

an innovation of doubtful respectability. Sick people were then regarded as private property, and poachers were punished if they intruded on personal preserves. To-day the assumed right to deal exclusively with the diseases of special parts of the body,—generally those beyond the sick man's own range of vision,—is no longer regarded as presumption, or a violation of ethical rules. Patients, even, exercise the prerogative to be their own judges, both as to the nature of the particular disorder from which they think they suffer, and of the remedy it requires.

It is also asserted that the empire of the general physician and surgeon is crumbling away, and that his dirge is being chanted. The *personnel* of a general practice is said to change entirely in about the same time which it is popularly supposed to take for the renewal of the combined atoms of the human body; and the family doctor,—once a fixed and immutable institution,—finds it his office, now-a-days (it is cynically declared), solely to decide what specialist shall be summoned, and must count himself highly favored if subsequently invited to listen to the opinion obtained, or lend his assent to the treatment prescribed. "Specialism," we are told, by its recent vindicator, "being a movement founded on the true principle of progress, and in harmony with the general 'stream of tendency' in these days, will gain strength and volume as it advances, sweeping away, in its victorious current, all the rubbish of pedantic prejudice and malicious bigotry that formerly defiled its waters, and hindered their flow."

There can be no denial of the fact, that whoever, in addition to his general requirements, knows more about some particular thing than any one else,—or at any rate, can do some special work pre-eminently well,—has a decided advantage over his fellows; but the suggestion that all diseases of the body, and not merely those of its inlets and outlets,—even though they are beyond the reach of mirrors, aspirators, or sounds,—must be put in the same category with ailments of throats and ears, and reveal their secrets hereafter only to the sharp observation and skilled insight of specialists, is one which will hardly be conceded at present. With all the facts before them, enthusiastic students and workers still deliberately select the broad roads of general medicine and surgery, in preference to the narrow and possibly devious paths of special practice, though the latter may lead to speedier pecuniary success.

The human body is made up of parts and functions so thoroughly inter-dependent, that it cannot be parcelled out into defined and isolated regions. Let me illustrate this self-evident statement by quoting a post-mortem diagnosis, made by Professor Fitz, and taken absolutely at random from the Autopsy Book of the Massachusetts General Hospital. It reads as follows: "Chronic Pneumonia; Suppurative Pyelitis; Chronic Perimetritis; Hæmatoma of Ovary; Ischio-rectal Abscess, with Perineal Fistula; Chronic Typhlitis, with pseudo Polypi; Gangrenous Ulceration of Vermiform Appendix; Granular Degeneration of Liver and Kidney." The patient, with this appalling pathological conglomerate as his record, was one who, if alive, would have sought the advice of a specialist in diseases of the chest, and none other.

Despite all arguments drawn from expediency,—despite the difficulties encountered in the mastery of details, by any physician who has not had a special training,—one such case as that just alluded to empha-

sizes the assertion, that he who has the most comprehensive knowledge of the human organism and its disorders is, with certain well-recognized exceptions, best able to determine what is the matter with any given part of it, and so to help its unlucky owner to recovery, either through his own practical skill, or his ability wisely to select the colleague whose attainments may permit him to deal better with the case than he can. This object will not be less readily achieved if the practitioner acknowledges the limitations of human understanding, and the immaturity of medicinal therapeutics; or if he believes in the maxim that "the best physician is he who can distinguish what he can do from what he cannot."

Greater refinement in the distribution of medical practice is not likely to carry its analytic tendency beyond the present separation of physicians into a few distinctive and somewhat inclusive classes, drawing from a common fountain of knowledge, and maintaining the integrity of their profession, by the essential identity of science in every department. Accurate and familiar acquaintance with the applied laws of the latest medical learning is required in these days, as a part of the most limited professional outfit. The merest practitioner equips himself with this resource, in the same matter-of-fact way that he buys a thermometer or a stethoscope. Without it he can scarcely take part in the present competition for wealth, influence, position, and advancement. But skill in diagnosis will always remain the important practical part of a physician's business. What is the matter with a patient must be the fundamental problem which presents itself for his consideration, and the more he lays emphasis upon methods of treatment, the greater will be his danger of an approach toward empiricism. Increase of competition may place our successors under a mighty temptation to think, as the French epigram puts it, that "there are no such things as diseases, but only patients"; and make them forget that medicine is a profession, not a trade. It is to be confidently hoped that the growing efficiency of medical education, with its broad and intelligent training, will encourage a higher standard of self-respect than is implied in such a misgiving.⁹

(To be continued.)

