

# TROPICAL DISEASES AND PUBLIC HEALTH

## SOME ASPECTS OF SOUTHERN MORTALITY\*

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Investigation is fatal to many commonly accepted theories and beliefs. For instance, the viability of woman has been generally regarded, even in life insurance circles, as inferior to man; and yet just the opposite is the verdict of a detailed special study of the comparative death rate and disease rate of males and females, as announced in the last report of the United States Census Bureau.

If this report be accepted, it would appear, consequently, that the popular belief which has held so firmly to the theory of woman's inferior health has been an inherited belief, and has been accepted without proper investigation or adequate evidence.

Similarly, vital statistics, accurately kept upon a large scale and extending over a series of years, are constantly uprooting old theories, and enlightening us on many subjects which had already been apparently settled in a satisfactory, even if in an unscientific, manner.

Likewise, the belief that certain sections of our country have been unfavorable to rational longevity has come down the years for so long a time as an "off-told" tale, that it has come to be accepted by many as a truism and actual fact. And of all such sections, none in this country has been so notably conspicuous in this respect as the Southern states; for none has so consciously felt as these the biting sting of such unfavorable comparisons.

It is not believed for an instant that this has been the result of malice or resentment, but the outcome of a long-continued series of events and incidents which were not properly studied, nor adequately understood by the public at large.

\*Read by Invitation before American Life Convention, St. Louis, Mo., Sept. 15, 1916.

Moreover, misinformation, as well as misconception of actual existing circumstances and environments through the passing years, seemed to add certainty to surmise.

When it is remembered, also, that more than one old-line life insurance company scarcely more than a quarter of a century ago forbade its agents to write any business in the South, east of one of the great railroad systems traversing most of the Southern states near the coast, it can be readily seen to what extremities an erroneous belief as to actual health conditions may go.

No one directly conversant with these local problems would have been guilty of so unjust a judgment, and have caused a whole section to suffer for the unhygienic sins of certain notably unsanitary areas situated throughout this region. Justice compels a generous estimate of this action by those personally unacquainted with the situation; for many elements entered into the proposition; and behind it all was the long accepted belief that conditions in the Southern states were unsanitary, and hence, longevity must necessarily be limited.

Ordinarily, it might be difficult, also, to understand why the Southern states should have ever been specifically considered unhealthy as a whole by so many, if the psychological fact of the subconscious influence of past impressions was not admitted.

It is probable, however, that the knowledge that the Southern states were in part semi-tropical, was the foundation for the belief that consequently they must be unhealthy and the natural breeding bed for the propagation and spread of dreaded tropical and semi-tropical diseases. In this manner, it is believed that the idea grew and expanded, until, to many, the supposition became a reality, and the apprehension, a verity.

Added to this, was the knowledge of the existence in this section of malaria, and also of the presence of the Negro, both sure harbingers to many, of discord, dirt, disease and death!

Such a conclusion, gained by some through illogical reasoning and by others through a tacit acceptance of traditional beliefs, naturally brought about gradually a more or less universal opinion among many people in other sections that the South in communities and in general was a veritable hot-bed of disease, all unmindful that in other sections of our common country these same disturbing elements flourish as luxuriantly as here, even if the environments are not commonly believed to be so favorable and congenial.

Likewise, the horrors of the calamitous death rate from yellow fever and cholera in the far South in the early part of the nineteenth century, amounting at one time to an average annual death rate of 140 per 1000 population in a limited area from those two diseases alone, probably added increasing strength to the popular belief, and what appeared to be true, was accepted as true and final without a proper investigation or verification of the *status quo* of the territory under accusation.

Candor compels the admission, however, that in certain sections of the South, the health conditions have never been such as could be claimed as above the average, or first-class, and probably never will be. But the same or equivalent conditions may be and are encountered in nearly every sectional area of this country. For everywhere throughout the United States similar general conditions prevail, with counterbalancing elemental or local variations.

In other words, when an impartial survey is made of existing health conditions in the South as a whole, it must be admitted that there is no special nor individual factor that is indigenous and inherently different from other sections that should *per se* militate against average longevity. In fact, the conditions in general in the South, as known personally to southerners, unquestionably tend toward longevity, and are actually producing it; for the primal and basic elements of health surely obtain in this genial climate, which is the marriage altar of the happy union of frigid cold and torrid heat in a summerland where "the weak grow strong and the strong grow great."

