JEAN-CHARLES FAGET AND THE YELLOW FEVER CONTROVERSY IN NEW ORLEANS
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In 1718 Iberville and Bienville, natives of Quebec, established the city of New Orleans as the capitol of the French Province of Louisiana. It rapidly became the commercial and economic center of the lower Mississippi Valley as well as one of the major ports of the Gulf of Mexico. Although ceded first to Spain in 1763 and finally to the United States in 1803, the city retained an abiding loyalty to the French homeland and to the French language and culture. The integrity of the French community was maintained and enhanced by successive waves of immigration beginning in 1763 with the expulsion of the Acadians from present day Nova Scotia, continuing through the arrival of the émigrés fleeing the French Revolution and subsequent Reign of Terror and culminating with the refugees from the revolt in Santo Domingo in the 1790's. Throughout the nineteenth century, a steady, although dwindling, French immigration continued to reinforce the once dominant Creoles, the New World descendants of the earlier settlers. The custom remained among the middle and upper classes of sending their youth to France for general and professional education. Thus the ranks of all professions, including medicine, were filled by men who had received their education and professional training at French universities.

It was in this Creole community that Jean-Charles Faget was born in 1818, the son of refugees who had fled Santo Domingo at the time of the uprising. Faget was to become one of the outstanding
physicians of New Orleans during the middle decades of the nineteen
teenth century and his contributions to the understanding of the
clinical presentation of yellow fever, particularly his description
of the diagnostic sign which bears his name, places him firmly among
those physicians who have made singular contributions to the corpus
of medical knowledge.

Before discussing Dr. Faget's theories regarding yellow fever
and his discovery of that unique clinical phenomenon which classically
distinguishes this condition from other acute febrile illnesses, it
is necessary to outline briefly the magnitude of the yellow fever
problem in the lower Mississippi Valley during his lifetime.

New Orleans enjoys a semitropical climate and is located in
the marshy lowlands near the mouth of the Mississippi River. Rain-
fall is abundant and throughout most of the nineteenth century open
canals and stagnant water from the flooding caused by summer rains
were common phenomena. There was also heavy trade with the ports of
Cuba, Hispaniola, northern South America and eastern Mexico, a vast
area afflicted by endemic yellow fever.

The fever appeared in New Orleans in 1793, and the first seri-
ous major epidemic occurred in 1804, shortly after Louisiana had
passed to American control. The newly appointed governor, Charles
Claiborne, who lost his wife and child in this epidemic wrote to
President Thomas Jefferson that "lower Louisiana is a beautiful coun-
try and rewards abundantly the labor of man; --but the climate is a
wretched one and destructive to human life."(1) In the thirty-five
years between 1825 and 1860, the city experienced 12 epidemics of yellow fever with an annual death toll exceeding 1,000. In the summer and fall of 1853 the yellow fever was so severe that the outbreak is probably the worst single epidemic of any kind to strike an American city. During that year 10% of the population died and 40% fell ill. In the years subsequent to 1853 and until 1905 epidemics continued to occur regularly but with decreasing intensity (2).

Jean-Charles Paget began his clinical practice and with it his observations on yellow fever shortly after his return from France in 1846. He had been sent by his parents to Paris in 1830, where he had been educated at the College Rolin graduating in 1837. His medical education was received under Blandin at the Hôtel Dieu, Lisfranc at the Hôpital de La Pitié and Devergie at the Hôpital St. Louis. He received his doctorate in medicine from the faculty of the University of Paris in 1845 (3).

At the time Paget joined the medical community in New Orleans his colleagues were quite divided on the issues not only of the etiology and transmission of yellow fever but also on the nature and clinical presentation of the disease. This division of opinion was not peculiar to New Orleans and reflected the divergent views of the medical community in Europe and in the Western Hemisphere.

One view represented by such men as Deveze (4) held that yellow fever was not of itself a distinct illness but was the most severe expression of swamp fever or bilious fever. The prevalent view regarding etiology was that yellow fever resulted from a conjunction of
environmental factors. These factors included decomposing animal and
vegetal matter, contaminated flood waters, slimy soil, and the exten-
sive swamp waters all of which gave rise to noxious vapors or miasma
as the result of the summer sun. This view officially stated by the
Société Médicale de la Nouvelle - Orléans in 1818 (5), held in effect
that the fevers were endemic but might occur at epidemic force when
the conjunction of the factors was especially pronounced. The oppo-
sing view, that of the infectionists, eloquently stated by Carpenter
(6) in 1844, was that yellow fever was a specific morbific entity and
that it was not due to indigenous environmental factors, but rather
was introduced from abroad by naval commerce.

