

recall a case that was benefited in the least; and I fear that children over this age suffering from enuresis are subjects of such inherent defects that other drugs or means than atropia must be sought ere they are relieved.

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FACTS VERSUS FIGURES. YELLOW FEVER INOCULATION.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May 21, 1890.

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My report on Dr. Freire's yellow fever inoculations having been recently published in the annual volume of the Marine-Hospital Service, I should not consider it necessary to say anything more about Dr. Freire's inoculations but for the fact that a majority of the readers of *THE JOURNAL* are not likely to see this report, and I dare say many will be influenced by the statistics of Dr. Freire and the enthusiastic support Dr. Gaston¹ and his son-in-law Dr. Lane,² of San Paulo, Brazil, to accept figures as evidence of the prophylactic value of Dr. Freire's inoculations.

It is hardly necessary to say that figures are not facts, although when used for statistical purposes they are supposed to represent facts. We accept Dr. Freire's figures as representing the fact that a very large number of persons in Brazil have been inoculated by himself and some of his medical friends with his cultures, but having very positive evidence that these cultures do not contain the specific germ of yellow fever, we consider the statement that his inoculations are made with the "attenuated microbe" of yellow fever to be a fancy and not a fact.

And in judging of the value of his recently published statistics we take the liberty of looking back of the figures at certain facts which were developed by our personal investigation in the city of Rio; but before referring to these we desire to call attention to a fact stated by Dr. Freire himself, which for us is of prime importance. In Dr. Gaston's translation we read: "There were inoculated in Rio de Janeiro 1,183 persons under the conditions mentioned, and of these the deaths should have been at least 591. Behold! Only 18 died.

On page 16 of his latest publication³ Dr. Freire gives the names of twenty-one persons among the vaccinated during the year who died of yellow fever, viz.: "Eleven strangers and ten Brazilians."

Let us, however, take the figures as given in the paper from which Dr. Gaston has translated. The proportion of deaths is $\frac{1,183}{18} = 65.72$. That is one person out of 66 of the vaccinated died of yellow fever.

Now let us see what was the ratio of mortality among the unvaccinated portion of the population. According to Dr. Freire the total number of deaths during the epidemic was 2,386, including those which occurred in the Jurajuba Hospital (800). The total population of Rio is estimated at 400,000; let us divide this by two on the supposition that one-half of the population is protected by a previous attack or by long residence in the city. This gives us $\frac{200,000}{2,386} = 83.82$. That is, the mortality among the vaccinated was greater than among the non-vaccinated, estimating the susceptible population at one-half of the entire population of the city. And yet Dr. Freire estimates that 573 lives were spared in the city of Rio by his inoculations. This result is reached as follows:

"With a view to illustrate the efficacy of the inoculations let us record the ratio adopted by Dr. Jemle, in Senegal. He verified that among the strangers residing there from one to three years, 75 out of 100 are attacked with yellow fever and 66.6 out of 100 died. Let us make application of these proportions to our vaccinated strangers and natives, that resided in the infected district from a few days to three years."

It is by this estimate that a saving of 573 lives is made out. I am surprised that Dr. Freire has the temerity to again resort to this misuse of the statistical method, after the criticism which his statistics for the year 1884 underwent in the Imperial Academy of Medicine of Brazil. I give below a translation of an address made by a prominent physician of Rio de Janeiro, Dr. Nuno de Andrade, inspector-general of hygiene of the ports of Brazil. This was made at a meeting held on July 14, 1885, and is translated from the bulletin of the Academy.

But passing over all these incidents, the speaker proceeded to explain to the Academy Dr. Freire's singular method of arranging statistics to prove the efficacy of his preventive inoculations. The process of manufacturing statistics discovered by Dr. Freire exceeded anything the speaker had ever deemed possible, for his statistics for Rio Janeiro in 1884 were prepared with data obtained in Senegal in 1881. What Dr. Freire proposed to ascertain was whether in 1884 the number of deaths in Rio de Janeiro, in proportion to that of the persons liable to take the yellow fever was greater or not than that of the deaths among vaccinated persons in proportion to the whole number vaccinated. With this object in view, he said: "In Senegal, in 1881, of four foreigners with less than three years' residence in this country, three had the yellow fever, and of these two died; therefore the proportion of cases of yellow fever was 75 per cent, and the mortality among the patients was 66.6 per cent. In Rio the mortality in 1884 was 35 per cent;" *ergo*, reasoned Dr. Freire, 35 (of Rio) : 66.6 (of Senegal) :: x (of Rio) : 75 (of Senegal). In this cal-

¹ The Journal, March 22, 1890. Facts versus Fiction Touching Yellow Fever Inoculation.

² Letter from Brazil by "Occasional Correspondent." The Journal, July 27, 1889.

