Catholic, rationalist, and traditionalist" doctor in manufacturing medical truths.

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[120]Matas, "Torn Leaves from the Dead Foliage of Medical Louisiana," 445.
[121]Faget, *Etude Médicale de quelques questions importantes pour la Louisiane et Exposé Succint d'une endémie paludéenne, de forme catarrhale.*
[122]Ibid.
[123]Ibid.
[124]Ibid.

Alternatively, “nothing could be more Faget's opposite than Deléry, who was one of those thin peppery little men who delight in controversy,” Matas stated in in his 1942 history of yellow fever.[125] Historian E.L. Tinker similarly joked that "only a lifelong diet of roast pelican, stuffed with firecrackers, could possibly explain his belligerency. He was always getting into fights.”[126] Deléry, as one may expect, was especially gifted in mockery, though an easier target for reputational ruin. Over time, he worked towards drawing a boundary around the increasingly professional medical community. Ironically, he had to do so by appealing to the public, understanding the continued hold communal readers had on the establishment of medical fact.[127] After the Civil War, emboldened by the solidification of the French epistemological values, he called directly on the professional medical community to decide the issue of creole immunity.[128] Without this shift in audience, and the resulting change in this persona-oriented standard of truth, it is unlikely that Deléry’s criticisms of creole immunity would have prevailed.

In moving towards an audience of peers, Deléry thus pushed for privileging scientific evidence itself over rhetorical jousting.[129] The public sought out a good, scrupulous character and entertainment, whereas the evolving scientific community increasingly looked for standalone evidence without traces of the scientist, as the value of objectivity became more central to scientific practice. Deléry cited his goal as being “to destroy a disastrous prejudice: that of Creole families who persist in believing that their children are free from yellow fever; prejudice that necessarily leads to prejudicial treatment” which he would achieve through “facts observed impartially, without being took preconceived.”[130] He attacked Faget’s persuasion of creoles

[125]Matas, “Torn Leaves from the Dead Foliage of Medical Louisiana,” 446.
[126]Ibid, 447.
[127]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums,” 550.
[128]Ibid, 549.
[129]Ibid, 551.
[130]Deléry, *Mémoire sur l'épidémie de fièvre jaune: qui a regné à la Nouvelle-Orléans et dans les campagnes pendant l'année 1867*.

regarding their own immunity on the grounds that bias has disturbed Faget's own judgement, leading conclusions which he has formed to be "inevitably erroneous."[131] Deléry even postured that the acceptance of these conclusions by the creole public were the result of fear alone, rather than convincing evidence.[132] Clearly, he began to demonize judgement as an immoral expression of bias, rather than wisdom.

Recognizing the "extreme fallibility of the human spirit," including "the best endowed spirit in nature and the best cultivated," Deléry employed techniques which would serve to minimize the influence of the scientific self. In his 1876 study, he relied heavily on a large collection of data tables, detailing deaths, diagnoses, demographics, and a host of environmental features such as wind (by direction), rainfall, and others by month.[133] He used this data to demonstrate the lack of correlation between deaths during epidemics and atmospheric circumstances which Faget claimed would lead to dangerous miasmas. This served to highlight the impossibility of a second illness caused by said miasmas which would have resulted in the recorded cases of creoles during periods of yellow fever epidemics.[134] Yellow fever, thought to be caused by a microorganism, was thus the only explanation for the recorded cases in the creole community.[135] Through this statistical study, he sought to minimize the role of individual

[131]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 526.
[132]Deléry*, Mémoire sur l'épidémie de fièvre jaune : qui a regné à la Nouvelle-Orléans et dans les campagnes pendant l'année 1867*.
[133]Ibid.
[134]Ibid.
[135]By this point, most physicians accepted a causal microorganism as the agent of yellow fever, which was seen as a specific disease. This was a departure from past conceptions of yellow fever as an expression of a general fever, just in a severe form. Disease was previously understood as a constitutional problem, but by this moment in time it was believed to be the result of some type of invading microorganism, even though physicians were unsure as to the character of said entity. This view was only strengthened by global advances in science throughout the second half of the century, most notably the acceptance of germ theory. A vote at Orleans Parish Medical Society in 1878 showed near unanimity in the opinion that a microorganism caused the specific disease of yellow fever. Duffy, *Sword of Pestilence the New Orleans Yellow Fever Epidemic of 1853,* 149.

judgement, as well as bias, at a time when objectivity was taking its place at the center of scientific values in the New Orleans elite medical circle.

