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MICROBES

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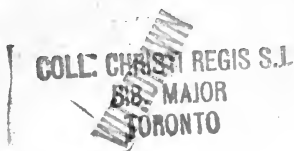
AND

THE MICROBE-KILLER

BY

WILLIAM RADAM

DISCOVERER OF THE "MICROBE-KILLER"



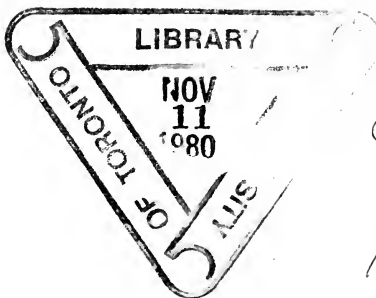
REVISED EDITION

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NEW YORK

PUBLISHED BY THE AUTHOR

1895



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1895

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WILLIAM RADAM

1895

TO THE
PEOPLE OF ALL NATIONS, ALL CREEDS AND CLASSES,
WHO HAVE SUFFERED AND ARE STILL SUFFERING FROM
DISEASE WHATSOEVER ;

TO
SCIENCE, AND TO POSTERITY,

THIS BOOK IS RESPECTFULLY
DEDICATED.



PREFACE TO THE REVISED EDITION.

THE first edition of this book, published in 1890, gave the world a new theory and established new principles. Its teachings were that there is only one disease—decay ; that it is caused by fermentation; and that all fermentation is caused by microbes. It was sent forth as a messenger that the doors of Science had been opened, and the seed scattered has borne abundant fruit.

The three or four so-called diseases then admitted by scientists to be caused by microbes have multiplied, until the number includes all diseases, and the author's theory has been permanently established. But a book written in the infancy of a new discovery is necessarily incomplete. Scarcely had the first edition appeared when the author began the preparation of the revised edition. Step by step he proved the correctness of his new principles, until they can be no longer doubted. Ceaselessly he toiled in his laboratory with the fermentation of disease, propagating the microbes which caused that fermentation, watching them grow in physicians' medicines or die in his own antiseptics, or photographing them with the object of making them visible to everybody.

The results of those years of patient investigation are given in this revised edition. His photographs of the microbes which cause the fermentation of the various so-called diseases are reproduced with exactness, making a valuable contribution to medical science. In place of the cumbersome appendix, which treated of subjects then held as possibilities, but which are now generally admitted, are special chapters giving the results of the author's personal investigations.

No attempt has been made to make the revised edition a literary effort. The author has a message to give to the world, to science, to humanity, and it is given in simple words and in the plainest manner possible.

WILLIAM RADAM.

NEW YORK CITY, March, 1895.



INTRODUCTION.

No apology is needed in presenting this book to science and the public. The theory is new, but the arguments are forceful and the proofs decisive. The discovery unfolded is of interest to all humanity, because it marks an advance in science and opens a new era of health and happiness.

The object I have in view is plain and can be readily defined. Circumstances of early life placed me in close commune with Nature. I studied her ways and observed her laws, little thinking at the time that the lessons learned amid plants and flowers would ultimately lead to results of vast importance to myself and later to the whole world. Business considerations first set me on the path, a tasteful interest held me to it with steadfast care, and the prospect of a brilliant discovery in the distance furnished energy and zeal to progress toward what promised an enduring benefit to all mankind.

After long and careful experiments, after days and nights of anxious toil, fraught with delusions and disappointments which only scientists can comprehend, the goal was reached. The efforts of opponents and rivals to thwart my success failed. Their warfare has changed to respectful admiration, if not always silence, and ere a decade passes they will join hands with me in hastening the ever onward march of science.

Many men, among them some of the most prominent in the field of science, elaborate a theory and then work with one end in view till they establish it, or think they establish it. My methods were not of that character. I fashioned no hypothesis. I did not look for something previously outlined in the mind. I simply studied and investigated, and the light at length broke in upon me

and opened out a discovery that I at once recognized as being of the utmost interest and importance. I tested its value and found nothing wanting. It withstood the severest trial and maintained itself under all circumstances. It promised to reform existing methods in the treatment of disease, to expose the errors that have been for centuries in vogue, to simplify human knowledge in fields of vital moment to the health and welfare of my fellow-men. Sweeping in its influence, it was simple in its nature, and calculated to wipe out all the complexities of hygienic and curative principles by its oneness and intensity.

Ill-health had long held me in its toils. Every curative resource known to medical science had failed to afford me relief. My condition was growing worse, and hope was well-nigh abandoned, when, in the line of my life-long studies, I found something that did what physicians and their *materia medica* had not done. I applied to my own case principles which I had learned were those of Nature herself, and they profited me where art had not availed. As soon as this result was realized, and I had leisure to weigh the full force of my discovery, I began to look backward and to reason from the results of my experience back to first causes. My sufferings had been complex, my ailments had been various, and, according to medical theory, very different in origin and kind. But one form of treatment cured me, and the inference was inevitable that, if one method sufficed for a few diseases, it would probably suffice for more, and possibly for all. I recalled the drift of my inquiries and of my knowledge in the plant world, and formulated the idea that all disease might perhaps be the consequence of a single cause. Following up this train of thought, I had no difficulty, in course of time, in strengthening the theory by practical experiment. By observation and inquiry I soon had the soundness of the suggestion sufficiently established to carry conviction to any unprejudiced mind. But more was needed. If all diseases are traceable to one cause, all should alike yield to one mode

of treatment. Of the truth of the former I had no doubt, but the latter could only be proved by experiment and by satisfactory results ensuing from actual trial. The opportunity for this soon came. The remarkable fact that I, a chronic invalid, abandoned by the doctors because unrelieved by any of their medicaments, had cured myself, speedily became known abroad among my neighbors and friends, and some of them came to learn whether I could do for them what I had done already so well for myself. Thus was I afforded the chance I sought. I cautiously gave them the benefit of my discovery, and with only one uniform result. All were cured. Their arguments had been answered with proof.

My position was made at once impregnable. My knowledge of Nature's laws had served me in a dire extremity. The experience so gained had led me to outline a theory which reason convinced me was correct, and finally that theory had been established by incontrovertible testimony, in the course of which no flaw or error could be detected.

There now remained but one thing of much weight to be decided. It was apparent that I held at my disposal a discovery of no small importance and value. Should I reserve it to myself, or give it to the public? Either course presented a difficulty. If I retained it I should lay myself open very justly to the charge of withholding something replete with advantage to mankind, and if I should publish it such a fundamental upturning of all existing methods and practices in medical science would follow that I must be prepared to encounter violent antagonism and to defend myself against the disciples of a system that had a record of ages to sustain it.

If nothing else, a sense of duty to others must alone have speedily solved that question. I certainly had no right to retain an exclusive knowledge of anything calculated to benefit others, and neither had I any right to allow some personal inconveniences to stand in the way of such a course. My resolution was accordingly

soon made. I extended the operations of my discovery so as to leave no possible room for doubt as to its universal application, and then I determined to submit the whole case to the public.

This book is the consequence of that resolve. In its pages I have given a detailed statement of the new discovery which points to a unity in the cause and treatment of disease. From day to day steps are being made by advocates of the old theories which advance them slowly in the direction I have taken. Intermitent fever, cholera, scarlet fever, influenza, and the recently named "Grippe," as well as other diseases, are acknowledged to be due to the presence of microbes, but the time will come when the people must free themselves from the bondage of ignorance now urged upon them, to accept the undoubted fact that all disease is due to the same cause, and that treatment, to be beneficial, must be directed to the single object of stopping fermentation in the system by destroying the micro-organisms that give rise to it. This is no longer a theory subject to refutation or needing proof. In the subsequent pages I have endeavored to bring it within the grasp of the most superficial reader, but I have also furnished irrefutable testimony to its truth and stability. It is not an hypothesis, but a demonstrated law, and its reality is well fixed by practical experiment and by the evidence of accomplished facts.

The subject is of interest not only to a few, but to the many; to everybody, in fact, who may be subject to disease or ailments of any kind. It promises relief where cures have hitherto been deemed impossible, and it places the sick and ailing in a position where they shall be free from the expense and uncertainty of customary methods, and able to follow out the only known rational treatment for themselves.

I do not expect to be exempt from criticism. On the contrary, I invite inquiry and examination in a spirit of honest impartiality. Physicians will probably act under the customary impulse of doubting, possibly of con-

demning, until my remedy shall have been subjected by them to the full light of actual test—and that I solicit. At the same time it is but just, alike to myself and to the profession of medicine, to add that many members among the most progressive in that profession have already accepted my teaching and availed themselves of my discovery.

Thus far no explanation or statement of it has been given to the world except in brief notices and superficial sketches for the benefit of those who have displayed an interest in the subject. This book was therefore necessary. It could not have been omitted, neither should it be delayed. It is a challenge to the world of science, and a help, perhaps even it may be a salvation, to the sick. It will be a revelation and a source of instruction to all. It will work a reform in the treatment of disease, and a commotion among the disciples of antiquated teachings. I understand its force and can estimate its influence. I realize already the criticisms that it must encounter; but I ask for it a careful perusal, and can wait with equanimity for the time, near at hand, when it will receive the approval and indorsement of every impartial reader.

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11. Human blood full of germs and microbes.
12. Human blood full of germs and microbes.

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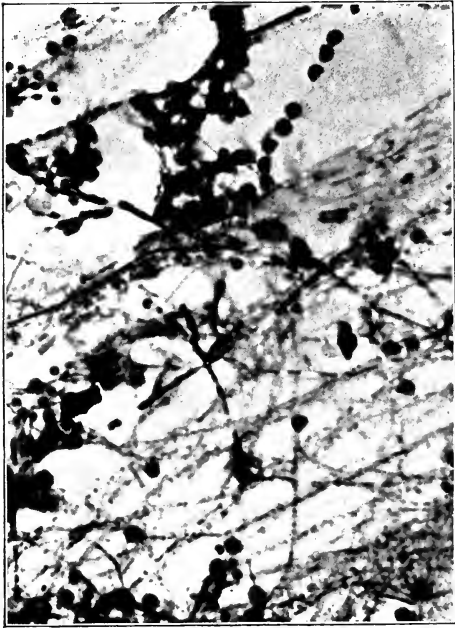
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100. *Bacillus indicus ruber*.





1. **MUCOR PUSILLUS.**
(MOULD FUNGL.)
x 1000. Photomicrograph by Wm. Radam.



2. **MUCOR RHIZOPODIFORMIS.**
(MOULD FUNGL.)
x 1000. Photomicrograph by Wm. Radam.



3. **MUCOR CORYMBIFER.**
(MOULD FUNGL.)
x 1000. Photomicrograph by Wm. Radam.



4. **FUSISPORIUM MOSCHATUM.**
(MOULD FUNGL.)
x 1000. Photomicrograph by Wm. Radam.

THE CAUSE OF ALL DISEASE.

CHAPTER I.

“ Would we the mystery of this world know,
We must to Nature’s deepest recess go.”