This opinion as to the favorable factors for health and longevity that exist naturally in the South, is not the result of per-

sonal desire or sectional sentiment, but is confirmed and corroborated by Vol. V, page 19 of the M. A. I. which states that within the first five insurance years, while the mortality rate for the country at large improved 13 per cent., the mortality rate for the Southern States improved 23 per cent., a result which obviously could not have occurred under adverse health conditions.

From a careful study and analysis of the situation, therefore, it would appear, speaking generally, that the popular conception of an excess mortality for the South from general causes is as misleading as it is erroneous, and that if the facts be faithfully presented, it will be seen that a mortality excess in a single line has been responsible for an apparent and generally accepted increase in the whole, thus distorting the actual facts and bringing unmerited criticism of Southern mortality in general.

In fact Southern mortality for the common diseases that prevail everywhere, is but slightly in excess of the average mortality for similar diseases all over the country; and the increased mortality in the South in the past, it is confidently believed, has been due to three prime causes: First, improperly educated medical practitioners and examiners whose diagnosis and treatment of disease have often been unscientific and whose records of death have frequently been inaccurate and misleading; secondly, unsanitary local and living conditions, accentuated by excesses in drinking and eating, which have prevailed more or less generally; and thirdly, violent deaths, which have always been greatly above the normal average in other sections.

The United States Life Tables (1910) recently published by the Bureau of the Census throw no light upon Southern mortality; but in a careful study and analysis of these three causes of death, in our opinion, it has been indubitably proved by statistics collated from state and municipal boards of health, and corroborated by life insurance mortality tables, that the last named cause, violent deaths, was by far the most significant, and in fact, that the whole excess mortality in the South is due to the unusual proportion of violent deaths (suicides, homicides and accidents) occurring regularly for years in this section.

For the purpose of comparison, a personal investigation was recently made of the average mortality percentage from violent deaths, including accidents, homicides, suicides and deaths on the operating table, of seven of the largest representative Southern insurance companies during the past six years; and it was found that this cause of death averaged during these six years 19 % of the total deaths reported, entailing a money loss on the seven companies of \$563,695.00; while as is well known, the expected average mortality percentage from violent deaths is only about eight to ten per cent.

By way of comparison, also, an investigation of mortality due to this cause was made of the records of one of the largest insurance companies which covers the whole United States, and it was ascertained that its mortality experience as to violent deaths for the past three years (1913-1916) was 22-plus per cent. for the whole country, and 24 per cent. for the Southern states; while for the last year (1915) it was 10 per cent. from the same cause for all of the states (the South included), and 27 per cent. for the Southern states alone.

These figures are important, for they are in a striking sense significant and confirmatory of the prior statement that excess mortality in the South is most largely attributable to the actual and continued excess above the normal of violent deaths in this section.

If, then, it is true that violent deaths have been most largely responsible for excessive Southern mortality in life insurance statistics, it is well to inquire into the local conditions and environments that might have originated and developed the tendency to such a result.

In our opinion, an explanation, if not an extenuation, is to be found in the social fabric and civil life of this people, and to be correctly understood and interpreted, must be considered impartially and in the light of inherited traditions and customs.

The following is offered as the most probable explanation: Socially, the old South was modeled upon a singular semi-feudal system, and like "All Gaul" was divided into three parts: the slaveholding planters, the Negro slaves, and lastly the non-slaveholding whites, a distinctly third estate.

The first class was relatively small in number, but mighty in wealth and authority, the old time aristocrats of this social system, and a ruling class of a high order of ability. The second was the dependent class, which by the millions sowed the seeds and reaped the harvests, and fostered the predominance of rural life over that of the city, thus favoring the maintenance of the patriarchal tendency of slaveholding. And the third was the "Cracker" whites, who were essentially *sui generis*, neither masters nor slaves, but between two social fires, themselves personally independent and disdainful of the prevailing system on the one hand, and on the other the object of frequent derision and contempt by both Negroes and whites.

In this way they became a class unto themselves, and if by dint of extraordinary industry or good fortune one of them rose to ownership of land or slaves, his social position was scarcely improved; and, still barred from the house and home of the planter, he was even yet to the Negro nothing more than "poor white trash."