Original Articles.

YELLOW FEVER IN BRAZIL. FREIRE'S INOCULATION.¹

BY H. M. LANE, M.D., BRAZIL.

THE etiology and pathogenesis of yellow fever, its contagiousness, geographical limits and treatment, are questions that have vexed the medical mind for two centuries, and a vast literature has grown up second in extent only to that of *malaria*, without definitely settling a single essential point.

The object of this paper is to give a few facts growing out of a long residence in Brazil, as the result of personal observation and experience, and rather of general interest than of a strictly scientific character, though most points will barely be referred to.

Concerning the birthplace of yellow fever, it has been claimed that its *home* is the West Indies, and that

¹ Extracts from a paper read before the Kansas State Medical Association, at its annual meeting, Atchison, May 19, 1886.

⁹ Appendix V.

it is the outgrowth of certain conditions found there permanently, — of heat, moisture, putrefaction, etc., and that it may arise *de novo* whenever these conditions obtain: This is theory; the facts are that fever was never known in the Western World prior to the arrival at Martinique of the French ship "*Oriflamme*," in the latter part of the seventeenth century,² coming directly from Siam, and the disease described by the writers of that day as the "*mal de Siam*," a name which it bore for half a century. It is true that since then it has never been absent from the Northern coast of South America, the Islands of the West Indies, and the shores of the Gulf of Mexico.

In December of 1685, a fearful epidemic broke out in Pernambuco, known as the "*epidemia da bicha*," which carried off more than two thousand persons the first year. A Portuguese vessel had returned from St. Thomas bringing some barrels of putrid meat, which were opened by a cooper who, on inhaling the infected air, was seized with sudden illness, taken home, and died in a few hours; from him the disease spread to the members of his family, who all perished, and from this house to the entire city and to the cities of Olinda and Bahia. It has been claimed that this was yellow fever, though Rosa³ speaks of it as a *pestilential typhus*, and the minute descriptions of Rocha Pitta⁴ correspond rather with ship fever than yellow fever. After two years it entirely disappeared from the coast, where the conditions for the development of yellow fever are quite as good as in the West Indies. It is therefore safe to infer that the disease at Pernambuco was not the yellow fever which we know to-day, and we may conclude that the spread of true yellow fever from the Northern extremity of South America where it undoubtedly existed, southward, was prevented by the barrier which the waters of the Amazon interposed.

It is reasonably certain then that yellow fever made its first appearance on the coast of Brazil in October, 1848, where it can be traced to the American brig Brazil, arriving from New Orleans direct.⁵

In December of the same year it was carried to Rio de Janeiro by the Brazilian steamer *D. Pedro*, and we find the first death recorded on the 27th of December, 1848. In 1849, the disease broke out in a severe form and from December, 1849, to May, 1850, there was in Rio de Janeiro an epidemic which is without parallel in the history of the disease. Upwards of five thousand deaths being recorded, and it is probable that half as many more escaped notice, in the terror and confusion incident to such a reign of death.

From that date until the present day yellow fever has never been absent from Rio de Janeiro and rarely from any of the principal sea-ports between Santos, three hundred miles south, and Para, on the equator, a coast line of over two thousand miles.

Preparations for the "*approaching epidemic*" are made in Rio, with as much regularity and it is looked forward to with as much certainty as the summer solstice.

As the hot weather approaches, the more favored classes seek the cool heights of Petropolis, Nova Friburgo, Therisopolis, and the high plateaux of the inte-

²Moreau de St. Mery. *Descrip. Typ. et Phys. de S. Dom.*, quoted by Carpenter.

³Trat. sobre a febre pestilential de Pernambuco por Joan Ferreira de Rosa, Lisboa, 1694, page 12, et seq.

⁴Hist. Am. Portugueses, por Rocha Pitta, Lisboa, 1727, pp. 214, liv. vii.

⁵Consular Reports, 1850, and documents in the Archives of Provincial Government at Bahia.

rior, while the employés of commerce, the laboring classes, and those connected with shipping, remain to face the disease as best they may. Among the working classes those who are most exposed to the sun or other heat are soonest attacked, as sailors, cooks, smiths, etc. As in our Southern States, the negro enjoys immunity as a rule.

Recent arrivals from whatever source fall early victims to the disease. During the present year the mortality among very young children was unusually great; this may be regarded as one of the vagaries of the disease. Among foreigners those who commit excesses in *Baccho et Venere* rarely escape.