³ Statistique des vaccinations au moyen des cultures du microbe atténué de la fièvre jaune, Rio de Janeiro, 1890.

culatation, whose wonderful ingenuity had greatly impressed the speaker, $x = 39.4$. "Thus" concluded Dr. Freire "in Rio de Janeiro in 1884, of every 100 persons liable to have the yellow fever, 39.4 were actually taken with it; and as the mortality was 35 per cent, represented by 654 deaths, the whole number of patients was 1873." Wishing to learn next how many persons there were in Rio, in 1884, liable to have the yellow fever, Dr. Freire established the following proportion: $39.4 : 100 :: 1873 : x$. Therefore $39.4 \times = 187,300$, and $x = 4,737$. Hence Dr. Freire concludes that in 1884 there were in Rio de Janeiro only 4,737 persons liable to have the yellow fever, and that of these 654, or 13.7 per cent died, while of the 418 vaccinated there died only 7, or 1.6 per cent.

From this he infers that the result of his preventive vaccinations is really wonderful. (Page 181 of "Appendix to the Doctrine Microbienne.")

The speaker, however, preferred omitting the statistics of Senegal and making use only of those of Rio. Deducting, then, from Dr. Freire's list of vaccinated persons those who had more than three year's residence, and those residing in Vassouras and Serraria, the number of those liable to have the fever, according to the theory advanced in Dr. Freire's calculation, is reduced to three hundred and forty. Among these there were ten deaths, *i. e.* a mortality of 2.9 per cent.

The number of foreigners who arrived in Rio de Janeiro in 1880, 1881, and 1882 was 66,628, all liable, according to the aforesaid theory, to have the fever.

This number, which is taken as a basis for the calculation, said the speaker, is not exaggerated, for if it be true that many of these persons did not remain in the city, it is also true that the calculation does not include the tens of thousands of sailors on board the vessels in port, nor the persons newly arrived from the country, nor the children residing here, who are unfortunately paying a heavy tribute to the epidemic.

Very well, the 654 deaths from yellow fever among the 66,210 persons liable to take the disease (66,628—418 vaccinated by Dr. Freire) represent a mortality of 1.01 per cent, which is much smaller than the mortality among the vaccinated.

At this point the speaker said that owing to his fatigue and the lateness of the hour he would, for the time, terminate his address.

But what shall we say of the very favorable statistics from Campinas, the former residence of Dr. Gaston? Simply, I think, that the favorable results are due to the fact that *the survivors of the epidemic were inoculated*. To make a fair test the inoculations should have been made in advance of the epidemic, or at the very outset.

In that case a comparison of results among persons of equal susceptibility, and exposed in the same way would have been of scientific value. But the survivors of an epidemic have already demonstrated their slight susceptibility to the disease, and not having contracted it during the height of the epidemic what reason have we for ascribing their immunity during its decline, or after its termination, to the inoculation practiced by Dr. Freire or by his disciple Dr. Angelo Simoes, of Campinas. Some of those vaccinated did contract the disease as we learn from Dr. Simoes letter of May 7. He says: "I think then that the portion of the population not attacked by the disease have been vaccinated; and the new cases, *which are few*, that are appearing in individuals who do not wish to avail them-

selves of this prophylactic, *without counting one or another vaccinated, who has had the disease mildly.*" (Italics by present writer).

We learn from Dr. Freire's report of a later date than this letter from Dr. Simoes, that three of those vaccinated at Campinas died.

Since Dr. Gaston has quoted from Brazilian physicians who have faith in Dr. Freire's inoculations, I may be permitted to quote from some prominent physicians of the capital who have pointed out the insufficiency of the evidence.

The following is from a letter by the president of the Central Board of Health, of the Empire, which was published in one of the daily newspapers of Rio, in April, 1886:

I am obliged to correct the statements of Dr. Domingos José Freire in his article of the 7th instant, and in so doing I shall simply narrate facts, as I consider it unnecessary to enter into a formal discussion of the question.

For the facts referred to see my report, p. 184. The letter concludes as follows:

It is my sincere desire that Dr. Freire may continue to study the preservative action of his microbial cultures in relation to the yellow fever, but that he may do so calmly and without bias, like a scientific man, as did Edward Jenner in regard to vaccine matter as a preservative from small pox.

Let him avail himself of the labors of his professional brethren, and let him select assistants qualified to elevate his theories in the opinion of the public and profession instead of recruiting them among speculators and frequenters of tenement houses, who obtain greater numerical results by making victims and not disciples.

Let him again attend the meetings of the Academy of Medicine, where he has always been listened to with interest, and let him there recount his triumphs without showing offense if some colleague happens to differ from him. He should remember that science has always had its martyrs, but that these in compensation have been glorified by history.

Let him not be deceived by the praise bestowed on him in the press by persons who for purposes of their own make use of his name.

There have already been recorded many cases of deaths among persons inoculated with the microbial liquid, including the members of a respectable family vaccinated a year ago in Catumbi. One member of this family died of a pernicious lymphatitis a few days after vaccination, and another of yellow fever a little over two months ago. Every one else in the house had the yellow fever, although vaccinated. The person who fared best, having only a mild attack, was one who was absent when Dr. Freire invaded the house and performed the vaccinations without the previous consent of the head of the family.

The mortality among those vaccinated by Dr. Freire in 1884 was even greater in proportion to the number vaccinated than during the past year. He, himself, admitted seven deaths, and also confesses that "during the epidemic season a great number of the vaccinated were attacked with the malady."