At last, came the War Between the States, and it proved to be a great leveler. The ante-bellum characteristics were changed; distinctions based upon wealth were eliminated; social adjustments were fitted to the new order of life; and economic necessities produced a raw but dominant ruling class in the new South. And out of this mixture, from the overflow of "the melting pot" of feudalistic caste and "poor whites," came, as we believe, the first evidences of that tragic tendency toward personal violence *en masse* that has sullied the fair reputation of the South.

The change in social and civic conditions was abrupt; new adjustments must be made and new standards adopted, for the scepter of leadership and authority had passed from individual keeping, but the gentleman of the Old School could not readily accommodate himself to the newly existing conditions. And out of this stress and strain and strife, has been born the seeds of discontent which have produced in large measure a sad and ever lengthening succession of violent deaths.

The old South was a land of classes, rather than masses, and the inherited Cavalier spirit furnished a type of citizen, impetuous and generous, but haughty and

imperious. In the consideration of the existing conditions and tendencies of this unusual social system, proper regard must be given to the entity of "the personal equation," which during this period characterized to an unusual extent the life of the Southern people, and molded and fashioned it to the customs and traditions of that day.

By heredity and by training this ego became a silent but positive and powerful force, and though not always apparent, was, under certain circumstances, a factor which must be reckoned with; for almost unconsciously to the people it had unduly fostered personal self-esteem, and had become unfortunately a dominant train in Southern character and life.

Again, this tendency was in part temperamental, but its basic foundations were rooted in the old social system, that for so long prevailed, that no matter who were the lords, they must be respected and obeyed by the vassals of a lower class. The passing years changed masters, but not men, who have been ever ready to imitate the manners and methods of their predecessors, and quick to resent any reflections upon newly acquired rights or dignity.

This interpretation and explanation of the inherent and acquired tendencies of this people may appear in a measure somewhat strained and fanciful, but it is entirely in line with their psychological evolution and development, influenced by subconscious impressions and influences, gathered through 250 years of a semi-feudal life, and at last ruthlessly ended by a sudden and violent cataclysm, which seared with lasting scars their pride, and upset all former standards and creeds of social life.

At this time, most of the participants in that era have "passed over the river," and those who have not, have passed out of the Egypt of hatred and rebellion into the Canaan of reconciliation, and a new type of manhood fitted to the exigencies of the new conditions, has been born and reared, and is rapidly and happily adjusting itself to the new order of life in the South.

Added to the disturbing if not beneficial effects of a life under such conditions, with all of the above mentioned inherent tendencies, there has been an additional burden imposed upon Southern mortality by

overindulgence in intoxicating liquors by many, which, combined with an unusual temperamentality, has produced disastrous effects upon the life and mortality of this particular section, and has greatly increased the proportion of violent deaths, especially through homicides, which have proved to be the largest element by statistics for this cause of death.

It may be that the frequent sensational reports of such occurrences in the newspapers have had the effect of directing unwarranted attention to this section, and consequently the erroneous conclusions arrived at by the public at large, as to actually existing conditions; but we submit, however, that the assumption of such facts as true, without proper investigation and adequate knowledge of the real conditions, is a social and business menace which is a serious matter to the Southern people. It is not just nor right that the health and living conditions of their section, should be singled out and thoughtlessly disparaged without a fair statement of all the facts involved. In such a situation, what true and loyal citizen would not protest, and protect the reputation of his section?

We attribute no sinister nor ulterior motives to any former investigator or statistician who has studied this subject, but we do affirm that some published statements regarding this section have not been just, nor illuminating, for they have been predicated upon unknown conditions and unreliable data.

It assuredly is true that the mortality percentage in the South, especially in certain areas has been above the normal, and in some localities considerably above. But a careful investigation shows that this apparent excess of the whole is, by analysis of all of the statistics, reduced mainly to an excess of one unit of the whole, and that is, the abnormal percentage of violent deaths, the reasons for the occurrence of which have already been considered.

All former attempts to ascertain the true facts have been disappointing for it is not only of the first order of importance that we must know the rate of mortality as affected by different conditions, impairments, etc., but also the terminal results of the mortality experience as disclosed by the causes of death, and even the report of the Medico-Actuarial Mortality Investiga-

tion Committee, the most complete one to date, was handicapped, and it admits it, as all investigators of this question must be, by the insufficiency and unreliability of the medical records obtainable in this section; for only until recently have most of the constituent states come within the requirements of the vital statistics of the registration area.