Amy Forbes, in her work on evolving evidentiary standards in New Orleans' medical debates, puts forth the theory that at this time standalone evidence, free from impressions of a scientist himself, was "gaining medical currency," despite the initial risks to "professional integrity and livelihood" from employing this model of argumentation.[136] Deléry embraced the newly imported scientific value of objectivity, and thus his argument lent itself well to emerging standards. Faget, on the other hand, did not forego his view of the importance of a physician's judgement and personal credibility.[137] He continued to directly address the public in his work and insist on the importance of the physician in manufacturing medical truths. [138] The audience for these discussions slowly shifted from the general public to trained professionals more interested in content, and only concerned with the scientist in the capacity that he exercise restraint and neutrality. Legitimate ways of obtaining truth narrowed, and evidentiary failures by the new standard began to be highlighted.[139]

By 1878, creole immunity to yellow fever, once an essential feature of creole identity, had been largely rejected by almost all medical authorities.[140] This shift was dramatic, as antebellum physicians almost unanimously supported the idea that native creoles were immune to the disease.[141] Eventually, almost all elite physicians believed these traditional theories to be both naïve and unsupported by evidence.[142] Dr. Stanford Chaille, who served as Dean of the

[136]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 527.
[137]Faget*, Études sur les bases de la science médicale et exposition sommaire de la doctrine traditionnelle* (New Orleans: Nouvelle-Orléans Méridier, 1855).
[138]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 539.
[139]Forbes, "A Little Seasoning Would Aid in the Digestion of Our Factums," 540.
[140]Jessica Wells, "The Suffering South: 1878 Yellow Fever Narratives and Post-Reconstruction Southern Identity," Scholar Commons, Accessed March 19, 202, https://scholarcommons.usf.edu/etd/7106/.
[141]Ibid, 110.
[142]Ibid, 110.

Medical Department at the University of Louisiana stated, "there are now in New Orleans no physicians known to me, having experience and distinction, except Drs. Mercier and Faget," who still held on to the principle of creole immunity.[143] Physicians continued to cite statistical and observational evidence of creole susceptibility over the following decades.[144]

Though the idea of creole immunity was rejected, cases in creoles were still notably less common than in newly arrived foreigners, and outcomes for those who were sick were generally better. To explain this, the model of acclimation, now seemingly arbitrary, was replaced with a more easily quantifiable logic. Previously, many physicians agreed with Faget that "acclimatization [had] nothing to do with morbific principles, but rather [depended] on the slow and gradual action of climacteric influences on the organism."[145] Similarly, Faget and others condemned the view that "city children [were] acclimatized only after having gone through a great epidemic, that is to say after having had yellow fever," despite Deléry and others putting forth that one can only become resistant by "more or less prolonged contact with the disease principle," or microbiological agent.[146] Eventually the model of surviving a previous mild case of the disease, most often as a child, could be corroborated through analyzing outbreak years, and thus accounting for the apparent resistance of those who had resided in New Orleans for long spans of time through periods of disease.

This new logic starkly contrasted with the amorphous and vague idea of acclimation. After decades of physicians debating the exact mechanism and details of this process, the new model could be demonstrated through data rather than an imposition of a traditional system. Not

[143]Stanford Chaille, "Acclimatization, or Acquisition of Immunity," *New Orleans Medical and Surgical Journal* (1880): 146.
[144]Wells, "The Suffering South," 111.
[145]Faget, *Etude Médicale de quelques questions importantes pour la Louisiane et Exposé Succint d'une endémie paludéenne, de forme catarrhale.*
[146]Charles Deléry, *Seconde et derniére réplique du Dr. Deléry au Dr. Faget* (New Orleans: 1868).

only did it explain differential susceptibility in immigrants, but also the increase in creole cases during certain epidemics, as these outbreaks occurred after a multi-year respite of from the scourge. Physicians such as Chaille concluded, "immunity from yellow fever cannot be gained through the influence of climate," and thus "it is an abuse of language, due to past ignorance and misconception, to continue to designate the acquisition of immunity from yellow fever, 'acclimation,' or 'acclimatization.'"[147]

This moment of debate and instability, and its eventual resolution, demonstrates the influence of the emerging epistemological value of objectivity. Deléry rested on criticisms of rationalist configurations in an attempt to fit new empirical evidence with previously held traditional theories and personal bias. He also pushed for a medical epistemology for doctors themselves and increasingly relied on the "numerical method." All of this was an attempt to remove the self from the production of scientific truth. Alternatively, Faget continued to appeal to the public and privilege tradition over observed data. He employed his own judgement and reasoning as a means of improving his theory and matching data to what he deemed was the true essence of nature. Eventually, at the end of this transition period, Deléry aligned more closely with the modernizing scientific value of objectivity and its associated methods. For Deléry as well as for more and more scientists of this time, separating medical truth from personal prejudice was also a moral and a political project. However, the final result of medical epistemology at the of the nineteenth century was arguably equally imbued with power relations, only these influences were covert, making theories potentially even more dangerous and difficult to contest.

[147]Wells, "The Suffering South," 112.