But the list of deaths has been added to considerably by some of his medical confrères in Rio de Janeiro. The following is from Dr. Araujo Goes, a member of the Central Board of Health, and a gentleman whose statements are worthy of the fullest confidence:

My letter to the Imperial Academy of Medicine having been published it now behooves me to publish the statistics relating to the vaccinations on Morro da Viuva.

One fact seems to me to be definitely demonstrated, that is the worthlessness of Dr. Freire's vaccination, as is well known to the medical profession of this city.

A year ago I wrote the following:

"The want of skill which he displayed in his first experiments, the false conclusions which he has drawn therefrom, and the thoughtless precipitation with which he has hastened to make known incomplete results without accompanying them with a single qualifying remark, vitiate all the methods to which he may hereafter resort to corroborate his statements." (*Jornal do Commercio*, April 20, 1883).

The mortality among the persons vaccinated on Morro da Viuva furnishes one more proof that I was right in saying this, as I now proceed to demonstrate.

There were vaccinated in this district sixty persons, sixteen removed shortly after the commencement of the epidemic and forty-four remained exposed to its influence; of these twenty-two had the yellow fever, nine of whom died."

I am obliged to judge of Dr. Freire's statistics for the past year in the light of the facts developed by my personal investigations in Rio with reference to his inoculations practiced prior to my visit to that city in 1887; and those members of the profession who are disposed to accord some value to his published figures, are respectfully referred to that portion of my report in which I have analyzed his statistics for 1884, 1885, and 1886.⁴ My conclusion is stated in the report referred to as follows: "Our analysis leads us to the conclusion that there is no satisfactory evidence that Dr. Freire's inoculations have any prophylactic value."⁵

MEDICAL PROGRESS.

TREATMENT OF SCIATICA AND OTHER NEURALGIAS.—MORDHORST (*Therapeutische Monatshefte*, June, 1890), states that the diagnosis of sciatica is not always easy, and that inflammatory thickening of the rectus femoris and rostrus externus may be mistaken for this condition. It may also be confounded with rheumatic affections of the trochanter major and the muscles covering the hip-joint, especially the tensor vagina femoris, in the tendon of which may be found small masses varying in size from a lentil to a bean. These may be mistaken for true punctata dolorosa, as they are painful upon pressure. In many of these cases the writer has found an excess of free uric acid in the urine, and so concludes that these masses are urates deposited in the tissues.

With these few remarks on diagnosis the author takes up his special methods of treating sciatica, which he has employed for the past four years, and for which he claims the best results. In cases of neuritis—most of these cases belong to that

class—it is well to begin with a hot bath of from fifteen minutes to one hour's duration, followed by rest in bed of at least one hour, after which electric massage is to be used after the author's method. This consists of the application of the cathodal electrode having a surface area of at least 100 square cm. to the sciatic notch, while a revolving cylinder connected with the anode is passed down the limb along the course of the nerves. Deep pressure is made when the electrode is drawn downward, but it should only touch the skin lightly when returned, to prevent a break in the current. The author says that stronger currents (from 5 to 10 milliampères) can be used in this way, with a corresponding rapid absorption of inflammatory exudate.

Of thirty-six cases of sciatica treated in this way thirty recovered and six were improved. One case was cured in eight days, but the average length of treatment was from three to six weeks. Of thirteen other neuralgias, ten were cured and three improved.

ABSCESS OF THE BRAIN—RECOVERY.—DR. HANS SCHMID presented to the German Surgical Congress (*Internat. Klin. Rundschau*) a patient, who five months before had received a blow on the head with a beer-glass. At first he was comatose, but no further symptoms developed, and the wound healed in the course of a month with the exception of a small fistula. Six weeks after the injury the patient had an epileptic fit. These became more frequent, he lost flesh, and was sent to the asylum. There he sat anxiously in a corner, dreading every noise and movement, lest they precipitate an attack. The seizures were distinctly epileptic in character, and were preceded by an aura and cramps that began in the right lower extremity. On examination the patient presented a fine fistula in the region where the blow had been received; here a trephine was applied, and a portion of the skull was removed; this opened into an abscess containing 4 or 5 drachms of pus. Convalescence was rapid and full recovery reached with complete cessation of the epileptic attacks.

LYSOL, A NEW ANTISEPTIC.—DR. V. GERLACH presented to the Vienna Medical Society (*Inter. Klin. Rundschau*, June 15, 1890) a new antiseptic and disinfectant. It belongs to the class of coal tar derivatives, is free from carbolic acid, its most important constituent being kresole. Lysol has more antiseptic power than either carbolic acid or creolin, and is not so poisonous. It has a constant chemical formula. It is cheap and abundant. Lysol is not only to be used in closets and to clean linen, but it is especially useful in medicine, as it is almost free from toxic properties. As an antiseptic for wounds it should be used in a strength of 1 per cent.; for washing out the uterus, etc., $\frac{1}{2}$ per cent.

⁴ Annual Report, Marine-Hospital Service, 1889, pp. 189-213.
⁵ Op. cit. p., 213.