—*Shakespeare.*

IF we attempt to trace back any great element of knowledge to its primary source, we find ourselves inevitably led up to Nature. Not the Sciences only, but the Arts, the appliances, aids, and engines of modern civilization, the devices of Humanity, the weapons with which natural forces themselves are overcome and by which wondrous powers are controlled and utilized, are but the outcome of knowledge that sprang from intricate causes in the material world around us, and which experiment and experience have put into practical form.

A great book of revelation has lain open before the human intellect at all times and throughout all ages, which, if properly studied, contains the germ of all knowledge. Its pages are the blue skies and the green fields; they are seen in the rocks and the oceans, in the rivers and the rain, in the air and the clouds, in the sunshine and the darkness. In Nature’s laws we have guides that put us on our way and indicate the course that must be pursued if any useful goal is to be attained, to ascertain how she destroys, what the destroying element really is, in order that when we know the cause we may go on and look for the remedy that will effectually stop this destroying element.

We are apt to think that man in this nineteenth century has arrived at a high degree of civilization. So perhaps he has, but it is only relative. The possibilities of the future cannot be divined. Yet the expenditure of hu-

man energy necessary to bring about even the present condition of the race has been enormous, something beyond computation, beyond, indeed, anything that the mind can realize. Sometimes we hear of great discoveries being stumbled over unexpectedly, but such stories are too often fiction.

To be successful we must learn from Nature how she destroys. We are unable to say with certainty how Nature begins her work, but we can see how she proceeds after she has begun, and we can carefully study the processes employed in the never-ceasing law of change. Nature is a teacher with an always open book before us. Whoever ignores her book and her teachings will fail, no matter to what science he may belong.

Organic bodies are adapted to the conditions that surround them. Reference is made particularly to conditions of atmosphere, temperature, and moisture. The vegetation of the tropics is vastly different from that in northern latitudes, and marine and aquatic plants differ in construction from those which flourish in the air as much as fishes differ from the amphibia. In both the animal and the vegetable kingdoms, again, parasites exist in the utmost variety of form and in the greatest number, plants passing through the whole course of their existence on other plants, and both vegetable and animal formations preying upon the highest forms of organic life. Some are absolutely microscopical, not visible to the naked vision, appearing as discolorations only under a low power, but developing into well-formed organisms when submitted to the eye through the medium of high magnifying instruments.

Microbes grow to their full size in a few moments, or hours at the longest. They have two ways of propagation. From spores so minute that it requires the most powerful microscopes to see them, they attain their full growth in an incredibly short time. Then, in addition, suddenly a microbe will break into two parts, each part a perfect microbe. These parts have the same power of propagating by means of spores or of break-

ing in twain. (See Plate X., No. 40, bacillus butyricus of rancid butter ; also Plate XVII., No. 67, bacillus anthracis, showing spores ; and Plate XXI., No. 82, spores and bacillus of cattle disease, which plainly shows how the bacilli develop from the germs or spores, then break in two.) So the work of multiplication goes on. Where one microbe existed yesterday there are thousands to-day. To-morrow there will be millions.

It is meaningless to speak of microbes as a class, as it is to speak of animals as a class. There are probably as many different kinds of microbes as there are different kinds of animals and plants. They are in the air we breathe ; the water we drink ; in the body itself ; and, in fact, they exist where there are air, heat, and moisture, which are necessary for life. Microbes which do not grow in the human body are harmless. Some are larger than others ; some are one shape, some another ; some multiply more rapidly than others, and some feast upon others as large fish feast upon the smaller ones.

In general, microbes are scavengers. Were it not for them nothing would ever decay, and undoubtedly in time the gases in the air and the chemicals in the soil would be exhausted, because once an element left the soil it would never return. But Nature provided the microbes as the medium of return. They begin work upon an object or body, and immediately fermentation begins. They are the cause, fermentation the result. Wood begins to decay—that is fermentation. Examine more closely and you will find the microbes in the fermentation. In a measure fermentation is the digested food of the microbe. A piece of cheese begins to give out a bad odor ; raw meat soon decays—it is the microbes that have started the fermentation, and the fermentation is the decay. So with every article imaginable.

As long as there is life and the proper conditions exist, microbes cease to work injury. But let weakness come

or life die out, and the microbes are at work. How do they get there? From the air, from the water, and from the food. Possibly they create themselves there. Were it not for microbes, wood would never decay, meat would never spoil, and there could be no such thing possible as fermentation.

To succeed in causing fermentation, microbes must have air, heat, and moisture. If you deprive them of any or all of these necessities you prevent their operation. Thus it is that frozen meat will keep for a long time. Cold prevents the operations of the microbes, and thus fermentation is arrested. Substances hermetically sealed in liquids that contain no microbes, and in which it would be impossible for microbes to live, can be kept a long time, and perhaps, under perfect conditions, forever.

If you can keep microbes away from substances or prepare them so that microbes cannot touch them, those substances can be kept indefinitely. Antiseptics accomplish this, but the antiseptics known to medical science are not always reliable. If they happen to be so they are necessarily harmful. An egg placed in pure alcohol would never become bad, neither would any kind of meat similarly placed. But pure alcohol—or diluted alcohol, which is inefficacious—injures eggs and meat so that they never could be used. So it is with carbolic acid and the other disinfectants.

So far we have spoken exclusively of substances as affected by microbes. It is necessary to take but a single step and a new field is opened. Fermentation destroys. So does disease. The decay of a piece of meat is fermentation produced by microbes. So is the decay of the lungs in tuberculosis—or consumption, as it is commonly called—simply fermentation. It is the same with other parts of the body. Decay in different portions will produce different symptoms, and through ignorance physicians have originated names and remedies supposed to cure the different symptoms.

Anything that will prevent the action of microbes must arrest fermentation. Strong antiseptics will do

this. Freezing the lungs would render inactive the microbe of tuberculosis, the same as boiling would stop fermentation in the stomach. But all these would, of course, immediately kill the patient; and to kill or render inactive the microbes without injury to the patient is what is to be sought.

There is absolutely no antiseptic used by physicians which will bring this about. Generally the medicines they use to arrest disease, instead of hindering the progress of the microbes, actually give them additional food. I have proven this scores of times by placing a little fermentation of some kind in their medicines. The microbes of the fermentation actually lived and propagated in the very medicine that was supposed to cure the disease they caused.

With the Microbe-Killer it is entirely different. It is not a medicine, but an antiseptic gas which is death to all microbes. Water, which will hold eight hundred times its own volume of this gas, is charged with it, and the patient simply drinks a wineglassful of the gas-impregnated water three or four times a day. The antiseptic gas gradually escapes from the water and accumulates in the body. Gradually it forces its way into the blood, which is the channel by which the microbes go to different parts of the body. The microbes, coming in contact with the antiseptic gas, within a few hours become inactive and finally die. Through the blood the gas reaches every portion of the body, and the result is that fermentation soon ceases. Then the body throws off the fermentation already formed, and the patient gets well, no matter whether the disease has been tuberculosis, catarrh, cancer, gravel, rheumatism, or any of the diseases physicians have tried to cure with separate remedies.

Antiseptic drugs fail because they are harmful. But Radam's Microbe-Killer is as harmless as water, while the gas it contains is so thoroughly effective that, as every dose kills microbes, the patient generally feels the effect at once.

Such is the theory of the microbe that I gave to the public nearly seven years ago ; such is the theory that was derided and scorned by scientists ; but such is the theory to-day universally accepted, and proven, in spite of the obstacles placed in my pathway, by long and patient investigations with the microscope upon different so-called diseases.

In the previous argument we have shown conclusively that all fermentation is caused by microbes. Tuberculosis is fermentation of the lungs, so is catarrh fermentation, so are rheumatism and cancer fermentation—so, in fact, is every disease simply fermentation, and all this fermentation is caused by microbes. This reasoning in itself is convincing, but there is more proof. During many years of patient and careful investigation—investigation that many would have given up as an endless task—I have actually discovered many of the different microbes which cause the different kinds of so-called diseases. There are the microbes that produce dandruff, stone in the bladder (see Plate VII., No. 28, microbes producing dandruff ; and Plate VIII., microbes producing gravel or stone in the bladder), gall stone, and other products, which generally look like a sediment or mineral deposit to the naked eye. But I soon discovered, after preparing those sediment-like substances for the microscope, that they, and in fact everything which passes from the human body, is the result of life. As a lump of thick, sour milk, when dissolved to a thin, watery fluid, shows nothing but microbes (see Plate VI., Nos. 21, 22, 23, and 24), so does the expectoration of sick people, the pus of a wound (see Plate IV., Nos. 13, 14, 15, and 16), or any fermented matter that passes from the human body, in whatever shape, form, or color, indicate the result of small life called microbes.

The photomicrographs I use to illustrate this book clearly demonstrate this fact. In my laboratory I always have living microbes for experiments, and whenever I find any special class worth bringing to public notice I photograph them. The illustrations of human

blood full of microbes demonstrate what there is in that blood which causes disease. Be disease in whatever part of the body it may, it is always in the blood (see Plate III.). The blood is the life. When that is clean and pure, sickness is impossible.

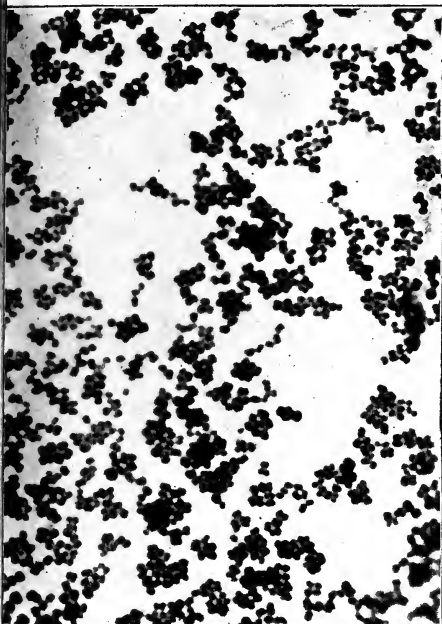
CHAPTER II.

EFFECTS OF CLIMATE.

How do these atmospheric microbes first come into existence? Some investigators still maintain that their carefully conducted experiments show the truth of the theory of spontaneous generation.

From a strictly scientific, or especially from a biological, point of view this question is of vast importance, but in the present consideration it is of less moment. We are dealing, not with the origin of life, but with the presence and destruction of microbes, and can afford to regard the more abstruse problem as one of incidental interest only. This, however, we certainly know—that atmospheric microbes may, and do, come from the earth and vegetation, or from the lungs and exhalations of animals. We have no reason for saying that they may not multiply in the air itself, but we know that they are ever floating about us in inconceivable numbers, and that while they are more numerous in cities and towns than in the open country, and in wet places than in a dry soil, yet they are found appreciably everywhere, except, so far as we can ascertain, on the tops of high mountains. Moisture is favorable to their propagation and existence. Some are adapted to live in cold regions, but more require a warm temperature. Changes of weather seem also to favor them, and a marked rise or fall in the barometer has been noticed to affect their numbers and vitality.

I have observed that in plants which I had kept too warm, and then suddenly exposed to cold, a fungoid growth could be detected in twenty-four hours. The leaves would then change in color and either shrivel up or wilt. The roots would fail to take up moisture, the



SARCINA AURANTIACA.
(FOUND IN AIR AND WATER.)

