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In Regard to the Nature and Treatment

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YELLOW FEVER,

—READ BEFORE—

THE LOUISIANA STATE MEDICAL SOCIETY,

At Monroe, April 25th, 1888,

—BY—

R. H. DAY, M. D., Baton Rouge, La.

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Happily, for several years our State has been exempt from any devastating visitation of YELLOW FEVER; and we cherish the hope that such are the improved methods of sanitation and disinfection, that we may never more witness another epidemic of this tropic-born scourge.

But it is not wise to relax our efforts or vigilance to repress its outbreaks, nor our studies and researches to understand its true nature, and to comprehend fully its correct treatment, since we know not at what time we may be subjected to its ravages, neither do we know the city or spot where it may make a landing upon our shores. Its appearance in Florida last year, gives us an obvious warning of our insecurity while we may be boasting in the pride of an apparent (I hope real) triumph of scientific sanitation and disinfection. We should remember that we are in close proximity to its native habitat; that we are, as it were, next door neighbors to countries where it yearly prevails, with which we are in constant commercial intercourse, and for hundreds of miles, south, east and west, by



land and by water, our territory can be invaded ^{with} ~~through~~ many unguarded gates ajar inviting its unobstructed entrance.

Besides, in the history of yellow fever in this country, it is well known its visitations have been intermittent and irregular; sometimes occurring for several years in succession; at other times, short or long intervals intervening between its outbreaks; so that, while we may well be glad at our exemption during the last six or eight years, and indulge the gratifying hope that we have perfect protection against future invasions, by our present admirable system of scientific quarantine and disinfection, yet, as physicians and guardians of the public health, we cannot afford to cease to study this disease, to become better acquainted with its nature and types, and complications, and its correct principles of treatment, as far as may be in our power, because we know not at what hour, as a thief in the night, it may invade our cities and homes in its most malignant forms, as it has done in the past years.

For these reasons, and the conviction, notwithstanding all that has been written upon this subject during the present century, that our knowledge of this disease is cloudy and imperfect, and in some respects, particularly as to its treatment, defective and erroneous, I am induced to contribute this paper.

In New Orleans, in 1881, I read before this Society a short paper on its treatment, avoiding any discussion of its history and etiology. I shall do so now, and consider such points only as can be of positive interest to you and of the greatest practical importance.

Yellow fever is regarded by the profession generally, as an infectious disease, and caused by a specific poison. In this opinion I heartily concur. The identity or specific character of this poison, however, up to this day, is unknown, notwithstanding the claims of Dr. Friere, of Rio Janeiro, and Carmona, of Mexico, to have discovered the specific organism.

Many of the profession speak and write of yellow fever

as a *self-limited disease*. As for instance, our learned and lamented Dr. Bemiss writes thus: "There are two propositions to which due attention should be given before formulating rules for the treatment of yellow fever. The first of these is, that yellow fever is *strictly a self-limited disease*, and therefore is *insusceptible of jugulation*. Both clauses of this proposition are *indisputably true*." And yet, strange as it may seem, he adds: "Among the possibilities of the future is the discovery, that some drug or combination of drugs is capable of meeting yellow fever poison in the field of the circulation and antagonizing it sufficiently to rescue the victim from its fatal toxic effects." See Pepper's *System of Medicine*, article Yellow Fever.

And our able and distinguished president, Dr. Joseph Jones, excelling all others in his labors and researches, an acknowledged authority in this terrible malady, says: "Yellow fever is a *self-limited disease*," and continues, "*if this view is correct*, we cannot by drugs arrest or cure yellow fever any more than we can arrest or cure small-pox, measles or scarlet fever." See Report of the Board of Health for the year 1882 and the first six months of 1883; page 564.

I am obliged to say that my experience does not corroborate the opinions of these able and experienced authors.