Its environment. The city of St. Sebastian on the river of *January* (a literal translation of its name) commonly called Rio de Janeiro, is perhaps the most beautiful in the world, and, from its situation among the foot-hills of the Coast range, surrounded on three sides by the magnificent bay of Rio, also famous for its picturesque beauty, fanned by perpetual breezes, from the sea by day and land by night, barely within the line of the tropics, should be one of the healthiest. The tall peaks of *Fyuca* and *Corcovado*, stand at its very gates on the south, furnishing on their slopes and approaches, cool resorts of easy access, while in the very heart of the city half a dozen hills furnish an excellent refuge from the heat and smells of the lower town. Still, the scourge remains, and its spectre drives emigration from the fairest and most fertile shore of earth.

The force of an epidemic is usually spent in those portions of the shore line that are cut off from the sea-breeze by intervening hills, and in the low, flat districts, densely populated, that stretch back from the sea front and are also deprived of the sea winds and have poor hygienic surroundings.

The sanitary appointments of Rio have been immensely improved during the past twenty years; privies and intra-mural burials have been prohibited, an expensive and elaborate system of drainage adopted, and just in proportion as the hygienic conditions have improved there has been a corresponding decline in the violence of all epidemic disease.

Through some radical defect in the main, the drainage works are notoriously inadequate, but those who remember the old days of the *Cabunge*, when the excreta of the city was brought in wooden buckets and dumped into the bay in front of the city are not inclined to grumble.

The supply of palatable water is also inadequate, and a water famine has been threatened several times.

The old habit of converting every convenient corner into a latrina still remains, and the air of certain localities is laden with the odor of decomposing urine.

On the whole, however, the sanitary appointments of Rio, with its four hundred and fifty thousand souls, are superior to most of our own large cities.

The importance of yellow fever as a factor in the country's prosperity may be seen from the number of deaths during the ten great epidemics;—

1850	. . . . .	5,340 deaths	1875	. . . . .	1,291 deaths
1852	. . . . .	2,165 "	1876	. . . . .	3,820 "
1860	. . . . .	1,449 "	1878	. . . . .	1,178 "
1870	. . . . .	1,271 "	1880	. . . . .	1,760 "
1873	. . . . .	3,790 "	1883	. . . . .	1,660 "
			Total,	23,714.	

The ten years of next greatest severity show an aggregate of seven thousand six hundred and thirty-one deaths. It would be safe to say that these figures

are at least thirty-three per cent. under the real numbers. The years of greatest mortality correspond to the seasons of *greatest heat and least rain-fall*. A hot, dry season is sure to bring an epidemic, a heavy rain or a cold "*Souther*" during the prevalence of an epidemic is sure to cut it short.

Another fact worthy of note is that yellow-fever and all forms of endemic fever run in parallel lines, as the table of comparative mortality for the last three years will show:—

	1883	1884	1885
Yellow Fever	1,650	618	574
Pernicious Fever	760	426	345
Typhoid Fever	190	157	106
Other Malarial Fever	392	135	193

This proportion will hold good for all the years of which we have a record. Malarial fevers do not, however, tend to merge into yellow fever, but rather to give immunity from it. This leads us to believe that, in some way, the development of yellow fever depends upon the same general causes which produce other fevers, and that while there may be, and doubtless is, a specific germ, upon which each depends for its individuality, at the same time, the prevalence of either as an epidemic must depend largely upon the "environments."

It would be out of place to discuss the question of the *contagiousness* of yellow fever until some exact definition of the term is accepted, and the precise relation which it bears to *infection* is made clear.

The months in which yellow fever prevails most are December, January, February, March, and April. In 1885, however, its greatest mortality was in *May*; in 1883, one-third of the total number of deaths was in April.

The total number of deaths from all causes in Rio in 1884, was 9,732; the total number of deaths from all causes in Rio in 1885, 10,182. Of these, in 1884, 636 were still born; and in 1885, 793 were still born. In the early epidemics, the rate of mortality in yellow fever was as high as seventy-four per cent.; recent years, it is about thirty-three to fifty per cent. in epidemics, and much less in the *sporadic* years, averaging not more than sixteen per cent.

The largest number of deaths from any one cause is found to be from *pulmonary consumption*, last year being 1884, nearly twenty per cent. of the total mortality. The three greatest causes of mortality on the whole Coast, from Santos to Pará, are: *pulmonary consumption*, *beri-beri*, and *yellow fever*, in the order given.