The specific report of this committee, Vol. V, part 2, on "Mortality in the Southern States," was, we think, rather premature and incomplete; for while the data supplied was optional with the companies, only fourteen, out of forty-three, gave the material necessary for the investigation, and without intending it, the committee in this fragmentary way, gave a very imperfect picture of the true Southern insurance status, although they did impartially collate and estimate such statistics as were then available.

In addition, many of the companies which supplied data that was used, do very little business in this territory compared with the total life insurance written; and further, no Southern company furnished any statistics whatever for this report. However, from tabulated material now in the possession of these Southern companies, it would appear that they have not been at such a disadvantage as the Eastern companies in the selection of risks.

Without entering, though, into a minute criticism of these statistics in detail, it is readily noticeable by one personally acquainted with this section that the information secured was insufficient and that the classification of the data into groups by years of issue was inadequate for a proper estimation of past conditions, or for comparison as to the past or the future of the South with other sections, or with the United States and Canada as a whole. This report, also, is confusing in that data obtained from distinctly country districts is compared directly with data from sections which are mainly urban, or largely tributary to cities of considerable population.

Furthermore, the blackest picture of Southern mortality in this investigation is reflected from the injudicious comparison of a winter health resort section in one state, comprising "Gulf counties and other counties," with a former well known

"death-hole" section in another state, composed of the same sectional groups with "Delta counties" added, making in four out of seven Southern states the ratio of actual to expected deaths, more than 150 per cent., a result which is quite amazing and horrifying, especially to the uninitiated.

Likewise, in this investigation, the influence of malaria upon mortality appears to us to have been over-rated, and since a direct comparison between the mortality in the various sections among the insured with a history of malaria and the insured as a whole in the same localities, is not given, the results are of small value; and even this importance is minimized, because in but few of the statistics has the habitat of the insured at the date of application been recorded.

While the deductions in this report are at first glance startling, yet with a detailed study, they appear quite encouraging as to the death rate in the ordinary classes of disease, as compared with other sections, and actually confirmatory that they do not differ appreciably from the standard mortality, except that the death rate from accident was distinctly above the average, from typhoid fever it was one and a half times the standard, and from malaria, seven times the standard.

To those of us familiar with many widely separated sections of the South and conversant with the facts, it is easy to accept the unusual prevalence of accidents as a cause of death; but difficult to believe that malaria, excepting, of course, pernicious malaria, malarial hematuria, swamp fever and black-water fever, is a serious factor affecting Southern mortality, other than as a chronic infection diminishing vital resistance.

The experience of our own company, the Atlantic Life, Richmond, Va., which in its sixteen years of business, covering nearly all of the Southern states, has never paid but two claims for malaria as a cause of death, is in a way illustrative of this fact. And it is the history of another company with which we are familiar, but which is much larger and which operates in all of the Southern states. It has paid only three claims in the South in the last three years for this cause; and it is believed that a mistaken diagnosis was entirely prob-

able in two of the three cases reported as malaria. These two instances, together with that of another Southern insurance company with six millions insurance in force, and no death yet from malaria, while of course not confirmatory, are yet indicative, and tend to show that malaria is not so frequent a cause *per se* of death, and that incorrect death reports to which reference has already been made, are often the cause of such misleading vital statistics.

This committee, however, which admits insufficiency of data, concludes its report with the statement that "the experience of eight companies doing business in seven Southern states, showed that the mortality among insured lives generally in the Southern states has improved about 10 per cent." This statement by the committee, following its formidable array of tabulated statistics, suggests to us the necessity for still greater care and more earnest endeavor to change and improve this record of mortality percentages, or the South will soon be no longer a fruitful field for life insurance effort.

It is true that no local Southern company has had such a mortality experience, and no Eastern company has withdrawn from this territory because of the published average mortality, and yet "comparisons are odious!"

This report also emphasizes the urgency and practical value of thorough-going investigations into the mortality experience of life insurance companies, with special reference to occupation, locality and particular diseases.