The move away from creole immunity and the potential for acclimation to a model of acquired immunity laid the groundwork for the eventual acceptance of a logic of racial immunity. This debate was a key first step in moving from notions of a universal human body influenced by environmental influences to one of distinct racial types with inherent, anatomical, and unchangeable features.[148] Deléry and Faget's contest both highlights the acceptance of objectivity as a goal of science at the end of the nineteenth century, and the influence of this value on the progression of immunity theories.[149] The theoretical vacuum left by the move away from acclimation was filled through tactics of objectivity, specifically statistics and pathological anatomy, to arrive at the racial model.

**Tactics of Objectivity and Racialized Immunity**

The most devastating epidemic following that of 1853 occurred in 1878 after a respite in outbreaks since 1867. This interregnum again led to patterns of infection which confounded prior theories and expectations. Immunity logics, imbued with ideas of belonging and citizenship, were thus revisited and debated, just as they were through initial observations following the outbreak in 1853.[150] The move away from a model of acclimation to one of acquired resistance through surviving the illness was strengthened by the emerging emphasis on bacteriology, as opposed to the prior environmental framework, during the 1878 epidemic.[151] This posed racial

[148]Christopher D. Willoughby, "His Native, Hot Country: Racial Science and Environment in Antebellum American Medical Thought," Oxford University Press, (2017): 334, https://academic.oup.com/jhmas/article/72/3/328/3869819.
[149]David Cantor and John Haley Warner, "Making History in American Medical Culture: the Antebellum Competition for Hippocrates," Essay In *Reinventing Hippocrates*, Routledge (2017): 200–239.
[150]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2254.
[151]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2243.

differential immunity, indicated by statistics, as a puzzle for physicians, as the mechanism of acquired immunity alone could not explain away discrepancies.[152]

In the debates following 1878, the logic of black resistance, which was previously ambiguous, was addressed from an increasingly reductionist and biological standpoint.[153] Black immunity had previously been viewed as somewhat distinct from creole immunity, but how it differed was not an explicit area scientific of interest until this period. Though acculturated to accept black resistance to yellow fever, for the first time, physicians seriously initiated a conversation surrounding the actual nature of this apparent resistance, drawing on evolving medical practices which stemmed from the goal scientific objectivity.[154] This investigation was a result of increasingly racialized statistics which appeared to evidence differences in black versus white immunity to yellow fever. The emphasis on objectivity led physicians not only to emphasize and essentialize statistical findings, but also to explain apparent discrepancies in racial outcomes through an anatomical lens.

Though the epidemic of 1878 was so extensive and destructive that it halted the practices of many organizations which traditionally formulated and disseminated information, there were still efforts to collect statistical data, which served as a primary source for immunity theory construction.[155] Resistance was generally gaged by looking to the percentage of survival in those who had contracted yellow fever for a given demographic.[156] Given the white coalition-building and increasingly binary understandings of race in the post-reconstruction, segregated New

[152]Wells, "The Suffering South," 107.
[153]In past outbreaks, if physicians observed black resistance, they generally explained it through non-anatomical frameworks. Namely, they relied on the model of acclimation, but some physicians also put forth other theories such as the conditions of slavery as offering protection from the illness. Carrigan, *The Saffron Scourge*, 254.
[154]Wells "The Suffering South," 138.
[155]Following the epidemic of 1853, New Orleans saw the growth of modern medical institutions, including the New Orleans Board of Health, which aided in centralizing data collection as well as the production of scientific theories. Wells, "The Suffering South," 6.
[156]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2459.

Orleans of 1878, mortality data generally took on a new form in which race was emphasized over nativity, and really any other feature. In a single column, all "black" cases were presented, sometimes with a separate column for people of mixed race, or "mulattos." This demonstrated that the issue of belonging and identity was taking on a new form: one defined by racial difference.

The partitioning of statistics in this manner was misleading for a number of reasons, including the holes within the actual data collected.[157] Institutions of power, such as hospitals and charitable foundations, as well as prominent physicians, were tasked with tabulating cases and deaths.[158] It is unlikely that black citizens would have had equal access to these resources and had the same attention paid to their health.[159] They were also possibly underdiagnosed due to the difficulty of recognizing jaundice in people of color.[160] In general, there was a lack of death records for many people of color due to health care inequity, which skewed these calculations.[161] In addition, the European immigrants who came to New Orleans in large number during the second great wave of immigration were more likely to fall victim to yellow fever, as opposed to black migrants who came from nearby plantations after the Civil War, which falsely pointed to an inherently racial component to resistance.[162]

[157]Ibid, 2450.
[158]Carrigan, *The Saffron Scourge*, 81.
[159]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans, 2451.*
[160]Carrigan, *The Saffron Scourge*, 8.
[161]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2445.
[162]Richard Campanella, **"**An Ethnic Geography of New Orleans," *Journal of American History,* 94 (2007): 704–715, http://archive.oah.org/special-issues/katrina/Campanella6c64.html?link_id=fus_antebellum#fus_antebellum.