I confess I do not like the expression of *self-limitation*, as applied to disease, and cannot understand its fitness in this connection. The expression is deceptive—it is misleading, if not, in strict meaning of language erroneous. If a disease is *self-limited*, it must of itself, uninterfered with, run its course, mature and deffervesce—end in health or terminate in death, in a definite number of days. If, in yellow fever, the period of deffervescence or death is not fixed and definite, but may take place on any day indifferently, from one to twenty days or more, then it is no more *self-limited* than any other disease of which we have any knowledge. But the term is deceptive and misleading,

since it tends to encourage a *do-nothing* system of practice, where so much is really needed to be done. It sanctions an expectant plan of treatment in grave cases of sickness, much to the injury of the sick, and a shame to scientific and earnest practitioners of medicine. But, even if this disease were *self-limited*, in its strictest sense, it would nevertheless demand the same careful and energetic treatment as other grave cases of sickness do; since not its *self-limitation*, or *non-self-limitation*, would constitute indications of treatment, but rather the character and nature of the pathological lesions being wrought in the system by its specific poisons.

What, then, are the lesions produced in the system by the yellow fever poison? Without a correct knowledge of these pathological changes constantly present in the mind, it is a matter of impossibility to institute a rational and curative mode of treatment.

We have stated that, as yet, we do not know what the specific poison of yellow fever is, and hence, have discovered no *specific* medicinal or chemical agent, that will antagonize and devitalize its forces in the system, neither do we know with certainty its channel of entrance, whether by the air we inhale or with the food and fluids taken into the stomach; so that our knowledge of its poisonous properties upon the human organism, is to be obtained only by a careful clinical observation and study of the symptoms, as developed from the initial stage of attack to its termination in death or recovery; and the tracing back these symptoms as they arise, to the particular part or parts, or tissue or organ, that may be morbidly affected, and the manner and character of the morbid alterations.

Now, if we appreciate these symptoms as they occur in a typical case of yellow fever, it is manifest to a discriminating medical observer, that some powerful irritant or poison has gained access into the general circulation, affecting profoundly the nervous centres in their entire ramifications, manifested by general malaise, a sense of loss

of energy, indisposition to move about, a tired, worn-out feeling, with chilly sensations creeping up and down the back, lumbar and frontal pains and darting pains through the joints and extremities. Sometimes the morbid agent is so concentrated, that one is stricken down suddenly comatose and senseless, as of apoplexy. A case of this kind came under my observation in the epidemic of 1853, in the person of Mr. K., an industrious, hearty young white man, by trade a blacksmith, who that night sat up with and nursed a yellow fever patient that died during the night. On his way to his boarding-house, about daylight, he called at his smith-shop, where he fell suddenly on the floor, helpless and senseless. I was immediately summoned, and in a few minutes was at his side. Found him perfectly unconscious, exterior cerebral vessels distended with blood; eyes injected and pupils contracted; pulse not much accelerated, but hard and tense; respirations labored, approaching to stertorous. Sometimes this profound impression upon the nervous system is manifested by a different display of symptoms, but equally marked and prominent. In 1878 I was called to see a white boy about ten years of age, a short while after his first indisposition. I found his whole surface pale-looking and bloodless, his pulse was small and very quick, and he was wild; not delirious, but raving and uncontrollable, kicking off and tearing the bed clothes, his shirt and anything he could get in his hands, screaming and greatly agitated. Still he knew everybody; was conscious of his feelings, answered questions with his usual intelligence, but was furious and unmanageable. Along with these obvious evidences of a profound morbid impression of the entire nervous system, we readily recognize symptoms of impairment, or arrest, of the hepatic functions in the non-secretion and due elimination of the bile, from congestion of its blood vessels and areola tissue, indicated by a furred tongue, viscid clammy saliva, and fullness and tenderness of the epigastrium and right hypochondrium, with a pecu-

liar reddish, glistening appearance of the eyes, that already gives evidence of the presence of bile or its constituents in the minute capillary circulation.

How then is yellow fever to be treated? Not by blindly pursuing any routine course that may have been formulated by the profession for the treatment of yellow fever. Discard the name for the time being, and treat it as you would any other malady presenting the same symptoms, the same lesions and under similar conditions. I deem it a fortunate circumstance in the history of my professional experience, that I treated my first four cases of yellow fever to a successful termination, without really knowing that my cases were yellow fever. It was at the beginning of the epidemic in 1853, in St. Mary Parish, and my experience with these four cases gave me self-reliance and independence of thought and firmness in my plan of investigating the symptoms and predicating my treatment upon the lesions thus discovered.