It is a fact, however, that yellow fever, standing third in the list, inspires a terror which is felt for no other disease, and probably exerts an influence for evil on the commerce of the country, its material development, and the advancement of social interests, greater than all other diseases combined. There is no interest of society to which it is not inimical: hence the anxiety of the government to root it out or devise means for controlling it.

Dr. Freire's investigations are already so well known, that anything more than a mention of his work is unnecessary. He does not exactly claim to have discovered a new germ, but simply that he has, from the granular elements already noticed by Rhees in 1820, Hassel in 1853, Alvasengu in 1856, and Jones in 1873, in the blood and other fluids of yellow fever patients, succeeded in isolating, defining, and determining the exact character of a micro-germ, which he calls the *cryptococcus xanthogenicus*, whose causal

relation to the disease he has demonstrated, through a series of carefully-conducted experiments, in the clearest manner. Dr. Freire's work was commenced in 1878 or 1879, and in 1880, he published a full statement of the results obtained, and his mode of obtaining them.⁶

In 1883, obeying the mandate of his government, he extended his researches to discover some means of utilizing the work already done for a preventive vaccination, after Pasteur's methods. The whole story of his success, how he discovered animals that possessed the requisite receptivity, the cultivation and successive attenuations, is told, and well told, in his "*Doctrina Microbienne*," a book of six hundred and thirty pages, where every step of his work is described and illustrated; published in Rio in 1885.

He commenced his inoculations of the pure culture at once, and in January of the present year, published his "*Resultats Statistiques*," detailing 3,051 inoculations from January to August of 1885, without a single death. He shows that in the immediate neighborhood of these cases, 278 *non-inoculated persons* had died of yellow fever, while not a single inoculated person had perished.

His inoculations now reach nearly 7,000. During the present epidemic I was in Rio, and took occasion, personally, to follow up a large number of the inoculations reported, and during a whole week, with the assistance of friends, I was unable to find a single well-authenticated case of an *inoculated person* dying of yellow fever; but found numerous instances where persons *not inoculated*, living in the same yard, and sometimes in the same house, with those protected by inoculation, *had contracted the disease and died*. These facts have some significance. My own experience with the inoculation is not without value.

I arrived from the cool mountain region on the 16th of last March, during the prevalence of an epidemic of yellow fever, in perfect health. At eleven o'clock the next morning, Dr. Freire injected into my left deltoid one gramme of his pure culture of the yellow fever germ, the twenty-second attenuation. At 5 P. M., I had a slight chill, followed by a feeling of general discomfort, nausea, frontal headache, pain in legs and lumbar region, the temperature going up, with corresponding acceleration of pulse, until at 2 o'clock, A. M. of the 18th, it reached 102.7°, which was the highest point reached. At this time, I went asleep and slept two hours, when I awoke perspiring; the pulse and temperature gradually declined, until at 7 P. M. they had reached normal. Headache and other symptoms also left, leaving me, on the morning of the 19th, a little weaker than usual, without appetite and with a furred tongue, and skin slightly jaundiced. There was an almost complete suppression of urine for twenty-four hours. The restlessness, the hot, dry skin, the thirst, nausea, headache and muscular pain, were all characteristic of the first period of yellow fever.

During the next week, I was constantly exposed to the disease in the infected districts, among yellow fever patients, without further trouble. It is worthy of note, that a friend coming from the same place as myself a few weeks before, and passing a single night in Rio, had taken yellow fever and died.

Numerous instances might be cited during the present epidemic, where people, particularly foreigners,

⁶"Recherches sur la Cause, la Nature, et le Traitement de la Fièvre Jaune."

coming down from the mountain resorts and passing one or two nights in Rio, have contracted the disease and died.

It is reasonable to claim that my own case is a fair proof of the protective power of the inoculations. Now, whatever scientific value may attach to the experiments of Dr. Freire, whether the germ he cultivates be or be not the essential cause of yellow fever, or whatever may be the nature of the fluid he uses in his inoculations, and whatever the relation which his cryptococcus xanthogenicus or any other micro-germ may bear to this disease, we have here certain unchallenged facts which all fair-minded men must consider. There are nearly 7,000 vaccinations, with name and residence of persons vaccinated given, and the unanswered challenge for any one to produce an instance of one of these cases dying of yellow fever.

The patient, untiring zeal with which Dr. Freire has pursued this difficult subject for the past seven years, his great ability, his unquestioned integrity, and the unrivalled facilities he has had, as well as the vast importance of the subject, all join in demanding for his claim respectful attention.