*Tabulated Abstract of Practice in Yellow Fever Epidemic of* 1878.

| | | JULY | | AUGUST | | SEPTEMBER | | OCTOBER | |
|---|---|---|---|---|---|---|---|---|---|
| | Ages Under | No. Treated | No. Fatal | No. Treated | No. Fatal | No. Treated | No. Fatal | No. Treated | No. Fatal |
| WHITE. | 5 | ..... | ..... | 20 | 2 | 47 | 4 | 10 | 1 |
| | 5 to 10 | 1 | ..... | 9 | ..... | 38 | 2 | 20 | 2 |
| | 10 to 20 | ..... | ..... | 11 | 2 | 31 | 1 | 20 | 2 |
| | 20 to 40 | 1 | ..... | 7 | 1 | 34 | 1 | 6 | 2 |
| | 40 to 60 | ..... | ..... | 3 | ..... | 5 | 1 | 3 | 1 |
| | Totals.. | 2 | ..... | 50 | 5 | 155 | 9 | 59 | 8 |
| BLACK. | Under 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | 5 to 10 | ..... | ..... | 1 | ..... | 2 | ..... | ..... | ..... |
| | 10 to 20 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | 20 to 40 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | 40 to 60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | Totals | ..... | ..... | 1 | ..... | 2 | ..... | ..... | ..... |
| MULATTOES. | Under 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | 5 to 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | 10 to 20 | ..... | ..... | ..... | ..... | 1 | ..... | 2 | ..... |
| | 20 to 40 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | 40 to 60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | Totals . | ..... | ..... | ..... | ..... | 1 | ..... | 2 | ..... |

Total cases reported to Board of Health to date of this reply (October 13th, 1878)..... 270

Total deaths to date (October 13th, 1878)..... 22

Death rate.....0.081, say $\frac{8}{100}$.

Cases and Deaths of by Race Report Upon Yellow Fever in Louisiana 1878 and Subsequently[163]

[163]Ibid.

*Tabulated Abstract of Practice in Yellow Fever Epidemic of* 1878.

*New Orleans Charity Hospital.*

| | Ages Under. | JULY | | AUGUST | | SEPT. | | OCTOBER | | TOTAL. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. Treated. | No. Fatal. | No. Treated. | No. Fatal. | No. Treated. | No. Fatal. | No. Treated. | No. Fatal. | No. Treated. | No. Fatal. | Per cent. |
| WHITE. | 5 | ..... | ..... | 7 | 3 | 3 | 1 | ..... | ..... | 10 | 4 | 40.0 |
| | 5 to 10 | ..... | ..... | 2 | 1 | 1 | 1 | ..... | ..... | 3 | 2 | 66.⅔ |
| | 10 to 20 | 8 | 3 | 26 | 7 | 25 | 6 | 7 | ..... | 66 | 16 | 24.2 |
| | 20 to 40 | 18 | 9 | 246 | 141 | 175 | 91 | 61 | 24 | 500 | 265 | 53.0 |
| | 40 to 60 | 9 | 6 | 75 | 45 | 83 | 45 | 18 | 10 | 185 | 106 | 57.3 |
| | 60 to 80 | 2 | 2 | 7 | 6 | 5 | 1 | 1 | 1 | 15 | 10 | 66.⅔ |
| | Total.. | 37 | 20 | 363 | 203 | 292 | 145 | 87 | 35 | 779 | 403 | 51.7 |
| BLACK. | 10 to 20 | ..... | ..... | 2 | ..... | 5 | ..... | 1 | ..... | 8 | ..... | ..... |
| | 20 to 40 | ..... | ..... | 11 | 3 | 8 | 1 | 5 | 1 | 24 | 5 | 20.8 |
| | 40 to 60 | ..... | ..... | 2 | 1 | 1 | 1 | 3 | 1 | 6 | 3 | 50.0 |
| | Total.. | ..... | ..... | 15 | 4 | 14 | 2 | 9 | 2 | 38 | 8 | 21.0 |
| | Grand Total..... | | | | | | | | | 817 | 411 | 50.3 |

Cases and Deaths by Race, Report Upon Yellow Fever in Louisiana 1878 and Subsequently[164]

The cases and deaths among the whites, classified by age, are as follows:

| AGE. | CASES. | DEATHS. | PER CT. |
|---|---|---|---|
| Under 5 years of age..... | 206 | 26 | 12.67 |
| From 5 to 10 years of age... | 233 | 20 | 8.61 |
| " 10 to 20 " " ... | 183 | 9 | 4.9 |
| " 20 to 40 " " ... | 232 | 39 | 16.7 |
| " 40 to 60 " " ... | 47 | 6 | 12.7 |
| " 60 to 80 " " ... | 4 | 2 | .50 |

Cases Among Whites, Report Upon Yellow Fever in Louisiana 1878 and Subsequently[165]

[164]Ibid.