1000. Photomicrograph by Wm. Radam.



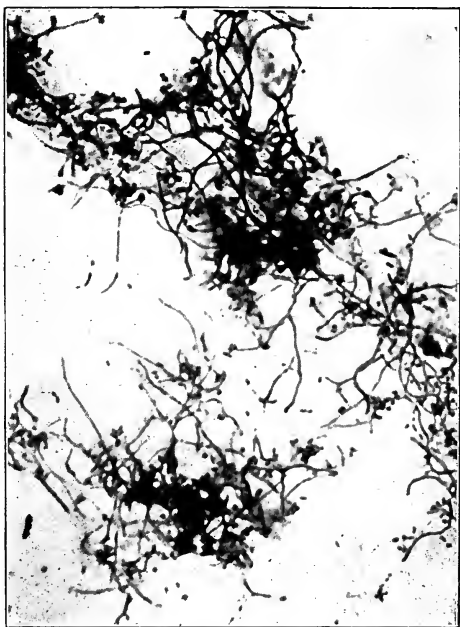
6. **BACILLUS VIOLACEUS.**

(FOUND IN SPREE WATER AT BERLIN.)
x 2500. Photomicrograph by Wm. Radam.



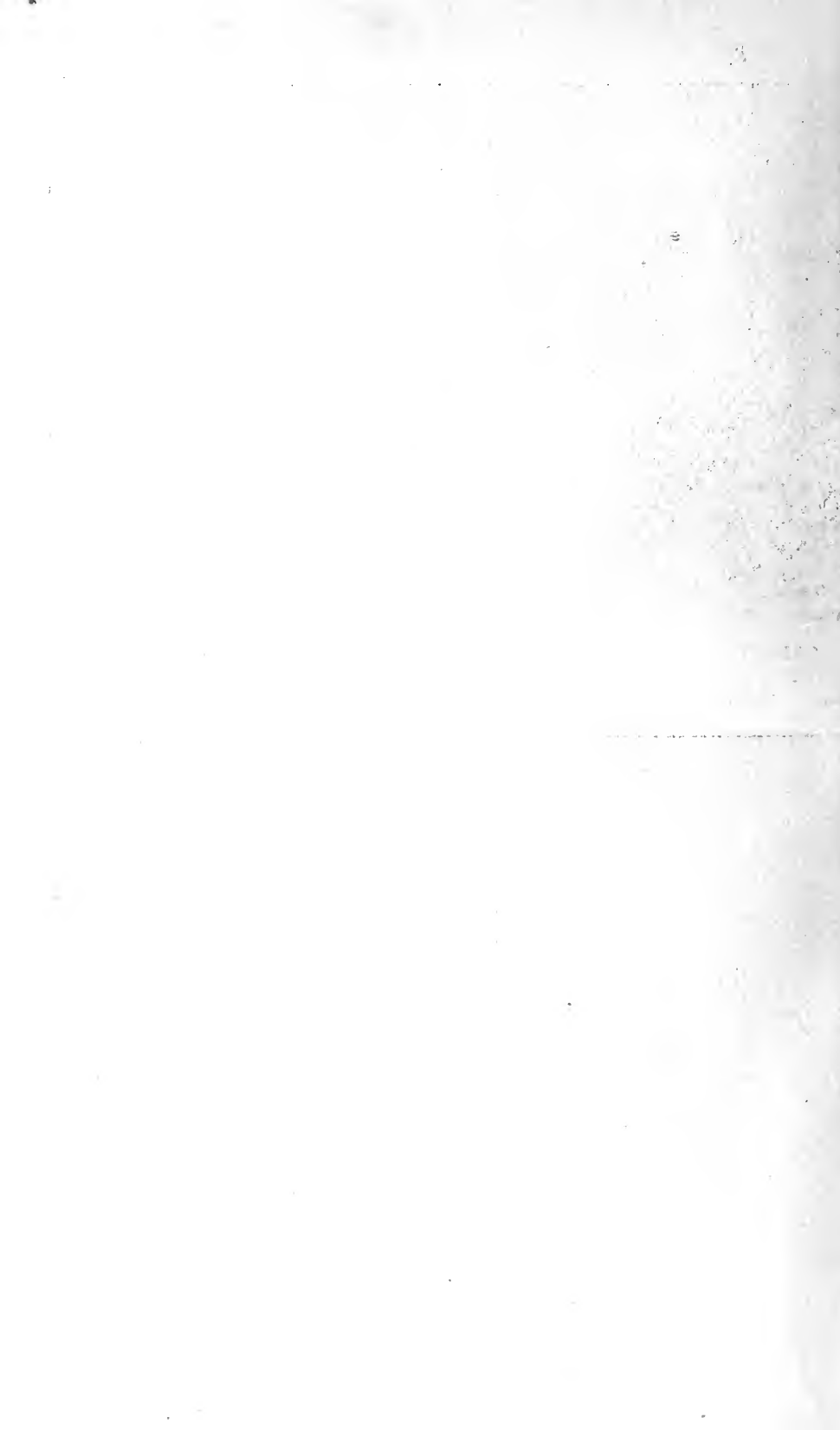
CLADOTRIX DICHOTOMA.
(IN STAGNANT WATER.)

1000. Photomicrograph by Wm. Radam.



8. **CLADOTRIX NIVEA.**
(IN STAGNANT WATER.)

x 1000. Photomicrograph by Wm. Radam.



spongioles being apparently paralyzed and their functions destroyed. Examining them carefully it could be seen that something like a process of fermentation was going on around them—in other words, that fungoid exhalations or microbes were gathering upon them, that these gradually extended through the rootlets and sap, while those on the leaves were reaching out to the stems and buds. All the green color of the plant disappeared, the coloring matter apparently yielding to chemical decomposition under the exhausting influence of microbes, and finally the plant would turn yellow, droop, and die.

Place a child predisposed to indisposition, or even a healthy person, in circumstances equally unfavorable, and the consequences are similar. A change from a warm to a cold atmosphere is one of the most common causes of disease. The conditions of life in this country are especially calculated to furnish ample illustrations of this. In summer people are apt to counteract the effects of heat by removing portions of their covering and seeking a cool resting place, glad sometimes of a current of air which feels refreshing yet is fraught with peril. In winter most of us live in overheated houses, from which necessity takes us often suddenly into a wet or cold external atmosphere. The consequence is a cold, or inflammation of the lungs, or worse. A cough is one of the first symptoms, and on examination it is found that a peculiar microbe has attached itself to the bronchial tubes or upper air passages, producing an irritation, and the cough is Nature's effort to get rid of it. Or it may become attached to the mucous membrane of the nose, giving rise to what is variously known as "cold in the head," coryza, and acute catarrh. It can readily be understood that in the latter case it is more easy to remove the cause of the trouble, but where there is a cough the disease germs may spread downward to the lungs, extending their influence throughout the tissues, and producing bronchitis or pneumonia as the case might be.

In the course of my observations and experiments I have often observed that in times when coughs were prevalent, and when what appeared to be ordinary colds assumed the character of an epidemic, vegetation was also affected. Plants did not flourish in their customary manner. The young leaves chiefly suffered; sometimes evidences of the existence of microbes became visible on the more tender parts, and the whole plant would assume a stricken and unhealthy appearance.

The changes which generally occur in springtime—changes not only in temperature but in the degree of moisture or dryness of the atmosphere—are especially calculated to produce disease in vegetation exactly as they do in man, and the affection is more severe and more difficult to combat.

Plants kept in places where they were away from the full exhilarating influence of light, or in an atmosphere where there was no free circulation of air, would speedily become sickly, and their growth, if any, would be weak and unhealthy.

Man, submitted to similar conditions, suffers in the same way, and children brought up in close places, or even being made to work in them, where air and light are insufficiently supplied, become stunted in growth. The tissues of their bodies are weakened, their senses are not fully developed, and their minds are imperfectly formed. Poverty, crime, and much misery are too often the lot of such persons, and all their misfortune may be attributed to the fact of their having been confined in surroundings where disease germs are so abundant that the microbes necessarily obtain access to the blood and are circulated with it through all parts of the system.

I may here direct attention to two well-known diseases, whooping cough (see Plate X., No. 37) and diphtheria (see Plate IX., No. 36), by way of illustrating further some points that I have mentioned. Both of these may result from infection, and one, if not both, may also arise from the use or presence of impure water or decaying vegetation. They are, however, produced

by a different form of germ, although in each case the seat of the trouble is very local and well defined. It is always primarily in the throat, but the microbe that produces diphtheria cannot engender a whooping cough, and, *vice versa*, the germ that gives rise to whooping cough never excites diphtheria. That they do not bring about disease in everybody who inhales them is simply due to the fact that the condition of the throat is not favorable to their development, or that the vital powers of the individual are sufficiently strong to resist them. It will be understood, therefore, how it is that almost all cases of diphtheria are preceded by what is called a cold.

The special germ of this terrible disease has been identified and isolated by the director of the Pasteur Institute and M. Versin. They have succeeded in reproducing the disease in rabbits, fowls, pigeons, and guinea-pigs by inoculating these animals with cultured microbes. They have also been able to isolate the special product of fermentation caused by these microbes, and by using that, without the germ itself, they have brought about all the symptoms of diphtheria, including the difficulty of respiration and paralysis of the muscles. They have further shown that a person who is perfectly healthy may inhale these microbes with impunity, but that if there be any weakness of the mucous membrane of the throat the disease is speedily developed. This accounts for the security enjoyed by many people, and also for the frequency of the disease after attacks of cold, scarlet fever, or measles. It points to the necessity for giving attention to sore throats or slight ailments when diphtheria is prevalent, and to the necessity of frequently washing the mouth and throat with such an efficacious destroyer of microbes and micro-organisms as that which, in my hands and among thousands of my patients and correspondents, has not yet failed.

Irrigations such as those mentioned should be made with copious quantities of the fluid, a rule which my own experience has taught me, and which is recognized by all who have used less powerful parasiticides than mine.

The New York State Board of Health on one occasion recommended sulphurous-acid gas—the fumes of burning sulphur—as a preventive and disinfectant for diphtheria. But the special germ, the *streptococcus diphtherialis*, is not destroyed by that gas. It yields to three agents only—carbolic acid, corrosive sublimate, and my microbe-killer, and the first two of these are powerful poisons and as dangerous to the patient as they are to the microbe.

It is worthy of mention here that diphtheria is not confined to members of the human family. Animals are liable to it, and a case is mentioned where a kitten conveyed the disease to four members of one family before the truth became known and the animal could be killed. The symptoms in that instance were unusually virulent, but no deaths ensued.

Most of the microbes or bacteria that are to be found in the atmosphere come from the ground, or from the breath, or sputa, or persons of individuals. Heavy rains tend to wash them out of the air, but, when thus thrown to the soil, the moisture favors their increase, and thus, as the ground dries, they may be carried back into the atmosphere in increased numbers.