I substantially repeat what I said before this Society in 1881, that in yellow fever I have no nostrum or specific or routine treatment to recommend, but I hope to present a treatment that is rational and scientific, based on conditions and surroundings, and the special morbid actions that may attend each particular case.

It is undeniable that a dread of *yellow fever*, more than of any other disease, weighs upon the public mind. That the very first out-break of it in any locality, spreads terror and consternation throughout the community. People begin to flee, who can, and those left, hang on with fear and trembling, believing they must inevitably take the disease, and will as inevitably die of it.

Now, with this state of mind permeating all classes of the people, what are likely to be the consequences when scores, in quick succession, are stricken down by this dreaded disease, unless this fear and trepidation can be counteracted by some appropriate and adequate means? Those of us who have passed through these epidemics, know too well the dire effects of this fear upon the sick.

What then, is our first duty under these conditions? Clearly, to disarm our patient at once of his fears and apprehensions of a fatal result; to inspire confidence, moral courage and hope. This, as his physician, you should be able to do, and ought to do it. When your patient, with despair depicted in his countenance, tremblingly asks you, "Do you think I can get well?" answer him with emphasis, "Yes, if you will be a man and dismiss your hurtful and foolish fears." Assure him that his disease is not *necessarily* as dangerous to life as pneumonia, nor as difficult to treat as *pernicious* intermittent and remittent fevers. Tell him this, believing it, and utter it in such a spirit as to convince your patient that you mean and believe what you say. You will thus kindle in him hope, stimulate and strengthen his *will-power*, and these acting upon the nervous centres will produce a corresponding better condition of all the functional activities of the physical organism, thus rendering his situation more favorable for judicious medication.

That strong impressions made upon the mind in sickness, as in health, do exercise a powerful and controlling influence over the functions of the physical economy, I presume no one, posted in the literature of his profession, and not defective in discriminating observation, will deny. And it is this potent principle in the science of psychotherapeutics, that it is the duty of every physician to understand and invoke in the treatment of disease, whenever occasion requires its application; in the classic language of a recent writer, we must "rescue this force from the eccentric orbits of quackery, and force it to tread with measured step the orderly paths of legitimate medicine."

Next, in the management of yellow fever cases we must understand and keep constantly in mind, whether they be mild or grave in their character, the great undisputed fact, that we are contending with a train of morbid actions that are rapid in their progress and vicious in tendency. And hence, our measures for relief must be promptly resorted to. At the very incipency of the attack, if possi-

ble; at least, within the first few hours, before those chemical and molecular changes have been wrought in the organic structures and fluids of the system which render a cure impossible. Bearing this general and fundamental fact in mind, we must treat each case promptly, according to the special indications existing. If the skin is hot and dry, or dry, without being hot, as is sometimes the case, the patient being in bed, should be given a warm or hot mustard foot-bath, under blankets to retain the vapor, supplemented by warm, pleasant diluent beverages, as orange leaf tea, in order to induce a moderate diaphoresis, and thus in some measure relieve the congested internal organs. But I would caution against pushing this sweating process too far, as is nearly always done, because it is enervating in its effects and adds to the discomfort of the patient. When the function of the skin is once established, it is easy to maintain it at the proper standard, and still keep the patient comfortable, by allowing small, but repeated potations of cold or iced water, permitting free ventilation of the room and a light blanket or two over his person, according to outside temperature, to prevent any sudden cooling impression upon the cutaneous surface. Should the seizure occur when the stomach is loaded with food, it should be at once emptied with warm water, with or without salt and mustard; and then quieted as quickly as possible, should it be left irritable. For this a mustard cataplasm applied over the epigastrium, and a little mint tea, mint julep, or small doses of morphine with bicarb. soda given interally, will be advisable; frequently, merely sponging the face and temples, with cologne, bay rum or *eau sédative*, will suffice to produce a satisfactory revulsive effect.