No argument based upon theory, no display of cheap rhetoric, no indecent exhibitions of professional jealousy, should be allowed to stand in the way of a searching examination of the value of these alleged discoveries. If true, their value to our Gulf States cannot be estimated in dollars and cents; if not true, it is due to the people of this country that they be fairly disproved.

Drs. Freire and Carmona have both made out a strong *prima facie* case, and to attempt an argument on the supposed difference between the germ claimed by Freire and the one presented by Carmona, is both weak and wicked. The rapid changes which these micro-germs undergo in completing the cycle of their existence is well known to bacteriologists — their extreme sensitiveness to the media in which they develop, the relation of the names usually given to the form, rather than to the essential character of the germ, all go to show how little real importance attaches to the point. The comma bacillus of Koch may be produced by the segmentation of the spirilla, and might be called by another name without at all disturbing its relations to the diseases with which it is taught to connect it.

It is to be hoped that all questions of party, and all professional differences will be laid aside, and Congress be urged to pass the bill now pending, which has for its object not the support of any theory, but a fair investigation of the truth or falsity of certain claims which affect the prosperity of the whole country.

RECENT PROGRESS IN DENTISTRY.¹

BY WILLIAM HERBERT ROLLINS.

DANGER OF PULPITIS FROM THE USE OF GUTTA-PERCHA AS A PULP CAPPING.²

The writer claims that this material expands so much, that when used over a pulp, under a metal filling, it creates enough pressure to kill the pulp.

¹ Concluded from page 514.

² Brit. Jour. of Dental Science, October, 1885.

CYSTIC TUMOR OF THE ALVEOLAR MEMBRANE.³

The patient had been treated by one physician for gout, by another, for an obscure liver disease, but in each case, without relief to the symptoms, which were intense pain over the face, scalp, and occiput, extending down the spine as far as the last ribs; and upon the neck, as far as the bifurcation of the two heads of the origin of the sterno-mastoid muscle. The pain was worse at night, and about half an hour after meals, at which latter time the stomach became tympanitic, impeding the movements of the diaphragm to such an extent as to cause alarming dyspnoea. An examination of the mouth showed nothing abnormal in its appearance. On a more extended examination, the resistance offered by a first upper molar to pressure, was found to be slightly different from that of the other teeth. On this slight hint, the tooth was extracted. Attached to the root, was found a hard, slightly vascular tumor with three lobes, which projected into the antrum. As the result of the extraction, all the symptoms disappeared.

LOSS OF SENSATION IN THE GUMS AND LIPS AFTER TOOTH EXTRACTION.⁴

The patient, a surgeon, in the course of five years, had three teeth extracted, following which, in each case, there had been loss of sensation in the gums and lips, from the angle of the jaw forward to the median line. Sensation gradually returned without treatment, and was fully re-established in three months.

CHRONIC PTYALORRHOEA OF THE GLANDS OF THE ORAL MUCOSA.

This disease has not been clearly recognized, though to the effects which it produces upon the teeth several names have been given, beginning with John Hunter, who mistook one of its symptoms for a distinct disease to which he gave the name "decay by denudation." This name is still in use, and other and more recent writers have farther withdrawn attention from the real disease by giving the names "surface wear," "erosion," "denuding," "chemical abrasion," to its effects upon the teeth.

The only treatment which the writers who have used these names have suggested, has been either to do nothing, or, when the effects upon the teeth have been extensive to fill the cavities with gold.

Ptyalorrhœa shows itself chiefly in an increase in the amount of the secretion of the acinous glands of the lips and cheeks. Accompanying this increase in amount is an increased viscosity and slight acidity. Even in those cases where the effect upon the teeth is very rapid there is seldom a marked acid reaction in the secretion. This faint acidity explains why the grooves in the teeth almost always are smooth, as if polished; indeed, many writers mistaking the real cause of the trouble, have attributed the grooving of the teeth to the effects of a stiff brush in cleaning them.

There are cases where caries supplements ptyalorrhœa in which the starting point of the caries is due to the intensity of the ptyalorrhœa, the evidently softened tooth substance not being removed as rapidly as formed; thus affording a culture ground for germs which produce the usual results, caries. These cases are chiefly those of the channeled form, in which the

³ Harris in Brit. Jour. of Dental Science, p. 894, 1885.

⁴ Glassington in Dental Record, p. 193, 1866.