It is an error, however, to suppose that the atmosphere is the principal nidus of the disease forms. Bacteria, microbes, and micro-organisms of all kinds exist in infinite numbers in the soil. Some observers consider that to be their chief breeding place. All are not disease-producers, but all seem to exercise some function, and the most plausible suggestion yet made upon this is that, by inducing a process of fermentation in the soil, they bring about chemical decompositions which liberate elements that are necessary to the nutrition and development of higher forms of life.

Among disease germs that are found in the soil, those of typhoid fever (see Plate XI., Nos. 43 and 44), malaria, and tetanus (see Plate XXII., No. 85) are most frequent, and hence it is that the breaking up of new land, especially in damp places, so frequently produces ague

or "chills and fever" among local residents. It is a popular error to suppose, therefore, that the earth destroys microbes, and it seems to have arisen out of the fact that dry soil renders them for a time comparatively innocuous.

The ground is the great resting and breeding place of micro-organisms of all kinds, whether they be harmless or capable of producing disease. It is easy to foresee, therefore, how they can pass into the atmosphere or on to the surface of bodies, and thus be spread everywhere. It becomes apparent, also, how animals and plants may be alike affected by them, and how rapidly they multiply under favorable conditions, which may be briefly summarized as warmth, moisture, and usually a deficiency of light.

If we cover up a pit of potatoes without the precaution of keeping down the temperature and moisture, fermentation sets in, and soon fungoid growths are everywhere perceptible, while the substance of the potato becomes diseased and rots. If the atmosphere of the greenhouse be kept too warm and moist, fungoid growths begin to show themselves directly, and in due time the plants become sick; or, again, the same circumstances arise if two or three weeks pass without the assistance of the sun's rays to purify the atmosphere. Although this is well understood by persons who have charge of flowers, I can imagine an objection which those to whom the suggestions may be new would be likely to raise. For most people have read of, if they have not seen, the rank vegetation of the tropics, where, amid an abundance of heat and moisture, often with an absence of sunlight, the most luxuriant and healthful vegetation that the world knows, may be discovered. Or, again, we may go into the deep woods in our own country, and there, in shaded nooks and corners, find specimens that are not to be found elsewhere, and which, notwithstanding their healthy appearance, will wither and die as soon as they are transferred to the garden bed.

How is this? In the first place, certain germs must, as I have already shown, have certain suitable conditions in which to increase and flourish; and although they may be produced in abundance in such locations as those described, yet the plants that grow in the same spots are proof against them, they are not suited to their development, and, in fact, they grow in spite of them. That germs are produced in such places every victim of malaria can testify.

But this calls for another observation. Plants are adapted to the conditions that surround them, and, conversely, the climate of any locality has vegetable growth adapted to it. High latitudes and high elevations are the homes of the pines and firs, while more temperate regions give us the olive and the oak, and in the tropics the palms and all the grandest development of endogenous vegetation most abound. This is nothing more nor less than a law arising out of the temperature and the formation of the earth itself; nevertheless it is everywhere evident that Nature leaves nothing unoccupied, so that when the conditions are such that one form of life cannot continue, we find another especially adapted to it.

These, however, are exceptions in the vegetable world; but similar exceptions are to be found in the animal creation. Life that flourishes in the tropics would perish in Labrador, and the seal of Alaska would soon disappear if removed to the waters of the Amazon. Animal life is also to be met with under exactly the same conditions as those in which we find the flowers that grow apart from light and air in the dim recesses of the woods. But this only proves the rule. The highest and most complete forms of vegetation exist only under the requirements given, and man, as the highest form of animal life, requires the same. Like the oak and the elm, he needs light, air, and a more or less equable temperature. He does not flourish where the mushroom and the snail are most at home. The gas that kills a rose will destroy an animal. You may drown the one almost as readily as the other. Both succumb alike to

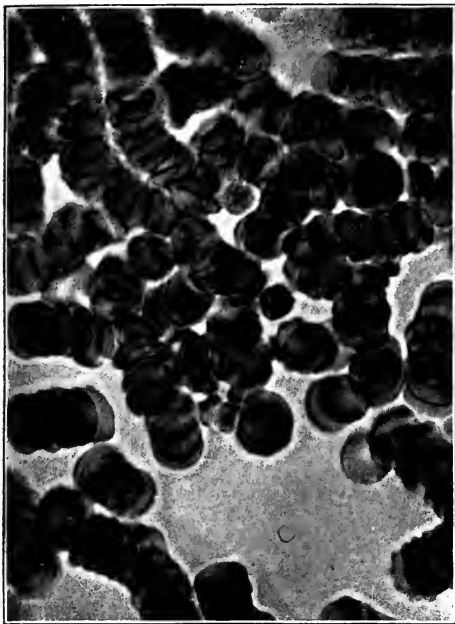
poisonous compounds. Both are subject to disease, and very often are alike affected by the same causes. Hence the relevancy of studying Nature in all her varied forms, if we would come to a correct understanding of the conditions of life and disease.

It is advisable, even, not to be content with a comprehension of the organic world alone, if we would fully appreciate how much there is to learn outside of it, and how thoroughly all bears down upon the same conclusion—change is universal. The rocks, even the mountains, are wasting away—slowly, it is true, but none the less surely—under influences that are unceasing. Among them light, air, and moisture fill a prominent part, but minute, invisible growth is a powerful aid likewise. The disintegration of the solid rock is influenced largely by the growth, in the first instance, of minute fungi, and afterward upon their remains by structures of a higher organization, as lichens and allied plants; and where there is a crevice or a crack in a rock, even a disruption may in time be produced by vegetable formation.

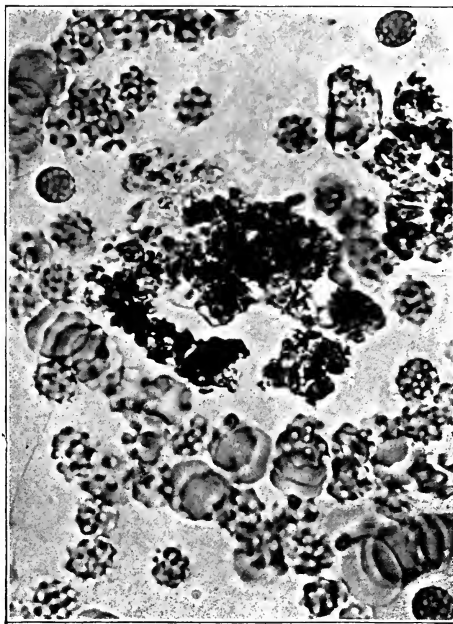
The indications in such instances are to discover a means by which the growth may be prevented, or, if that fail, then a means by which it can be killed. In business this is constantly being attended to. Shippers of fruit, for example, pack their produce as dry as possible and keep down the temperature, so preventing the formation of fungi and the process of fermentation. Ice is oftentimes used for this purpose. Florists, too, when shipping plants in the warm season, are careful to secure ventilation by means of holes in their packages, or in cold weather to line them with some material capable of absorbing moisture. Without such precautions it would be a hazardous business to send fruits from California or the extreme South to New York, but with them even the most delicate produce of warm climates can be transported with safety and advantage, as the condition of grapes of San Angeles, as seen in New York, sufficiently testifies. In the same manner the produce of the West Indies is safely carried to the markets of London and Paris.

If we examine a piece of lumber that has been lying for some time under the influence of air and moisture, and especially if the sunlight has been limited, fungoid growths may be seen upon the surface—and the practical problem put before us is how to get rid of them, and so to preserve the timber from destruction. Let any textile fabric—a man's coat or a woman's gown—get wet and be put away in that condition in a close closet. In a very short time fungoid matter can be detected by the musty smell that is given off, even though it may not be perceptible to the unaided eye. Leave the clothes in this condition for a short time, and they rot and fall to pieces. In each of these illustrations the fungi are different (see Plate I.); and our purpose is not so much to know how they would be classified by the biologist as it is to learn the means by which to get rid of them. It is the same throughout. It would be easy to enumerate hundreds, ay, thousands, of similar examples, and in every one the cause is the same, the proofs being so marked and so unanswerable that none but a person who is wilfully ignorant or who is blinded by prejudice could possibly question them.

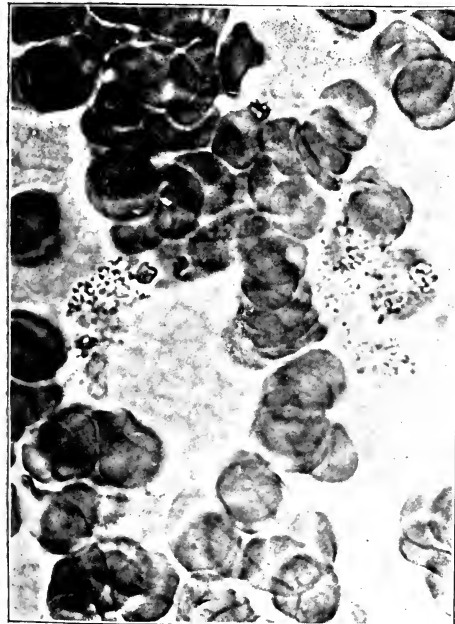
The special study of microbes as a branch of biological science is full of interest and value, but it is not material to a practical application of remedial agents in the treatment of disease. It is well to identify the special microbes of typhoid and tetanus in the ground, but when it comes to treating either of those diseases it is of no moment that two specific germs are there. It suffices to destroy them, and one treatment will do that. Thus, then, it is not necessary to my present purpose to classify the microbes that are met with, and it is only as indicating the progress of the study that I refer to that. My object is rather to point out the all-important part they take in the causation of disease, and to make known the means by which they may be destroyed and prevented from increasing, that thus the substance in which they are found may be preserved. In subsequent chapters I shall show more fully how this is done.



9. HUMAN BLOOD IN HEALTH.
x 1500. Photomicrograph by Wm. Radam.



10. HUMAN BLOOD (Diseased).
(FULL OF GERMS AND MICROBES.)
x 1500. Photomicrograph by Wm. Radam.



11. HUMAN BLOOD (Diseased).
(FULL OF GERMS AND MICROBES.)
x 1500. Photomicrograph by Wm. Radam.



12. HUMAN BLOOD (Diseased).
(FULL OF GERMS AND MICROBES.)
x 1500. Photomicrograph by Wm. Radam.

CHAPTER III.

INHERITANCE OF DISEASE.

MY personal experience first led me to believe, and my personal investigations afterward proved conclusively, that in all cases of disease, whether in plant or in animal, there is some form of micro-organism connected with it, and that this will increase and propagate itself, and that, too, when it is transferred to a healthy organization of the same kind. If I take seed from an unhealthy, sickly, yellowish-looking plant and sow it, and if it germinates, unhealthy, sickly, and yellowish-looking plants will be the result. The germs of disease were there. "Rust," which is common on oats and some other cereals, is nothing more than a fungus and disease germ. Farmers recognize this, and they call for rust-proof seed. That does not imply that the plants grown from such seed are not subject to disease, but it does mean that the germs are not already in the seed. It means that the seed is healthy, that it came from healthy plants, and that it contains no microbes, fungi, or microorganisms. Acting upon similar knowledge, he plants only healthy potatoes; he breeds his sheep, cattle, and horses only from healthy stock; and, in short, in all his farming operations he avoids, as far as possible, contact with disease in any and every form. In doing this he is simply avoiding the transfer of disease germs or microbes.