Sometimes at the outset, the bowels are found constipated and loaded with faecal matter. In this case it will be necessary and expedient to procure an action from the bowels; but it is by no means a matter of indifference by what agent it is accomplished. I carefully discard and

condemn the use of *castor oil* for this purpose, which is the standard and almost universal cathartic in every case in the hands of practitioners and nurses. And I condemn it as I do every other cathartic, from its well-known irritating properties upon the mucous coat and nervous filaments of the stomach and bowels, and its further aptitude to engender a persistent nausea. With this characteristic property of the drug so well established and constantly manifested in almost every instance in which it is given, it has always been a matter of extreme surprise to me, that physicians should so pertinaciously cling to its use, and more especially, since in this disease, irritability and disturbance of the stomach are so prone to occur and so much to be dreaded. Instead of castor oil, enemas of warm water with camphorated oil should be given, which may be relied upon to empty the bowels without irritating or disturbing the nervous filaments or mucous coat of the stomach and bowels. But should a more active aperient be required, as is the case sometimes, but rarely, to work off the vitiated secretions and unload the mucous follicles and intestinal capillaries, an infusion of fol. senna ʒii with ʒi to ʒiiss of sulph. magnesia combined with some agreeable aromatic to cover the taste, and given in divided doses, will answer a good purpose.

Occasionally, the attack is ushered in by strong cerebral symptoms—marked by sudden and deep coma and profound unconsciousness or raving delirium. This condition occurred not infrequently in my locality in the epidemic of 1853. In such cases I bled from the arm or opened the temporal arteries, as for instance in the case of Mr. K, the blacksmith, previously alluded to, and bled freely, without regard to quantity, till the brain was relieved. And I reiterate now, what I said before this Society in 1881, that though I bled many, I did not lose a patient that I bled. This practice is doubtless at variance with the expectant plan of treating disease as recommended by some high in authority in recent years, and would

be pronounced by them rash and hazardous. But I affirm my conviction, that there is no other prompt and efficient means of relieving this dangerously excited and congested vital organ. To trust to revulsives and cerebral and cardiac sedatives in such extreme cases, were certain death.

Besides, all this diatribe of late years, against blood-letting, of drawing off the vital fluid in sthenic and inflammatory diseases, and the dangerous debilities and slow convalescences following the abstraction of blood, is the sheerest nonsense, having no foundation in fact, in sound reason or correct physiology. It is a bug-bear that serves only to make cowards of the timorous, to put in jeopardy human life, and should be spurned by all intelligent and scientific physicians.

But in other, and most cases, we will find the tongue furred, the saliva thick and clammy, the epigastrium and right hypochondrium tender under pressure, with a feeling of constriction around the waist, the urine scanty, the eyes injected, temperature elevated, respirations hurried, with pain in the head, back and limbs.

These symptoms, as I understand them, indicate a septic condition of the system, with a tendency to rapid destruction of the mucous coat of the stomach, functional and structural change of the liver, disorganization of the kidneys and decomposition of the blood. These appear to be the prominent pathological changes going on in the system of a yellow fever subject, clearly revealed by the symptoms and corroborated by the most careful *post mortem* examinations. To meet and relieve these conditions, for an adult, I usually prescribe 20 grs. calomel, 30 to 40 grs. quinine, divided into 4 equal parts, giving one dose every 4 hours, till all are taken. And mark, this I do in the *hot stage*, as early in the attack as possible, provided there are no brain complications to oppose the use of quinine.

Under these remedies the fever subsides, the patient becomes calm and comfortable, the urine more abundant.

In fine, a state of apyrexia has been hastened and secured. The bowels generally move spontaneously, or, more properly, from the direct effect of the calomel upon the hepatic secretion, passing off dark, thick tarry stools, evidently colored by the bile or its constituents.