Faget, a member of the Société Médicale, originally subscribed
to the miasmic view, a view championed by its most ardent supporter,
Dr. Charles Delory.

In the following decade, his practice flourished particularly
among the large Creole population. He remained in attendance in the
city during the epidemics of 1853 and 1858. Drawing from his clinical
observations and his studies, he published in 1859 his Etude Médicale
(7) in which he outlined his views on the endemic fevers and estab-
lished himself as a leader of the infectionists.

Faget accepted the traditional view that there were two cate-
gories of epidemic fever. The first of these was "swamp fever" also
called "recurrent or intermittent fever"; the second entity was the
yellow fever.

For Faget the question was how to distinguish clinically
between the yellow fever and the varieties of swamp fever. Faget approached this problem at three levels: the clinical presentation, the epidemiology, and the etiology. Distinguishing between swamp fever and yellow fever in terms of the clinical presentation, Faget in effect developed his own null hypothesis. He contended that the two classical signs, black vomit and jaundice were not peculiar to yellow fever. He wrote that the importance of black vomit as a characteristic sign was exaggerated since it could be associated with several other endemic and epidemic febrile illnesses and was by no means a pathognomonic sign. He contended that true clinical jaundice was usually seen only in the more advanced stages of the illness and, thus, its absence was not contrary to the diagnosis.

Faget then first stated his own observation on the phenomenon which he later held to be a characteristic sign of yellow fever. He noted that during the epidemic of 1839, Drs. Bahier, Fortin, Darey, and Sabin Martin, had made the observation that the pulse rose on the first day of the illness and subsequently fell. Faget confirmed this and reported that after the experience of six years, "I think I have arrived at least for the differential diagnosis between yellow fever and swamp fever at a general fact of some importance; I want to say that there is a regular decrease in the pulse from the first or second day to the fourth or fifth day, in true yellow fever at least in New Orleans." (8).

Faget supported the traditional view that the catarrhal form of swamp fever was epidemiologically distinct from yellow fever.
Creoles, children under the age of five and blacks were susceptible to swamp fever but not to yellow fever. The robust white male in his prime was, on the other hand, the typical victim of the yellow fever. Full and lifelong immunity was the invariable result of an attack of yellow fever.

His views on etiology were strongly held and, as we shall see, hotly debated. He contended that the swamp fever arose from a "terrestrial cause" which by his description was clearly of a miasmal character. Swamp fever was endemic and it was indigenous to the area.

Yellow fever, on the contrary, was invariably introduced or imported from abroad and was caused by an animal which was so small that it could not be seen by available microscopes. He contended that the illness and presumably the microscopic organism which caused it resulted from a combination of heat and putrefying matter. This combination occurred especially in the holds of ships and more particularly in slave ships. Although slave shipping had been effectively outlawed by Faget's lifetime, older slavers which had been converted to legitimate cargo vessels were always suspect in his thinking. The fever was introduced by naval commerce and the infectious agent which was airborne spread in a widening circle around the causative focus. In Faget's view, a region, to be subject to the yellow fever, invariably had to be close to ships or to a body of water.

Faget insisted that the specific treatment for swamp fever was quinine sulfate whereas for true yellow fever there was no specific remedy other than good nursing care.
Following the publication of Faget's *Etude Médicale*, Dr. Charles Deléry, the protagonist of the contagionist school, immediately took issue initiating a controversy which was hotly debated by the two men in the local medical journals and newspapers. The debate was marked by sarcasm and wit. Deléry contended that there had been cases of yellow fever reported in small towns which were an appreciable distance from any body of water and to which the fever could not have been imported. Faget responded that these were cases of swamp fever prompting Deléry to rebut that Faget's swamp fever seemed to be reported only in epidemic years (9). Deléry ridiculed Faget's observations regarding the pulse in yellow fever provoking the response that Deléry had misunderstood what he had written. Deléry insisted that he had understood correctly (10).

Faget's insistence that the Creole population enjoyed immunity to yellow fever was particularly unacceptable to Deléry who decried Faget's "nativist" medicine and chided him and the Creole population to give up this groundless pretension. Deléry asserted that Faget apparently found catarrhal swamp fever only among his Creole patients in rural towns and then only during the epidemic years and added in his mordant fashion that this fever was so similar to yellow fever that a differential diagnosis would be almost impossible without "the precious aid of the nationality of the patient."