The same thing occurs in the human race. It may not be going too far to call it a law of Nature that diseased parents have diseased offspring, in which case the children have inherited a constitution which favors the growth of the same microbes, or they have received from their mother's organization the actual germs which de-

velop into the more active micro-organisms. A florist takes his cuttings only from healthy plants, because he well knows that, if he did not, either the cuttings would perish through lack of vitality, or they would produce diseased plants like those from which they were derived, and his trouble and care in raising them must be increased. Moreover, he perpetuates a disease by neglecting this precaution, and it may be conveyed to others, whereas his first consideration necessarily is to have all his floral family as free as possible from every deteriorating influence. I have frequently noticed that when rose cuttings are touched with even the smallest particle of black rust or other fungus they are certain to cause trouble, the rapidity with which the disease is spread being very remarkable, and it is difficult to stop it, still less to eradicate it. The same applies to the animal world, with only this distinction, as a rule, that plants suffer from fungi peculiar to plants, while animals perish from microbes peculiar to animals. In the many instances already adverted to—as, for example, in affections of the alimentary canal, where disease is caused by the imbibition of unwholesome fruit or vegetables—a process of fermentation is first set up, which in turn produces a special abnormal condition.

Disease is constantly being perpetuated by too close intermarriages, which result in the production of diseased children, who thus convey the weakness onward through generations, in all of which the bacillus, microbe, disease germ, or micro-organism is performing its special function, debilitating the mind, deforming the body, disorganizing the tissues, destroying the energies, lowering the standard of the race, and bringing death.

I may here remind the reader of the passage in Scripture where punishment to the third and fourth generation is promised to those who by forbidden intermarriages promote disease, which they would do by transference of disease germs.

We often hear a great deal about affinity in its effect

through marriage of deteriorating offspring or perpetuating disease. Thus it is said that intermarriage of families through the second generation should be avoided, and we are told that a degenerate offspring necessarily ensues. Experience says that this is not absolutely true, although it is often justified by facts. No one doubts, however, that unions of affinity are undesirable, and why? The micro-organisms which produce disease, as I have already shown, need congenial surroundings in which to propagate and to flourish. The organism of individuals presents some differences, and one person may be a better medium for the growth of a particular parasite than is another. This peculiarity is hereditary, just as facial expressions are hereditary. Thus it is tolerably certain that two persons closely related, as cousins for instance, possess to some extent the same favorable conditions for the development of a particular disease germ. If they marry, these conditions are intensified in their offspring. Two persons may have a tendency to tuberculosis or consumption which is not in itself sufficiently strong for development, but when the combined tendency is found in a child it overcomes all other opposing influences, and disease and death follow. Two persons not related may also have predisposition to disease, but in different forms. In that case the one might counteract the other, and so a negative result would be brought about. But if they did not counteract each other, both would descend to the child, each in a mitigated form—that is, neither being stronger than it existed in the parent—but at the same time the offspring would inherit the weakness of both father and mother, and thus its susceptibility to disease would be increased.

Nurserymen long ago learned through experiments that pear trees budded on quince stalks dwarfed them by causing an unhealthy growth, and they also learned that scions cut from dwarfed pear trees and grafted on pear seedlings seldom produced healthy trees. But the grafting of scions from healthy pear trees upon quick-growing

pear stock, such as the Le Conte, Chinese Sand-Pear, Kiefer-Hybrid, and other fast-growing varieties, proved successful by greatly improving the health and growth. The health of very delicate tea roses is greatly improved by budding them on strong growing, hardy varieties, and many varieties of foreign grapes which failed to grow in this climate are now successfully grafted and raised on strong growing, hardy natural stock. Hybridization, cultivation, and selecting the best varieties of plants and animals for propagation, tend to improve them. Why should not the same course improve man?

If the same precautions were taken in perpetuating the human family as are taken in breeding the lower animals, we should not only attain to physical and mental superiority, but we should in all likelihood obliterate the causes of very much disease.

Now, the system which we find to produce such deteriorating consequences in horses is exactly that which we are carrying out every day and from year's end to year's end in the propagation of mankind. In the human family we cannot follow the methods under which the English racehorse of the present day has been developed, but we might find it not so difficult to guard against the propagation of disease. Let every man marry none but a healthy woman, and let every woman be careful to select none but a healthy husband, and much disease, deformity of mind as well as body, and general debility would be avoided and in course of time killed out. No hereditary disease owing its existence to micro-organisms could possibly be continued. But where one or both parents have the germs of disease, the offspring is not only liable but is almost certain to be sickly and unhealthy, and the doctor will be called simply to watch their downward progress toward dissolution—victims of disease germs and of a process of fermentation.

CHAPTER IV.

HABITAT OF DISEASE GERMS.

FORMS of vegetation, and also of animal life, vary in different latitudes. The fauna and flora of the tropics bear no resemblance to the animals and plants that have their home in temperate zones, and in like manner the micro-organisms, fungi, and microbes of various parts of the earth have distinct characteristics.

Some plants can be transferred from the places where they are indigenous, and they can be grown and made to flourish in places which are quite foreign to them ; others will only vegetate in their native home and they perish when transferred to another region. The same applies to animals, not only to the larger but to the microscopic members of the animal kingdom. The yellow-fever germ likewise requires certain climatic conditions, as is well known, in order to propagate rapidly and produce disease. When those climatic or atmospheric conditions do not exist, the germs perish and the disease dies out. The regions where it is most prevalent in this hemisphere, and it is worse here than elsewhere, are the Isthmus of Panama and some parts of Mexico and Cuba, though Louisiana and other portions of the United States, as is well known, are subject to it ; but in the latitude of New York, even on the sea border, it is comparatively harmless, the microbes ceasing their activity almost on entering the harbor of New York.

Yellow fever is acutely infectious. The microbes are in the atmosphere. That is their primary characteristic. But under favorable conditions, which are not yet accurately defined, though they probably are due to local impurities in the soil, the disease becomes contagious and endemic, as it ordinarily is at Colon and Panama.

The differences thus noted are due no doubt merely to varying degrees of activity or vitality of the microbes. The worst form of the disease is found at Panama, and there no condition of health is sufficient to ward off the attack. The old and the young are alike affected. Persons in robust health may be struck down sooner than those whose appearance would indicate a less power of resistance; and so powerful is the micro-organism that causes it, so rapidly does it multiply, and so actively does it operate to bring about a fermentation and destruction of the blood, that a few hours sometimes suffice to bring death. It is a remarkable fact that, notwithstanding the energy of the bacillus, the mortality among children is less than among adults. What does this show? How can it be accounted for? Easily enough on the theory that there is something in the adult system to favor the growth of the microbe which does not exist to the same degree in the constitution of children before the age of puberty.

The microbe of cholera (see Plate XV.) is different from that of yellow fever (see Plate XX., No. 79), but it is equally energetic in growth and action, and causes death quite as rapidly. Both probably arise from the same source, though in different parts of the world, and in that respect they are not unlikely to resemble the common microbe of summer diarrhoea (see Plate XVI., No. 61). This has been ascertained to exist in the superficial layers of the earth, whence it may extend to water or to the various articles used as food; the vital manifestations of such micro-organisms depending on conditions of season, heat, and moisture, and on the presence of dead organic matter, animal or vegetable, or both. The microbe so produced may pass likewise into the atmosphere, whence undoubtedly it causes its evil effects in the three diseases under consideration. Thus it passes into the system, where it brings about a process of fermentation or decomposition, producing changes that result in giving the symptoms noticed in yellow fever, cholera, and diarrhoea. The microbe is not the same in

the three cases, but it may be similar, and certainly it may be produced in a like manner in a similar nidus and on a corresponding pabulum. But in the one it flourishes in Panama and Havana, in the other in Asia, and in the third in New York, or anywhere if due regard be not paid to drainage and to general sanitary requirements.

It is not to be supposed that the germs of the atmosphere are essentially different from those in the soil or in vegetable or animal matter. The latter constitute the nidus or place in which they are originated, and there, too, they find the pabulum or food on which they thrive, but the same may quite readily be passed into the atmosphere, to float away to another place, then to increase and multiply according to the universal law of nature. The motes that are visible in the line of a sun-beam are often mere particles of lifeless matter, but often, too, they are minute organisms, with more or less power for mischief as soon as they fall upon a place that is suitable to their growth and development.

Many plants have seeds that are furnished with a feathery structure which facilitates the action of the wind to raise them in the air and waft them sometimes many miles away from the spot where they grew. The thistle and dandelion are familiar illustrations of these. On my grounds at Austin I made some fish-ponds, and in one of them fish made their appearance, apparently spontaneously, certainly without my introducing any. All were quite small, as though recently hatched. How did they come there? Is it not possible that the spawn might have been carried by high winds or water fowl? I certainly think so, and I believe also that the careful observer of Nature will agree with me.

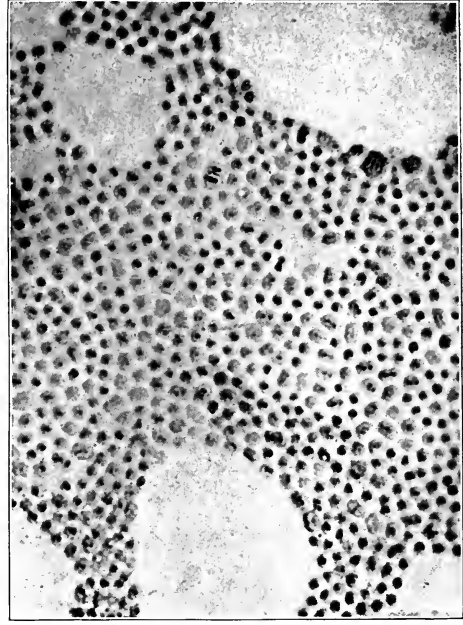
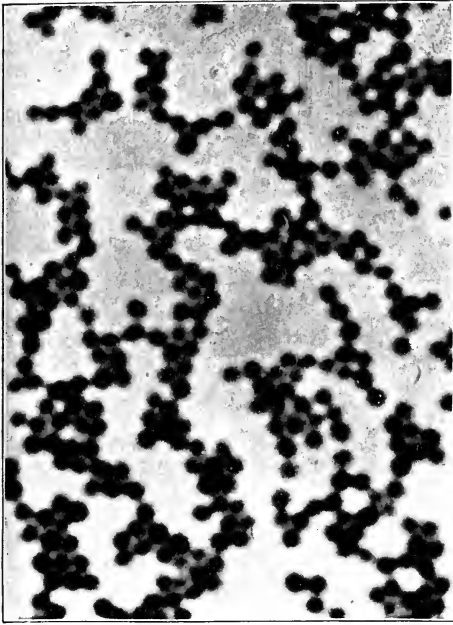
The microbe that gives rise to Chagres fever is similar to, though not identical with, that of yellow fever, and it has the same habitat, but it is even more delicate, and it perishes as soon as it is taken away from the neighborhood of its early development. The microbe of leprosy (see Plate IX., Nos. 33 and 34) is another example in

the other direction ; for although it is chiefly at home in parts of eastern Europe, western Asia, and some of the islands of the South Pacific, it manages to live in other climates, though not with a like degree of activity and vigor.