[165]Samuel Merrifield Bemiss, *Report upon yellow fever in Louisiana in 1878 and subsequently* (New Orleans: L. Graham & Son, printers, 1883).

Official mortality statistics from the New Orleans Board of Health acknowledged cases and deaths within the black population but highlighted their relative rarity in comparison to the white population.[166] Historian Jessica Wells noted in her work on yellow fever narratives that the Board of Health "cited the final count of yellow fever deaths for the year 1878 as 4,046 in its year-end report to the Governor," with only "183 deaths [reported] as 'colored.'"[167] This prompted medical authorities to eventually postulate that black bodies were inherently resistant, as they appeared to be less likely to contract yellow fever and more likely to survive a case than white counterparts.[168] For example, the Sanitary Inspector for the Fourth District, William Joseph Halt, stated that "the exemption of the negro race is… strikingly shown in the table of mortality," referencing a report in which "a mere 29 deaths out of a total population of 6,883 black residents [served as] strong evidence in favor of their inherent resistance."[169]

No longer was yellow fever an affliction of all strangers, but racial divisions in susceptibility began to take hold in the imaginations of the medical elite. Separating statistics solely on racial grounds due to social and political influences set up physicians for an examination of apparent discrepancies in immunity by race, which was answered through an anatomical lens of inherent racial difference for the first time. This was in large part a result of the epistemological value of objectivity, which not only led physicians to lend immense faith to these statistics, but also led to the promotion of techniques of pathological anatomy for explaining observed patterns. Modernizing anatomy provided a physical and localized explanation for observed patterns and was deemed to be less corruptible than Hippocratic systems, which were known to produce a wide range of disagreement in application.

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[166]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans, 2455.*
[167]Wells, "The Suffering South," 140.
[168]Ibid, 1725.
[169]Wells, "The Suffering South," 139.

Eventually, physicians constructed an elaborate immunity theory which predicated immunity on racially based anatomical features, rather than acclimation, social behaviors, or conditions of slavery.[170] In proposing that black immunity was entirely different from previous conceptions of acquired immunity or immunity from acclimation, but rather a direct result of innate racial differences which offered protection from the disease, physicians emphasized race in a new and dramatic manner. In this way, the epidemic of 1878 was a key turning point in shifting theories regarding racial immunity."[171] Universalist ideas about the "potential for the human body to be acclimated," already problematized through the move away from creole immunity, were replaced by explanations involving innate differences partitioning the human species into races.[172] Physicians moved towards imagining racial divisions as indicative of susceptibility, drawing the lines of insider versus outsider through skin color as opposed to a stranger versus native dichotomy.

Historian Urmi Engineer Willoughby cites the increasingly racialized view of bodies that physicians employed as naturally having an influence on both the collection and interpretation of statistics. This is clear through the very formulation of a statistic based solely around race, despite knowledge of acquired immunity. What has been understudied, however, is how medical epistemology and scientific modernity also influenced the acceptance of these theories. The very privileging of statistical methods and anatomical logic without question also promoted and emboldened the racialized model.[173]

[170]Wells, "The Suffering South," 148.
[171]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 120.
[172]Ibid, 1723.
[173]Ibid, 275.

Physicians did not scrutinize the reliability of statistical evidence for black resistance as they did previously in the early arguments over creole immunity.[174] Medical elites were formerly skeptical of the ability of statistics to accurately capture the true essence of nature and held numerical evidence more lightly and in combination with other various forms of evidence. They looked out for incompleteness or misrepresentation, as evidenced by Faget's stance on statistical reports of creole susceptibility in 1853. This was also demonstrated by the editor of the New Orleans Medical and Surgical Journal who stated that "The Board of Health [has] constantly been of the impression that a large proportion of cases never were reported to their office" due to an early reluctance to diagnose creole patients with yellow fever. He went on to proclaim that "this fact alone seriously impairs the value of statistics."[175]

The discussions over black immunity occurred at a time when objectivity had firmly established itself as a core epistemological value within the scientific community. Faith in all truths being scientifically provable with adequate silencing of the scientific self, a feature of the ideal of objectivity, led to assigning immense significance to numerical discrepancies in the racialized data. Statistics were seen as definitive evidence of differential immunity and resistance, despite said statistics being skewed. Now physicians only had to discover the explanation for such incongruities.