The Civil War broke out in 1861 and in April of the following year New Orleans was occupied by Federal troops. Deléry began directing his invective against the commander of the Army of the Occupation,
General Benjamin Butler. In 1863, he fled to Havana after a warrant for his arrest had been issued, thus ending his controversy with Faget.

In 1864, Faget published *Mémoires et Lettres Sur La Fièvre Jaune* in which he outlined his views on the epidemic fevers. In this publication, he emphatically restated his position that yellow fever existed as a separate entity, *sui generis*, and that it was imported by naval commerce. Yellow fever was not due to local causes and was not spread by *contagion*, but by extension of the original focus of infection. On the basis of his experience in six epidemics, he reiterated his conviction, disputed by Deléry, that one attack gave lifelong immunity. In recognition for this work, he was created Chevalier of the Legion of Honor by the French government. In March 1865, he sailed for France and remained in Paris for two years.

The arguments between Faget and his opponents regarding the clinical phenomenology of yellow and swamp fever could not be resolved without being able to measure accurately the degrees of temperature itself.

The introduction of the clinical thermometer provided such a means of accurately measuring body temperature. Writing in New Orleans on the eve of his return to his native France in 1898, Dr. Just Touatre reflected on his years of practice in Louisiana. He recalled that "upon coming to New Orleans to practice medicine in 1865, I had a clinical thermometer in my baggage. I believe I'm one of the first physicians in the United States to have used it for the
study of the march of temperature in yellow fever during the epidemics of 1866, 1870, and the following ones...but it was Dr. Faget who, with his observations and mine, built up the magnificent law which bears his name in all justice, as it is he who first caused it to be known to the medical public..." (11)

When Faget returned to the city in 1867, he resumed his practice. The introduction of the oral thermometer made it possible for him to conduct more exact measurements of the pattern of fever and the relationship between fever and pulse. His first opportunity came during the epidemic of 1870, during which he carefully recorded and graphed his observations on 30 patients. This study was duplicated by Dr. D. D. Sanders in Memphis with 73 patients when that city experienced an epidemic in 1873.

The publication in 1874 of "The Type and Specificity of Yellow Fever Established with the Aid of the Watch and Thermometer" (12) marked Faget's final and comprehensive statement on the illness to which he had devoted so much attention.

In this publication, replete with 103 graphs, he set about to verify "firstly whether yellow fever is a continued fever, having a single paroxysm; and secondly, whether it is a specific fever, that is to say, a fever due to a special poison, or rather to a specific morbid principle, as specific as that which produced smallpox, cholera, or any other well marked specie of disease."

Faget argued that the evidence was clear that it was a specific disease entity and that the fever associated with the illness was
a "single paroxysm" which did not exhibit recurrent or intermittent features. The fever might fluctuate only if there were secondary complications but never in the uncomplicated course of the illness.

In the Etude Médicale, Faget had described the pulse-temperature dissociation but without any certainty that this was a consistent or unique feature. Eleven years later, in the epidemic of 1870, he had available for the first time both the thermometer and watch with a second hand, making it possible for him to measure with careful accuracy these vital signs. The correlation was not invariable and other patterns of relationship, e.g., falling pulse and falling temperature, were observed in about one-third of the cases studied. Faget accounted for these atypical presentations by observing that they were associated with extremely mild cases, with patients of advanced age or those who had been treated by veratrum.

He concludes, "These reservations being made, it is admissible to perceive in this divergence in the direction of the two lines of the pulse and temperature at the commencement, in the majority of the cases of yellow fever, a sign which becomes valuable in the diagnosis of the disease; in two-thirds of the tables while the line of the pulse descends from the beginning we see that the temperature rises from the first, second, and even third days." (13).

In this monograph, Faget conclusively demonstrates the importance of the pulse-temperature dissociation as a diagnostic sign in yellow fever. In the decades which followed, clinicians practicing in those parts of the world afflicted by yellow fever, repeatedly
confirmed the validity of Faget's observations and the value of what came to be known as "Faget's sign."

Faget had attracted much criticism from his colleagues in the medical community and little money from his patients. A contemporary recalled him as "a poor biller and a worse collector." Nonetheless, he accepted the inevitable decline of age buoyed up by deep religious conviction and an unshakeable belief in his scientific work. Doubt and indecision were completely foreign to him. He continued the practice of medicine until shortly before his death in 1884 in his sixty-sixth year.
NOTES


6. W. M. Carpenter, Sketches From the History of Yellow Fever Showing Its Origin; Together With Facts and Circumstances Disproving Its Domestic Origin, and Demonstrating Its Transmissibl-
lity (New Orleans: J. B. Steel Co., 1844), passim.


8. Ibid, p. 84.