The greatest variety in vegetation is found in the tropics ; there, too, we find the greatest variety of animals, and logically we should expect to find there—and we actually do find—the greatest variety of fungoid growths, microbes, and micro-organisms. Warmth and heat are favorable to organic life, but with the increased development of that we see also an increased development of disease. The temperate zone produces fewer microbes, and it also generates a higher physical excellence and more perfect health to resist their action ; hence follows a minimum of disease, so far at least as the habits of people and the requirements of society permit.

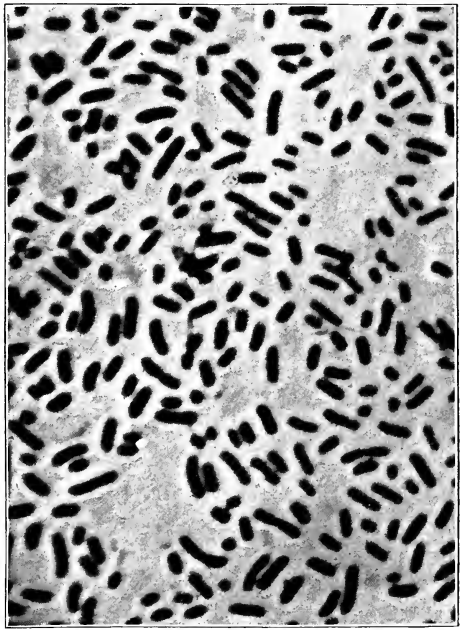
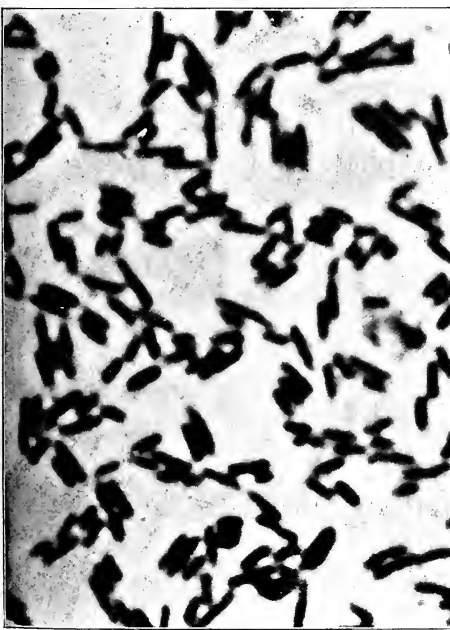
In the tropics there is not only a higher development of micro-organisms, both animal and vegetable, but also a lower power of resistance in the human frame, and, in consequence, a larger amount of disease, especially of those forms of disease where changes in the blood are brought about by fermentative processes, through the presence of microbes, in the shortest and most thorough manner. It is a matter of common experience that, if we go south in this country, malaria and diseases allied to it are more frequent there, especially in swampy districts, than they would be in similar localities in Canada. There ague is scarcely known ; and if we pass to Australia, where the vegetation is immediately antagonistic to the growth of microbes, ague is unknown. A physician who has been a resident of that country for nearly fifteen years, and who has travelled over many thousand miles of it, tells me that he never met with a case of intermittent fever there, and never heard of one.

Two centuries ago ague was one of the most common diseases in England, and also one of the most fatal. Some of her kings and many members of the royal family died of it. But as the population increased and



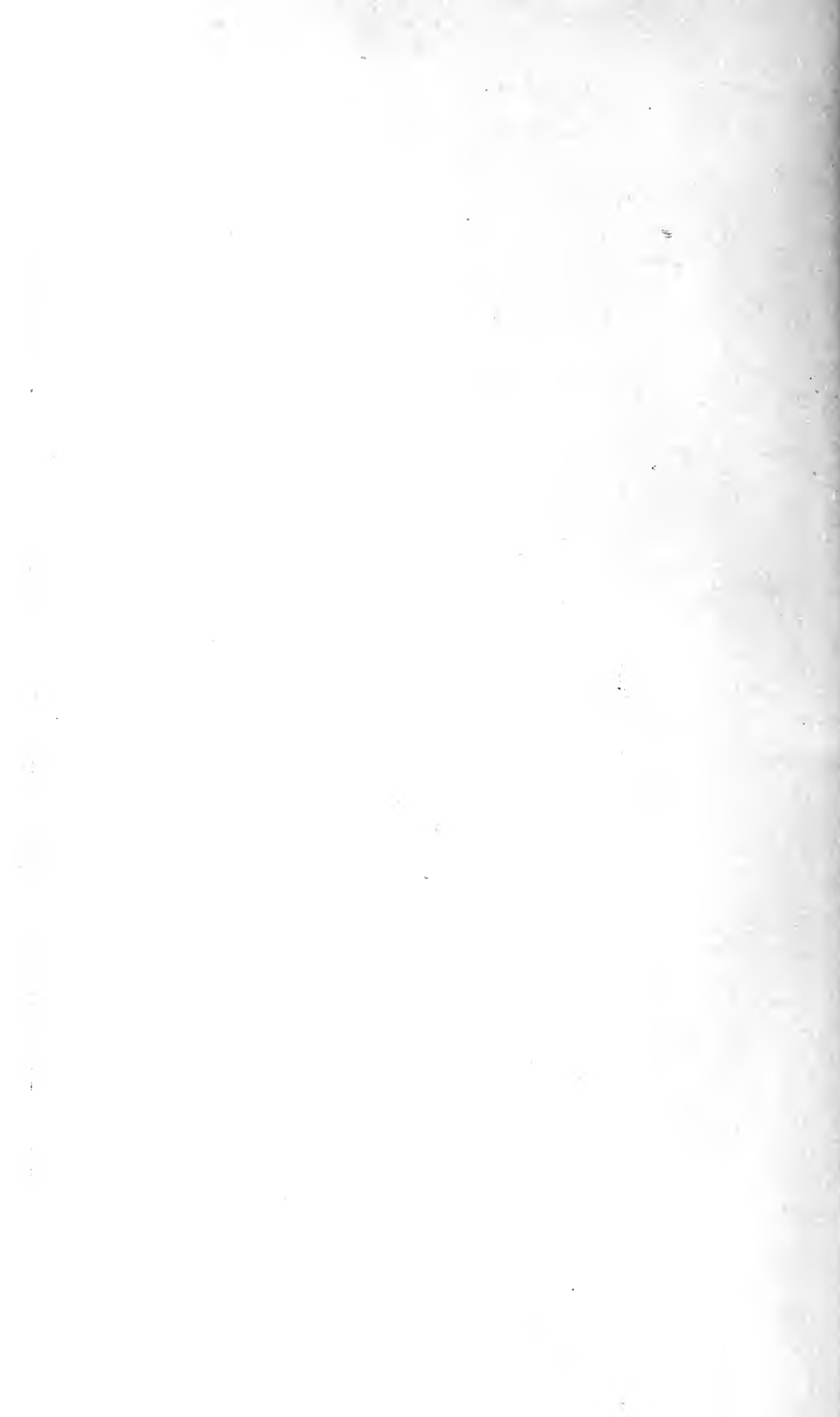
13. STAPHYLOCOCCUS PYOGENES AUREUS.
 (OF PUS—IN ACUTE ABSCESSES.)
 x 2500. Photomicrograph by Wm. Radam.

14. STAPHYLOCOCCUS COCCINEA FLAVA.
 x 2500. Photomicrograph by Wm. Radam.



15. BACILLUS PYOGENES FÆTIDUS LIQUEFACIENS.
 (FOUND IN ABSCESSES.)
 x 2500. Photomicrograph by Wm. Radam.

16. BACILLUS PYOGENES FÆTIDUS.
 (FROM AN ABSCESS.)
 x 2500. Photomicrograph by Wm. Radam.



opened up the land, as agriculture improved and drainage of the soil became general, it gradually disappeared, until in this century it had become limited to the low lands of Norfolk and Huntingdonshire, and in these, as a consequence of still more perfect drainage, it is becoming yet more rare, and always less fatal.

Notwithstanding all this, the limit where microbes cannot exist has not been discovered. Possibly there may be some line in the northern and southern hemispheres beyond which micro-organisms are not found in the atmosphere, although it is difficult to suppose, indeed it cannot be supposed, that they do not exist on the earth wherever higher forms of animal life are in existence. They may not be as numerous nor as full of vitality, and hence not as dangerous, but they are there. At the same time, if we wish to propagate them we find that the most favorable conditions are warmth, moisture, and frequently a deficiency of sunlight. It is too much a custom among Americans to close up their houses, excluding light and air alike. But what I have said shows the folly of such habits. Sunlight purifies the air, and while it aids the higher forms of vegetation, it is apt to destroy fungoid growths: not, however, by its direct influence, which is always salutary, but by withholding the moisture that is necessary to micro-organic production.

Microbes die out when dried up, but the germs do not. They will sprout and grow, because all microbes shed germs or seeds which remain dormant in a dry state, like seeds or yeast cakes. This explains why cholera, yellow fever, small-pox, and many contagious diseases can be carried around in the air and in old clothing. Those germs will grow again just as soon as they find the proper temperature, moisture, and seed-bed which are necessary for their development and growth. Where there are weeds there are seeds, and where there are microbes there are germs.

Throw a wet dress into a trunk, and mildew or some form of fungus will form upon it. Hang it above the

ground, where it can receive air and sunshine, and no such result ensues.

In hot and dry countries, such as New Mexico or Arizona, meat may be hung in the hot sun, and it merely dries and remains fit for food. But let the atmosphere be moist, under similar conditions, and fermentation soon begins, leading up to putrefaction.

Florists suffer considerably in damp, sultry weather, when there is no sunlight, from injury done to their plants by fungi. Seedlings "damp off," which means that fungi appear upon their leaves, check their growth, and ultimately kill them.

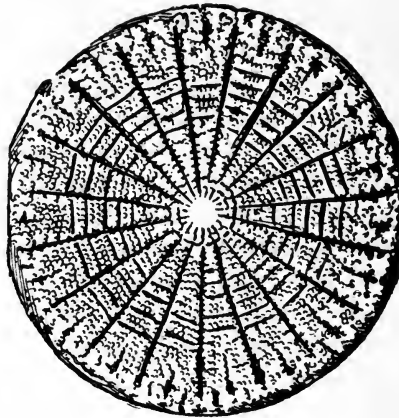
Vinegar is the result of a fermentative process brought about by the action of a microbe, but a warm temperature is necessary. The preparation of bread with yeast is again a fermentation, the active agent being a vegetable formation known popularly as the yeast plant. By its growth and increase in the bulk of the material carbonic-acid gas is formed, which mechanically "raises" the dough. Many years ago it was suggested that the gas might be produced by chemical means, and so the use of yeast would be rendered unnecessary. This was done at first by dividing the dough into two portions, adding dilute nitric acid to one and carbonate of soda to the other, then mixing them thoroughly. A chemical decomposition took place, the gas caused the dough to rise, and a very excellent bread resulted. This, which at the time was merely a laboratory experiment, led, at no distant day, to the introduction of baking powders; but it is noteworthy that bread produced by the use of yeast is still the most satisfactory and the most wholesome, the action of the yeast plant being more gradual and leaving no chemical salt behind.