The logic employed to make sense of these findings was also a feature of the emergence of objectivity. Physicians looked for a tangible and consistent seat in the body itself to explain differences in disease incidence and outcomes through the logic of pathological anatomy. The practice, learned by many during their training in France, required a disciplined, observant, and

[174]Wells, "The Suffering South," 113.
[175]"The Fever, Physicians Interviewed on the Subject," New Orleans Times, August 6, 1878; "Calling Things by Their Right Names," New Orleans Medical and Surgical Journal, 31 (1878): 415-416.

neutral scientist thoroughly correlating symptoms with post-mortem reports. The tissue, just as the statistic, was free from the influence and bias of the self. This was a stark contrast to medicine based on systems which required the judgement of the practitioner. The acceptance of localism,[176] solidism,[177] reductionism, and pathological anatomy, bolstered through the Civil War, lead physicians to explain medical phenomena through anatomical deviance from the normal. Even physicians who were not actually correlating autopsies with symptoms adopted the philosophy behind this approach, looking to tangible anatomical features as likely explanations for differential resistance to yellow fever. This technique of objectivity was extremely amenable to the idea of racial immunity, in which case physicians treated people of color as pathological subjects.[178]

This shift towards anatomical thinking to explain disease experiences in general is demonstrated in many medical journals from the time period. For example, the effects of a given illness on a wide range of organs was a common topic of discussion in the medical community. Demonstrative of this, an investigation into the differences in impacts on the lungs, stomach, spleen, liver, kidneys, and more between malarial and yellow fever was published in 1877. The author stated, "The microscopial examination of the blood also reveals marked differences in the two diseases."[179] Autopsies and pathological anatomy, and notably the use of microscopes to look at specific regions of deviation from the healthy state, became commonplace.[180] This increased emphasis on pathological anatomy was employed in examinations of racial differences,

[176]A belief in the tissue as the site of pathology.
[177]The philosophy that only solid, tangible body parts are susceptible to disease.
[178]Paul A. Erickson, "The Anthropology of Josiah Clark Nott," Kroeber Anthropological Society Papers (1986): https://digitalassets.lib.berkeley.edu/anthpubs/ucb/text/kas065_066-013.pdf.
[179]S.M. Bemiss, "Clinical Studies from Service in Wards 18, 19, 20 and 21, the Charity Hospital, from October 1, 1875, to April 1, 1876," *The New Orleans Medical and Surgical Journal*, Volume 29 (1876-1877): 197.
[180]Ibid, 197.

evidenced by Dr. Burt's 1877 article published in the *New Orleans Medical and Surgical Journal*, "Anatomical and Physiological Differences between the White and Negro Races."[181]

The idea that bodies of different races would react in different ways when confronting disease set up a contrast to prove innate distinctiveness.[182] These dissimilarities were now grounded within the structures of the body, rather than behaviors, customs, or hygiene. Another article from *The New Orleans Medical and Surgical Journal*, published by Dr. Dugas in 1878, stated that differential disease outcomes would "be revealed by a more thorough investigation of the anatomy and physiology of the negro, when compared with the white, than has yet been made," including the "structure and functions of the skin," and a "thorough study of the intimate structure and uses of the spleen."[183]

Similarly in the same volume, when discussing differential racial immunity in diseases the author stated, "Ever since the institution of negro slavery became an object of political strife in the United States, volumes have been written about the nature and peculiarities of the negro race, either in favor or against it, but in most instances dictated by the particular prejudice of the author;" however, "now, since the strife seems to be ended, it becomes the duty of the unprejudiced, sober minded man of science, to study scientifically and systematically the physical and mental organization of this race, whose lot has been cast with our own."[184] The author goes on stating, "difference in structure and the arrangements of the component anatomical elements of the various glandular organs of the body, and foremost of all, to the nervous system we must turn our attention, in order to explain the pathological phenomena

[181]W. J. Burt, "Anatomical and Physiological Differences between the White and Negro Races," *The New Orleans Medical and Surgical Journal*, Volume 29 (1876-1877): 524.
[182]Willoughby, "His Native, Hot Country," 340.
[183]"Notices of New Books," *The New Orleans Medical and Surgical Journal*, Volume 30 (1877-1878): 143.
[184]Ibid, 144.

observed." In looking to the "points of difference in the organization of the negro from that of the Caucasian," physicians sought to explain apparent and seemingly objective dissimilarities, brought forth through statistics and the method of pathological anatomy.[185]

An actual mechanism for black resistance was not settled upon, though it became a question of which anatomical, innate racial difference accounted for the observed and recorded discrepancies. For example, one physician in 1879 postulated that "the comparative immunity of the negro race from yellow fever, is chiefly owing to the freer perspiration natural to them, by means of which the germs escape without disturbance of the system," offering a possible explanation rooted in the body and intrinsically tied to racial identity.[186] Examples of this style of reasoning for a multitude of diseases are littered throughout medical journals of the time.

The goal of objectivity, and thus the privileging of statistics and adoption of pathological anatomy, was a key factor in the development and acceptance of racialized theories of immunity and resistance. Of course, these were not necessary conclusions from the observed data, and have been largely disproven since.[187] The narrowed scope of disagreement resulting from the emergence of objectivity, and thus defining certain practices and ways of knowing out of science, left little room for divergence or debate surrounding racial immunity to yellow fever. Over time, proving racial difference through a biological model of differential immunity served to justify existing power structures, promote scientific racism, and influence the experience of the black community in receiving health care and rations.