Such, as a general thing, has been my plan of treatment. Within the first 24 hours I have pushed my active treatment, and *cured* my patient, or, at least, have relieved his embarrassed and oppressed vital organs, and placed him in a condition most favorable to a progressive return to health. By the calomel I have aroused the liver to the performance of its normal functions, disgorged its obstructed ducts and abated its vascular congestion, and soothed the irritated and engorged follicles and mucous coat of the stomach. By the quinine, I have quieted the organic system of nerves and given them tone and vigor, and thus have restored the various organs to their normal and harmonious work, and thereby counteracted the septic changes that had been going on in the blood and tissues.

Unfortunately, your case is not always seen sufficiently early to admit of this decisive curative treatment; or if seen and not thus treated; or if from imprudence, or unfavorable surroundings, or constitutional dyscrasia, complications have developed, they must be met by rational modes of treatment and not by reckless or blind experimentation. Should a nausea or irritability of the stomach manifest itself, a *fly blister* should be promptly applied over the epigastrium, and ice or cool water moderately allowed; and where no brain symptoms interdict it, small doses of morphine, with mint water and bicarb. soda, will serve a good purpose. And I have frequently used with great advantage in such cases, small doses of creosote combined with a little morphine and bicarb. soda in the form of an emulsion. If the patient is sleepless and restless from nervous irritability, morphine or Dover's powder will be called for to induce calm and refreshing sleep.

If there be active cerebral congestion or hyperæmia of the

brain in the latter stage of the disease, cold water or ice must be applied to the head, and bromide of potassium given internally. I had a case of this character in the epidemic of 1853, in a white boy 5 or 6 years of age, occurring after he had so far recovered from his previous illness as to be permitted to play about the floor, and so marked and distinct were the symptoms of active cerebral congestion, that I did not hesitate at once to open one of his temporal arteries, and abstracted blood, till his brain trouble was unmistakably relieved, which was followed by uninterrupted restoration to health. And I was fully convinced at the time, and am so to this day, that without that prompt and decisive measure my little patient would have died of convulsions and rupture of some of the intercranial blood vessels, within one or two hours, and that he was rescued from that fate by the timely abstraction of blood.

If a hemorrhagic tendency displays itself, or black vomit threatens or takes place, the free and liberal use of the muriate tinct. of iron, conjoined with crushed or shaved ice and good cognac or champagne, I have found to be potent for good, rescuing patients almost from the jaws of death. An illustrious instance which I can cite, occurred in 1853, in the Parish of St. Mary, in the person of an estimable lady, the wife of a distinguished confrère, given up to die by himself and Dr. Lyman, of Franklin. When I reached the residence of my confrère (20 miles distant) about sunrise, I found that his wife had been throwing up *black vomit* all the night before, and bleeding constantly from the gums, tongue and lining membrane of the mouth. She was exsanguined, extremities cold, and pulse small, feeble and thready. Her intellect was clear, and she was calmly waiting and resigned to her impending and expected fate. Her husband and Dr. Lyman thought it was useless to make any further effort, but I insisted to be permitted to try and do something for her. They consented, giving her in my charge. Drawing my chair by her bed-side and taking her pale cadaveric-looking hand in mine, by cheer-

ful, hopeful words, I tried to cheer her, beget hope and inspire confidence. I at once commenced giving the muriate tincture of iron in teaspoonful doses, diluted with ice water and lemon syrup, followed by champagne in shaved ice. By 12 o'clock that day the black vomit was arrested and the hemorrhages had ceased; in a few hours reaction had set in, warmth had returned to her extremities and the sequel was a good recovery.

If suppression of urine should supervene, which I regard as one of the most discouraging and fatal complications, I know of nothing better to be done than dry cups over the kidneys and frequent frictions up and down the back with warm whiskey, spirits turpentine and tincture digitalis.

Such has been my general plan and details of treatment in the epidemics of yellow fever through which I have passed. I speak of it with some degree of assurance, and with some little self-pride, if you please, because it gave me the most gratifying results; the number of fatal cases not rating above 3 to 3½ per cent. And I venture to affirm that my practice embraced the same character of cases and among the same classes of people as fell to the lot of other physicians practicing in the same localities and the same epidemics.