Meat spoils more readily in a warm and close room than when exposed to the air or to cold. In those parts of Europe where the winters are cold without severe frost, as, for example, in England, it is not unusual to hang meat in places where a free current of air can be obtained at all times, and it remains in that position for

perhaps five or six weeks, according to the weather. It is not "spoiled." On the contrary, it becomes tender and acquires a flavor which epicures admire. This cannot be done where the meat freezes, and in a warm, unventilated place it would become unfit for food in a very few hours. The cause of this is the formation of a micro-organism, the result of fermentation or decomposition (see Plate XX., Nos. 77 and 78). Of course I exclude reference to the injury that may be done by insects, the effect referred to implying no other influence than such as is derived from contact with the atmosphere and the germs contained in it.

Watch Nature, observe her operations, pause and think over them, and many useful lessons will be learned, many old prejudices swept away, and numberless errors will be corrected. Mere book-readers are theorists; Nature's readers are practical. The former are apt to take for granted what others tell them; the latter judge for themselves. Theorists work blindly; they cannot see what they may, and will not see what they should. They may stumble over things, but they refuse to accept truths which Nature constantly holds up before them, and it is in this way that processes that are recognized in some things are ignored in others, because they seem to be at variance with theory. The full importance of fermentation, its general recurrence in various processes of Nature, and the import of micro-organisms and microbes in the causation of natural phenomena, among which the production of diseased conditions is not the least important, have never been hitherto adequately acknowledged; and it is because observation has been too little made and theory has occupied men's minds. I have sufficiently outlined the true cause of disease. The instances I have given should suffice to satisfy any one who is free from prejudice and from the cobwebs of the old school of teachers. They are not beyond the reach of ordinary intelligences. Nature, in her operations, abhors complicated processes. She works by simple methods, and her laws are as wide-

reaching as they are simple. She does not devise some complicated plan for producing one particular disease, and then set to work to arrange another cause for a second form of sickness. On the contrary, she lays down certain broad rules upon which all operations are conducted. These rules apply to both kingdoms of organic life, with results that are only modified by circumstances of each. If they are not respected, trouble ensues. Resistance brings about catastrophe, and even neglect of their operation has its perils. But when we know what we have to accomplish a great part of our difficulty is cleared away. Directly we are informed as to the cause of a disease, the chief obstacle to finding a remedy is removed. But if we enter upon the investigation blinded with tradition and with book-reading only, it stands to reason that the greatest difficulties in the way of discovering a remedy are presented.



DIATOM ARACHNOIDES

CHAPTER V.

PERSONAL EXPERIENCES.

I WILL now proceed to sketch my own experiences, from early life till the present, and the reader who will patiently follow me throughout will have no difficulty in realizing that the discovery I have made cannot fail to effect a revolution in the treatment and cure of disease. The causes of disease in plants and animals have been already described ; I propose now to detail my methods for curing plants, and then give evidence concerning the means I have used for effecting cures in myself and others.

While engaged in business with my nursery in Austin, Texas, I suffered from an attack of malaria, or intermittent fever, and I had recourse to several doctors, who, in the usual way, prescribed for me various drugs. I swallowed the contents of bottle after bottle, until their number became too great for calculation. I took quinine until it failed to have any effect. I lost color and weight, and was afflicted with an incessant cough that destroyed my rest, wore away my strength, and led me and my friends to the conviction that I was soon to become a victim of consumption. My days seemed numbered. All hope of a cure was abandoned. Everything that had been done by the doctors had failed. Their efforts seemed to be utterly useless. Instead of getting better I gradually became worse. I lost energy and the capacity to attend to my affairs. Every resource known to the doctors thus far had been used, and my life seemed to be passing away, so that but a shrot time only was needed to determine the result. In this emergency I resorted to another doctor, who advised me to try the rarefied air of Colorado, high up in the mountains, where

the atmosphere is supposed to be purer and free from the debilitating influences of the plains. This I could not do, nor do I feel sure that I would have done it if I had been able. The demands of my business forbade my leaving home, and then I had never seen any one return from Colorado who had been cured of consumption, which my friends feared for me.

My condition was, nevertheless, desperate. The malarial fever had affected me for seventeen years, during the last two of which it had been complicated with sciatica and articular rheumatism, and I had become literally a physical wreck. It can well be understood that, amid such long-suffering, and the total failure of doctors to afford me the necessary relief, I had made myself acquainted with all advertised remedies and proprietary medicines. Still the physicians did not leave me. They were my constant visitors, prescribing one thing to-day and another to-morrow, only to discover that every new prescription was, like its predecessor, a failure. Two years before I discovered the microbe-killer I lost two children—a boy and a girl. They had not been strong. They were brought up by hand, my wife being too weak to nurse them. Microbes affected the milk (see Plate VI.), which in turn carried disease to the stomachs of the infants. They became ill. Their stomachs presently refused food. Purgative, soothing syrup, and all the remedies that the doctors could devise from their drug lists were tried without effect, and the children died. The medicines killed them, and the reasons I shall be prepared to explain.

This loss distracted my attention from my business. Up to that time I had devoted myself closely to my business as a florist. All books and literature of my occupation I read. I was an earnest subscriber to every floral magazine that came within my knowledge, for I always found in them something that was useful and instructive. I am anxious to give full credit to such publications, for I am much indebted to them, since it was in them that I found the first hints which led me on to ex-

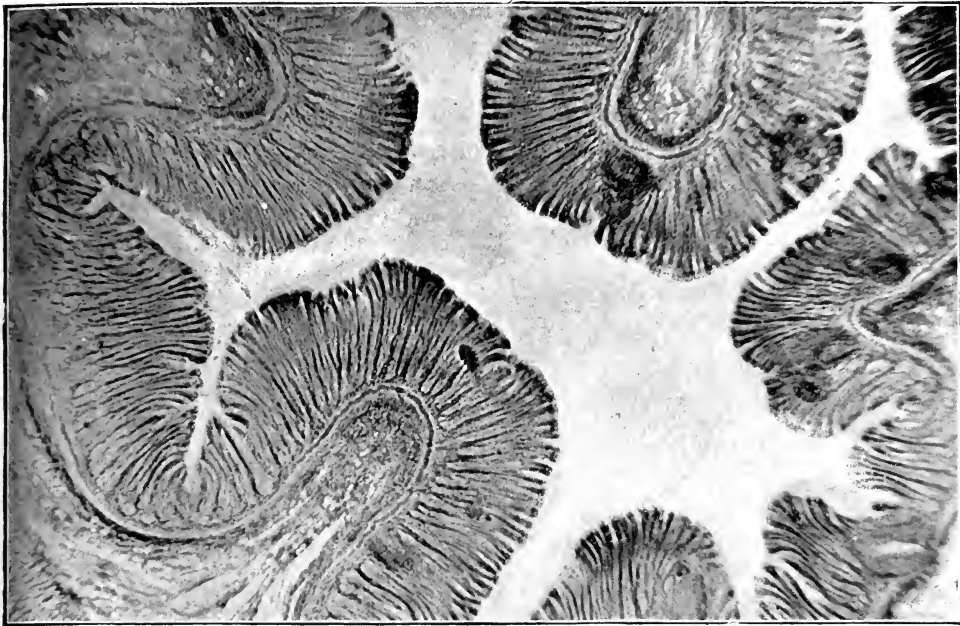
periments, and hence to the discovery of a certain and safe means of killing fungi and microbes. They kept me to the study of Nature. No medical work or magazine would do that. None of them ever directed me to natural sources, but, on the contrary, whenever I took one up it diverted me from the line of my researches, disturbed the tenor of my investigations, and confused my ideas.

Medical papers would tell me the symptoms of fever or rheumatism or diphtheria. They would describe the microbe of typhoid, compare it with the microbe of other diseases, explain its mode and rapidity of propagation, sketch its appearance under the microscope, classify it, and name it, but they would not tell how to kill it. The symptoms which I saw in print were better understood by me in my body. One who has had rheumatism can certainly comprehend the evidences and feelings better than one who merely writes or reads about it. When I arose in the morning I felt more tired than when I went to bed. When I walked I felt as though there were twenty pounds of lead tied to my feet. When I drove to my seed store I could sit only on the edge of my buggy seat, because the microbes would not let me sit any other way; and when I stepped to the ground it took me several minutes before I could move, the microbes that produced sciatica and rheumatism objecting to being disturbed, and so preventing me. Every attempt to move had to be slow and deliberate until they should get accustomed to the change. I was a living barometer. Whenever the weather altered, and especially if it became cooler, my collection of microbes could anticipate it two or three days, and, when the storm came, they would freeze, and force me to take refuge by a red-hot stove to get them quieted.

The inevitable result of all this was clear. I had no particular wish to leave the world. It is a pleasant enough place to be in, provided a man has health and some little necessaries. It is possible to imagine that there may be worse. What I had seen of it had been

satisfactory enough in some respects, and I determined to stay a little longer, if I could. At the same time I knew that there must be a change, that things could not go on as they were for long, or that, if they did, I must make up my mind to follow my children, whither we must all go sooner or later. I had taken all the remedies that were presented to me ; I had seen my children pass away ; I had observed death around me striking down the young and the old, and I myself was far on my way to the same fate ; what wonder should there be, then, if I realized the momentous fact that physicians cannot cure disease—in other words, that medicine does not destroy microbes ?

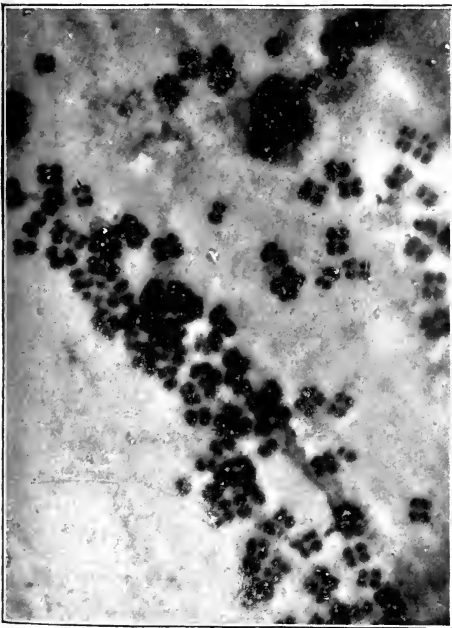
Good friends were generous with their advice. I was told to try first one thing, then another, but I had become wearied with what I had come to believe was so much humbug, and I determined to swallow no more medicine. I again studied advertisements. There I saw commended electric belts, porous plasters, liniments, lotions, and salves, and all sorts of external applications that would cure everything, purify the blood, strengthen the nerves, stimulate the functions of all the organs, kill the microbes, and rejuvenate the individual in mind and body. Well, this was something. Whatever such things would or would not do, there was no medicine in them—nothing to swallow, no poison—so, if they did no good, I could not see that they would do harm. The end of my thinking was that I sent off ten dollars to Chicago for an electric belt. Some of the advertising firms fail to respond, as they promise, to money remittances, but my belt came, and I lost no time in fixing it on. It reminded me of former days when I jumped ditches eight feet wide, and sang and laughed when others fell into the water. But now things were changed. Then I had health and youth, now I was far older in health than in years ; but I concluded that, being but forty-three, if the belt did all that was promised for it, there should be no reason why I might not live forty years or more yet. So I gave the belt a good chance.