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[185]Ibid, 144.
[186]S. M. Gladney, "The Natural History of the Yellow Fever and Cognate Germs and Most Practical Method of their Destruction," *The New Orleans Medical and Surgical Journal,* Volume 31 (1878-1879): 790.
[187]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 1704.

**Societal Impacts of Racialized Theory**

This example of racialized immunity theories brought on in part by the goal of objectivity fits into a larger, global history of scientific racism.[188] The widespread acceptance of these theories of racial difference, and thus inferiority, within the scientific elite paved the way for disciplines such as physical anthropology, including phrenology, and theories such as polygenism.[189] Different races were viewed by many scientists as distinct organisms, and anatomy looked to in order to prove these differences.[190] This greater trend has been linked to the scientific philosophy and practices stemming from the Paris clinical school by historians such as Christopher D. Willoughby. He states, "racially specific medical theories resided in its opposition to systems" which previously "universalized bodies, diseases, and places."[191] The shift away from a medicine orchestrated around systems to be applied with the judgment of the scientist was a result of taking up objectivity as the goal of scientific pursuits. The impression of these logics as being objective, and thus certifiably scientific, strengthened their epistemic power in attempting to prove white supremacy, and thus their societal impact.[192]

Following the 1878 epidemic, racialized immunity theories had immense effects on black citizens' access to aid and resources. In the wake of the devastating epidemic, many institutions served to provide relief in the south for sufferers of yellow fever and their families, including over 40 organizations which were formed in New Orleans.[193] However, these efforts in providing

[188]Ibid, 1698.
[189]Nineteenth century physicians interpreted all evidence of racial difference as proof of white supremacy, and thus black inferiority. In some cases, such as yellow fever, this meant perceived immunity signaled inferiority, but in many others disease susceptibility was cited as evidence of a racial hierarchy, with whites at the top. Physicians thus generally saw what they wanted to see. For example, in Cuba in the 1870's higher mortality among blacks than whites from yellow fever was used to demonstrate the superiority of whites due to their greater ability to acclimate. Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2501.
[190]Erickson, "The Anthropology of Josiah Clark Nott," 103.
[191]Willoughby, "His Native, Hot Country," 340.
[192]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2501.
[193]Willoughby, *Yellow Fever, Race, and Ecology in Nineteenth-Century New Orleans*, 2312.

aid and promoting public health actually reinforced the established racial hierarchies.[194] For example, when the federal government provided rations to the city of New Orleans, distribution was left to said aid organizations. The resources were only to be distributed to those who had definitively survived the disease and their families, and documentation of this was required through a certificate from a physician showing the official diagnoses. Local doctors and aid organizations thus regulated the dispersal of supplies. This led to immense discrimination against people of color who had suffered from yellow fever due to preconceived notions of resistance influencing diagnoses and attitudes about entitlement to resources.

Many historians have acknowledged the human rights violations stemming from racial immunity theories during reconstruction. Wells states that "Themes of identity and belonging in the yellow fever narratives of the 1878 epidemic therefore [had] real consequences for the distribution of medical and relief aid as well as for reinforcing the social divisions that perpetuate discrimination."[195] Similarly, historian Edward Blum characterizes this moment as a time when white southerners and northerners "joined together to neglect the medical needs of southern blacks."[196] Blum also claims that this "systematic medical negligence caused the deaths of countless African Americans."[197] Due to misconceptions of black immunity and resistance, people of color were even criticized for attempting to obtain aid. Both northern and federal relief, including "money, medical attention, and rations," were categorically directed away from African American communities in New Orleans, in large part due to misconceptions surrounding immunity.[198]

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[194]Wells, "The Suffering South," 139.
[195]Wells, "The Suffering South," 11.
[196]Blum, *Reforging the White Republic,* 148.
[197]Ibid*,* 15.
[198]Wells, "The Suffering South," 14.

## Conclusion

The move from a universally achievable notion of immunity to one rooted in inherent, racial difference can largely be attributed to the emergence and acceptance of objectivity as an epistemological value in nineteenth century New Orleans' elite medical circle. Racial attitudes informed the configuration of statistics, which were privileged as unchallengeable evidence of differential immunity. Physicians then centered their efforts around discovering which innate, anatomical feature explained these observed patterns of racial difference in immunity. Despite the guise of objectivity, and ironically the morality which the scientific community associated with upholding this epistemological value through self-restraint, immunity theories were imbued with racism by the end of the century.