It suggests, likewise, the necessity for a more exhaustive study of occupational mortality problems with particular reference to special trades, and a supplementary inquiry, not alone of groups of employment, as the Medico-Actuarial Investigation has so well done, but into actual occupational conditions, with a view to a concise differentiation of the particular trades of employment most injurious to health.

In the South especially, more attention should be given to the study of tropical and semi-tropical diseases, for the arteries of commerce are daily multiplying and the dangers to health consequently increasing in due proportion. Former rare diseases,

such as pellagra, hookworm and amebic dysentery, are now notable for their frequency and severity; and for their prevention, special care and thought should be exercised. Yellow fever and cholera appear to have been banished. And while the native population has been proved to possess a relative immunity to the effects of some of the infections, yet this immunity is not sufficient to justify any diminution of proper preventive effort if security and safety are not to be imperilled.

Moreover, the question of tropical hazards, in view of the fact that our knowledge concerning so-called acclimatization is far from satisfactory and conclusive, is always a threatening problem; for too much reliance should not be placed upon the apparent results obtained at Panama, which broadly speaking can scarcely be considered applicable to the American tropics generally.

In connection with these, too, should be considered, that latest development of disease, or at least the modern recognition of it, namely, "the carrier problem," as manifested in the case of typhoid, malaria and hookworm patients; for it is becoming a sufficiently weighty question to demand constant investigation and precaution.

In common with other sections of the country, the South is in urgent need of a more detailed and comprehensive study of heart and kidney diseases, and their complications if Southern mortality is to be protected and decreased; for at present these diseases are rapidly forging to the front in mortality statistics.

Similarly as regards weight and especially overweight in early adult life, much more should be known; for we are only at a beginning of a fairly satisfactory understanding of the real seriousness of overweight. And it is more than probable that even the valuable results of the Medico-Actuarial investigations mark merely the beginning of a scientific consideration rather than the conclusion of the matter.

These problems in life insurance must gradually be solved by the companies, and it is to the older and larger ones with their accurately systematized records and initiative methods that we must look hopefully for reliable information to guide us.

Newly organized life insurance companies operating in territory, generally

limited during the early period of their experience to one state or less, cannot hope to have an average mortality experience, and should naturally expect that an undue proportion of new business written in such sections may prove distinctly harmful as to the probabilities of a higher mortality; for many of these restricted sections are well known and have been avoided by the larger companies, and consequently have become the easy prey of active agents of new companies desiring rapidly to write a large volume of business.

In conclusion, we are not blinded to the local health problems confronting the South and hazarding her mortality, nor are we an apologist for them, but we lament the indifference, if not the ignorance that would deny, ignore or minimize them.

There are many areas of local Southern territory which are open breeding places for disease, but these are well recognized sections, and are not more common than those in other parts of our common country. There are also a few diseases which are mainly indigenous, and thrive apparently best under local Southern conditions, but these are counterbalanced by rigors and inequalities of local climate elsewhere, and resultant local diseases that are almost unknown in the South. In fact, Providence has marvelously balanced the natural elements as to life and death; and health and disease, barring certain universally admitted facts is largely a matter everywhere of obedience or disobedience of nature's laws.

As a summary of the whole, it may be said that the causes of excess in Southern mortality have been due not primarily to local Southern conditions as has been generally supposed, but to the faults of the people themselves, in part inherent and in part the result of a careless disregard of the commonly accepted laws of right living and right thinking, as manifested in the main, in the reasons hitherto cited, namely, *unsanitary methods of living, unwarranted excesses in whisky drinking and meat eating, and lastly, unscientific records of illness and deaths.*

The Southern people at large are wanting in some of the definite methods of system that characterize the people of other sections, and this explains why there have not been proper mortality reports kept in

the past; for, in our opinion, the present is just witnessing the first scientific efforts in this direction ever undertaken. If this be true, then, past statistics regarding disease and disease expressions in general in this section have previously been worthless for scientific verification of medical facts, as any careful medical director can attest.

The improvement in this direction now is the forerunner and promise of other innovations that are to remedy the evils that have existed and have marred for so long the record of Southern mortality. The era of social betterment with corresponding sanitary progress has come for the South; and just as her industrial interests are pulsating with new life, so are the centres of her higher social and civic life thrilling with new and better ideals. Effective prohibition has been proved possible and feasible, and with its spread and enforcement over the Southern states, filth disease and violence, and especially the latter, will decrease correspondingly.