There are several points in relation to the therapeia of yellow fever that, it appears to me, ought to be better understood and more definitely settled. Among these, is the question of the utility or non-utility of quinine. It will be observed, in my preceding remarks, that I claim for it valuable curative properties, if timely used, in suitable cases. Some physicians of large experience think differently. Both cannot be right. This discrepancy of opinion then must be explained by reference to the time and conditions under which the drug is administered. For it is obvious that every drug and chemical agent has a definite composition and fixed properties; and definite and uniform therapeutic effects upon the animal organism, when

given in like conditions, with the same surroundings, of like temperaments and constitutional proclivities, when given in the same dose. And hence, in observing the action of drugs upon the human system, the absolute importance of recognizing and appreciating all these modifying circumstances must be apparent to every intelligent observer.

That quinine can exert a salutary influence in the treatment of yellow fever in the practice of one physician and be of no benefit in the experience of another, if used under the same systematic conditions and the same pathological lesions, is physically, physiologically and therapeutically impossible.

It will be recollected that before this Society, three years back, Dr. Matas read a paper, in which he stated that yellow fever is one of the fevers in which quinine exercised no controlling salutary influence, being useful only in malarial fevers. And at our meeting in Alexandria last year, our venerable confrère, Dr. J. P. Davidson, read a very interesting paper, in which he advanced the same idea.

I aver, in my practice I have found it uniformly useful in all of the epidemics from 1853 to 1878. I could report hundreds of cases with specific results in proof of my averment of the good effects of quinine in yellow fever, were it necessary and did this occasion afford the time.

Two cases must suffice to illustrate. During the epidemic of 1878 I was called one morning to see a married white lady, whose husband had just recovered from yellow fever. Her face was intensely red, skin hot and dry, eyes suffused, temperature up to 105° , with severe pains in head, back and limbs. I ordered a warm mustard pediluvium and the use of warm orange leaf tea. As I was writing my prescription, knowing my practice of giving quinine in this disease, she said: "Doctor, I am not opposed to taking quinine, but I have too much fever now to take it; don't give me any till you get my fever down."

I said, very well, but nevertheless I prescribed 20 grs. calomel, 30 grs. quinine, made into 8 pills, and directed 2

pills to be given every 4 hours, to be commenced at once. The medicine was given by her husband, strictly as directed, and at my morning visit next day found my patient free of fever and quite cheerful. She had taken her last pills about midnight. She said to me, "Now, Doctor, I have no fever and am ready to take quinine." I replied, dear Madam, you do not need any quinine now; you have already taken all that I wish you to have. You now only have to keep quiet and observe my rules as to diet. You need no more medicine. Her recovery was good and she still lives.

I will now relate a case in which no other medicine than quinine was used.

In the first part of this paper I spoke of a little white boy, about 10 years old, that I was called to see in the epidemic of 1878, whom I found wild, furious and uncontrollable, with pale skin, cold surface and contracted pupils. It was utterly impossible to get a dose of medicine down him. After vainly trying and worrying till I was exhausted, as the last and only hope I prescribed 40 grs. of quinine in a 4 ounce emulsion, and ordered one-half to be given at once per rectum, and if not retained to give the other half. My directions were carried into effect by main force, and the enema retained. In a few hours I returned and found my patient more quiet, skin becoming warm and slightly moist. My quinine had acted so well that I had the balance given, and the prescription refilled, of which I ordered one-fourth every four hours. My patient made an excellent recovery upon quinine, without a grain of any other medicine whatever. So that the inference is clear and unquestionable, that he was either *cured by quinine*, or by the *vis medicatrix naturæ*, in despite of it.

From my observations and experience, extending over a period of more than 56 years in active practice, I am justified in asserting that whoever restricts the use of quinine to malarial fevers only, has a very limited and imperfect conception of its therapeutic efficiency and wide range of

applicability. According to our best standard authors and the ablest medical writers and practitioners of the age, quinine is commended, prescribed and used, and found beneficial in a vast number of different diseases, not considered malarial in character; and the conclusion is just and logical that quinine is beneficial in diseases not malarial, or else, that nearly all the diseases that invade poor humanity, in all countries, nations and climes, are malarial in origin and character.