Tracing this story allows one to locate objectivity in local history, see its nuances clearly, and shed light on its effects on theory formation. Objectivity and its related techniques, namely statistics and pathological anatomy, narrowed the grounds for disagreement during the second half of the century through the goal of removing the scientific self and eliminating judgement. By 1878, physicians did not argue with numbers presented to them or propose theories not grounded in apparently methodological investigations. Public health approaches and treatment also became more targeted, and the prior era of instability, diversity, and debate was usurped by one defined by standardization and professionalization.[199] In some ways, this elevated the accuracy of yellow fever theories and highlighted prejudices, but in others it aided in the promotion of racial pseudoscience, cloaked in a veil of neutrality.

The appearance of objectivity strengthened the power of scientific claims, making their social and political influences covert and allowing little room for disagreement outside of

[199]Carrigan, *The Saffron Scourge*, 260.

established puzzles.[200] In the case of yellow fever immunity theories, epistemological values eventually had a real and lasting influence on human rights, despite the appearance of scientific modernization. For this reason, it is important to be critical of the impression of linear scientific progress, and to understand the multiplication of power through the association of modern epistemological values with scientific theories. Objectivity, in the case of nineteenth century yellow fever immunity theories, rather than being celebrated or demonized, is problematized.

**Epilogue**

Today, scientists have established that yellow fever is caused by a virus transmitted from human host to human host by way of the female *Aedes aegypti* mosquito.[201] The disease presents with symptoms similar to other fevers prevalent in tropical and subtropical areas, which were also present in nineteenth century New Orleans. Diagnosis continues to prove difficult without laboratory testing, and the defining symptoms are the presence of jaundice in pale, white patients and the vomiting of coagulated blood just before death.[202] Immunity can be acquired through surviving a previous, often mild, infection, which for many would have occurred during childhood.

Many scientists and a handful of historians have discredited and disproven nineteenth century theories surrounding inherent racial immunity and resistance, including Urmi Engineer Willoughby. Willoughby lays out substantial evidence of black susceptibility to yellow fever, including highlighting both silences in historical data and the configuration of statistical evidence itself, demonstrating that racially based theories of immunity and resistance were largely the

[200]In this case, the puzzle was which anatomical feature explained immunity, not whether racial immunity existed or what alternative framework could explain the observed phenomenon.
[201]Carrigan, *The Saffron Scourge*, 4.
[202]Trask, *Fearful Ravages*, 4.

product of racism. These immunity theories continue to be strengthened by their appearance of objectivity, evidenced by the failure of many historians to scrutinize them.

This is in part due to biases towards the medical importance of race stemming from centuries of scientific racism, but also from a failure to examine scientific practice itself. For example, in Jo Ann Carrigan's seminal work, *The Saffron Scourge*, she takes racial immunity theories for granted. It is not until a 2015 reprint that she categorizes racial immunity as officially "unresolved," but describes herself as convinced by historical scientific records, namely statistics.[203] Many historians also fail to acknowledge the scientific imprecision of using the term "race" to describe heritable, genetic resistance in the first place. The patterns within the historiography relate directly to the history which researchers seek to study. Gaps in serious and scientifically accurate research on the history of racial immunity theories speak volumes about the continuation of this lineage of essentializing race, bringing it within the purview of science, and failing to interrogate findings which have an air of objectivity.

The long and painful lineage of scientific racism not only influences the way we study history and form medical theories, but also has continual impact on communities. As evidenced by rumors circulating at the onset of the COVID-19 pandemic, notions of racial immunity exist today, despite the scientific inaccuracy of the term "race" as a biological indicator.[204] Quick associations between race and disease show the influence of white supremacist thought, as appraisals of racial difference, if not explicitly articulated as projects to investigate inequity,

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[203]Carrigan, *The Saffron Scourge*, vl.

[204]For more on racial immunity theories during the COVID-19 pandemic see the following sources. Chelsea Carter, "The Myth of Black Immunity: Racialized Disease during the COVID-19 Pandemic," *AAIHS*, April 3, 2020. https://www.aaihs.org/racializeddiseaseandpandemic/. Annalisa Pelizza, "'No Disease for the Others': How COVID-19 Data Can Enact New and Old Alterities," *Big Data & Society* 7, no. 2 (July 1, 2020): 2053951720942542. https://doi.org/10.1177/2053951720942542. Janell Ross, "Coronavirus Outbreak Revives Dangerous Race Myths and Pseudoscience," NBC News. Accessed April 23, 2021. https://www.nbcnews.com/news/nbcblk/coronavirus-outbreak-revives-dangerous-race-myths-pseudoscience-n1162326.

reinforce the same insider versus outsider mentality and pathologizing of non-white patients shown through the history of yellow fever in New Orleans.

Misinformation surrounding race and disease can lead to the vulnerability of racial minorities. Understanding the history of these theories and their social construction through works such as Willoughby's and projects such as this one can both help to explicate how and why they come into being in the first place, as well as how they may be continued. The idea of race as a scientifically relevant concept is not necessary, nor was it always the case, as shown through the story of yellow fever in nineteenth century New Orleans.

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