With violent deaths, including especially homicides and accidents, thus appreciably diminished, it is hoped that suicide, the next most frequent cause of violent death, may also be decreased. But extensive personal correspondence regarding the experience of Southern companies in the possible prevention of this cause of death, has not resulted in securing very definite or satisfactory information, except the general conclusion that probably a determination by the insuring companies not to accept a promissory note for the second payment of renewal premium, might serve as a possible safeguard, if not, indeed, as a preventive in many probable suicides.

The interest manifested, however, in this and similar measures proposed for the improvement and standardization of life insurance methods for the Southern companies is inspiring and highly encouraging; for all along the advancing line of faithful, fruitful effort toward higher ideals of saner living and better insurance methods, "preparedness" is becoming the universal slogan in the South as elsewhere, and interpreted in a local medical sense, it forecasts a wiser prevention of disease, and resultantly, a decreased average Southern mortality.

It is needless to name all of these agents

and methods which are at present being utilized to this end, for "their name is legion". Suffice it to say that fewer Southern medical colleges assure now better medical practitioners, while more general information regarding health problems by the masses, render it a safe conclusion that the prevalence of excessive epidemics is no longer to be expected. And finally, throughout the South the splendid work of the state, county and municipal health boards, is becoming so efficient and zealous in directing, encouraging and enforcing health measures that personal hygiene and local sanitation are becoming an individual habit, all of which bespeak for Southern life insurance experience, a future, rich in promise and radiant with hope for a decreasing Southern mortality.

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#### AUTHORS' ABSTRACTS

##### Medicine

(Continued from page 1045)

**Some Fallacies Regarding Phenol:** Martin I. Wilbert, Washington, D. C. Public Health Reports, April 28, 1916, pp. 1046-1054.

This article asserts that there are few official drugs regarding which more misleading statements have been made than phenol, or as it is more widely known, carbolic acid. The author also criticises the recognition that has been accorded by state laws of the false assumption that ethyl alcohol serves as a detoxicant or an antidote to phenol, and reviews some of the many statements regarding the actions and uses of phenol that were at one time thought to be true. The experimental work on the effect of alcohol on the toxicity of phenol and the effect of alcohol on the antiseptic action of phenol, show that the addition of alcohol to aqueous solutions of phenol serves to increase the solvent and penetrative properties of mixtures containing it.

The experiments with animals clearly show that the addition of ethyl alcohol to solutions of phe-

nol in water does not in any way inhibit the toxic action of phenol, but rather tends to facilitate absorption and thus hasten death.

Experiments to determine the relative antiseptic value of phenol in water and of phenol in mixtures of alcohol and water show that alcohol not only increases the solubility of phenol, but also increases rather than diminishes the antiseptic value of the resulting solution. Ethyl alcohol can be used to advantage as a substitute for glycerin in making solutions of phenol in water.

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**A Bacillus Isolated from Epileptics.** By Wm. Barclay Terhune, Jackson, La., Journal of the American Medical Association, Oct. 14, 1916.

A bacillus, identical morphologically and culturally with Reed's B. epilepticus, was isolated from the blood stream in 75% of the twenty-four epileptics examined. Repeated cultures from the same individuals were necessary to find the organism. Control cultures on forty non-epileptics were negative.

The organism is a large, gram-negative, spore-bearing bacillus which grows very slowly. It is best cultivated in ordinary bouillon and on agar slants. Litmus Milk is slightly acidified. Bouillon is clouded and a pellicle formed by the organism. On agar small colonies form which are round, raised and translucent. Five to seven days' incubation is necessary to obtain a heavy growth. Carbol-fuchsin, followed by methylene blue, is the most satisfactory stain, differentiating spores and bacilli.

Two rabbits inoculated intravenously with saline suspensions of the bacilli, each receiving three inoculations, showed no symptoms other than a rise of temperature. The organism was recovered from both rabbits twenty days after inoculation.

Four cats were inoculated also. All of them died in convulsions. Organisms were recovered from two of these animals. Eight cats were fed the organism mixed with cream, each receiving one feeding. Five weeks later seven of these animals had died during convulsions.

The conclusion was reached that an organism causing convulsions, found in epileptics and not in non-epileptics, must play some part in the convulsions of epilepsy.