18.

PYLORIC OPENING OF STOMACH.

Photomicrograph by Wm. Radam.



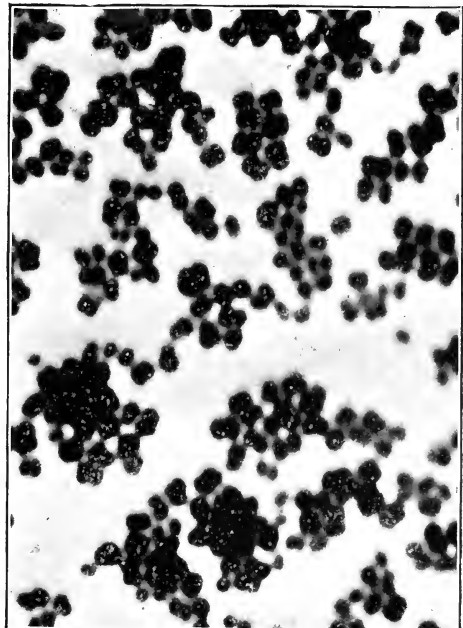
19.

SARCINA VENTRICULI.

(FROM THE STOMACH.)

x 2500.

Photomicrograph by Wm. Radam.



MICROCOCCUS TETRAGENUS.

(IN STOMACH.)

x 2500.

Photomicrograph by Wm. Radam.



I wore it faithfully for three months, and tried to help it by covering myself in every likely spot with porous plasters. In that condition I went about my business, clad in a kind of coat armor to fight microbes. I tried to persuade myself that I was doing exactly the right thing, and set to work to find enjoyment among my roses and to forget my troubles.

But it was of no use. My limbs did not consider that much enjoyment. The microbes were unhappy and would not be appeased. They gave me no rest. They tortured me unceasingly, and finally they drove me back in despair and desperation to my bed. I tried strong vinegar; friends recommended mustard plasters, so mustard plasters were tried. I covered every painful spot with them, and suffered tortures, with no relief. I am ashamed of myself when I think that I ever listened to such advice and descended to such folly. So now all had failed. Medicines had reduced me to the lowest condition of weakness and disease. I had swallowed poisons till they had no longer any effect upon me. Electric belts, lotions, plasters, blisters, everything, internal and external, had proved useless. I was worse than ever, with no resource untried, and no longer a particle of faith in anything that doctors, proprietary-medicine makers, or advertisers could offer me, and I refused further advice.

But this refusal lasted only for a time. A drowning man will catch at a straw. A friend came along who suggested a massage operator. He told me that one of these rubbing doctors had cured him of rheumatism, so my determination failed me and my hopes were renewed. I thought the suggestion over philosophically. I had tried medicines internally and externally to no purpose, but here was something different. It was not medicine of any kind, there were no poisons nor plasters, and I convinced myself that I should try it. Well, I went to the man's office, and he lost no time in getting to work. He rubbed and pounded and drove his thumbs into my flesh till I roared with pain and cried to heaven

that he would not kill me. He told me to bear it ; that he would rid me of all my pains if only I would endure the inconvenience for a time. So I clinched my teeth together and told him to go on. He went on, and he continued his practice on me for about five minutes, poking and pounding and straining my joints, until I could bear it no longer. I jumped out of bed, gave him five dollars, and hastened home, content to die, and solemnly swearing to myself that I would never again submit to such cruel and barbarous treatment.

The frame of mind to which I was then reduced is not easy to describe, and, except by those who have been similarly placed, it cannot be imagined. I was depressed and ill. I again thought over the fate of my children, and how they had been sacrificed to ignorance and incompetency. I saw before me no better or different prospect for myself. I had given up all hope. There seemed nothing further to be done. All the usual resources of sick persons had been tried, and they had failed. I was steadily getting worse, growing weaker, and suffering more. I had tried everything that medical science offered, and I became so thoroughly discouraged that, in my despondency, I began to look upon it as nothing better than a fraud and a humbug. I saw healthy children fall sick and die, while medicine was powerless to relieve them, and, with my own condition ever fixed upon my mind, I began to think over past experiences in my business.

I recalled much of the work that I had been called upon to do throughout my career and in my management of flowers. I recalled the various drugs that I had been in the habit of using to destroy fungi in plants. I thought over all that I had read of the experiences of nurserymen in dealing with blight in pear trees, and of the remedies that had been suggested. I recalled to mind the sums of money I had thrown away in Texas only for the purchase of pest poisons to kill insects. I had experimented in and tried all the remedies that had been recommended to kill fungi and destroy dry rot,

mildew, and other diseases in grapevines. I bethought me again how I had offered a reward of one thousand dollars for something that would destroy cabbage blight without injuring the cabbage, when soon General Ruggels and Captain Warner appeared at my grounds, ready, as they said, to earn the prize. Their plan was not new, and if they had had as much knowledge about what they were doing as the veriest tyro in chemistry would have had, they would have known how absurd their proposition was. However, I gave them a chance to test their alleged discovery. A cabbage was selected which was covered with blight, and an old kerosene can was placed over it. One spoonful of sulphur was then put underneath in a small saucer and ignited, the fumes being allowed to fill the can. Five minutes later we examined the plant, and, sure enough, every insect, every portion of the blight, was effectually killed, but the cabbage, too, was as dead as a door-nail.

When that little experiment came back to my mind, it occurred to me that it was an excellent illustration of the effect of medicine, which, while it destroys the microbes, kills the patient too, the patient being usually the first to succumb. It led me to again think over my own garden experiences, and the conviction became deeply impressed on my mind that, if I could discover anything that would kill blight, fungi, and microbes on plants without injuring them, I should also be in possession of something that would cure me. I felt that I had had large experience, that I had been a careful and close observer of Nature and her operations, and was positively assured of the causes, to some extent, that led to the production of plant diseases. I knew that all the various kinds of fungus, or micro-organism, which produce rot, mildew, etc., appear more frequently at changes of the weather, and that whenever we had rain in spring after a bright sunshine, disease would make its appearance on the grapevines within twenty-four hours.

The effect thus so quickly apparent was as if some one had sprinkled the leaves with some kind of poison. At

first little red spots became visible. These gradually yet rapidly grew larger and spread until they covered the leaves and extended to the fruit, and in about three weeks it was possible to determine how the crop would be affected. Having used so many medicines and drugs on myself, there were almost the contents of a drug store accumulated in my laboratory, and so, with the help of my garden books and a small microscope, I set to work to investigate the matter more closely. First of all I examined about forty varieties of grapes that were at my disposal. Some of them were more infested than others. Several were not attacked at all, and others very slightly, so that they soon recovered and lost all evidence of disease. Among those least diseased were the Delawares, Concords, and a few others, and these I could always depend upon; but the Black Spanish, Tokay, and all the California varieties were easy victims to the fungus. There was abundant material upon which to experiment, and I began with all the remedies that had been suggested by the Agricultural Department at Washington in the articles published from that office on the diseases of the vine, but with little or no effect. If I used the drugs sparingly they failed to destroy the fungus, and if I used them more liberally they killed the vine, or, at the best, they destroyed the fruit and the leaves. I found prevention to be better than cure, and that the disease was kept away either by putting a roof over the vine or covering the grapes with a paper bag, thus warding off rain and dew. Noting the temperature and condition of the atmosphere, and the effects of sudden changes of the weather on my vines, I observed that when these were greatest there was also more coughing and more sickness among the people. Common-sense, and no great exercise of reason, led me to see that the same causes had operated in both cases, and that the human race suffered from the same influences as those which brought disease to the plants and to the vegetable world. All organic life is, in fact, affected in the same way; and although it has frequently

been observed that in what are called unhealthy seasons the crops of fruit and cereals are likely to be inferior, yet the observation has never before been given its full practical import.

From the grapevines I turned my attention to strawberries, and there I found similar enemies. Worms, large and small, were on them, destroying alike fruit, leaves, and roots, besides large quantities of bacteria and fungi that were no less injurious. A group of geraniums might be apparently in perfect health, and in twenty-four hours the enemy would come in upon them like yellow fever upon the people. I could go through a garden of flowers and not only demonstrate all this readily, but prove, without much difficulty, that each variety has a host of enemies that destroy it.

In the open air there is great difficulty in contending against these enemies. It is not so easy to bring plants under the immediate influence of the remedies, and exposure to the atmosphere makes them, of course, more liable to any deleterious effects; but in the greenhouse very much can be done if the plants are attended to in time.

Flowers go through the same processes and functions as man. They take nourishment, and die as he does. They need air, food, and water; they suffer from disease, go through various phases of health, and are subject to similar disturbances as those which afflict men and animals. Respiration is as essential to them as to us. Changes are constantly going on in their tissues, and fluids circulate through them in constant directions, and even with considerable force.

Thus the relations between animals and plants are very intimate, and if we would know how to treat disease in the former we must study it in the latter. If we would cure members of the human family, let us see how disease affects the vegetable world, and ascertain, if we can, what remedial agents are necessary and safe there. If in our experiments we kill a few plants, the loss is not very great; but if in the same way human life be sacrificed, the process becomes a serious one.

In experimenting on plants there is no such risk, and when we shall have found something which will destroy microbes without injury to the plant we may safely test it on the human body. I have mentioned the proposal that was made to win the one thousand dollars that I offered as a reward for something that would kill the cabbage bugs ; and it ruined the cabbage. If that same experiment had been tried with a child it would most certainly have killed the child. The product obtained by burning sulphur in air is sulphurous acid. This has bleaching properties and disinfecting power, and no animal life can exist in it. Its use as a disinfectant depends on that property. It is, in truth, a deadly poison when taken in full strength into the lungs. To use it, therefore, on mankind in that way would be simply criminal, whereas an experiment with a plant is justifiable and useful. It may be inferred with tolerable certainty that if any agent that is offered to us has no deleterious effects on vegetable life, it will not be very hazardous to test it on the human body.

All my early life was passed amid flowers. I was engaged in their cultivation ; I learned their habits and their needs ; I watched their lives ; I studied them in health and noted careful observations about their diseases ; I experimented, and it will be well if I give some of my experiences and how I went to work to try and cure plants.

If plants are kept as nearly as possible in their native condition, with good soil from which to obtain their nourishment, and in a pure atmosphere and an equable and proper temperature ; if, too, they are raised from healthy stock, they are not subject to disease, fungi cannot readily get a foothold on them. So a child, the offspring of healthy parents and a sturdy ancestry, properly fed, kept in wholesome surroundings, sheltered from extremes of heat and cold, and protected from contact with disease of others, is not very likely to grow up unhealthy or to be subject to any serious illness. But if plants are chilled or kept too warm ; if the soil be

allowed to parch or to become too wet ; if no sunlight be permitted to have access to them, or if they be propagated from sickly stock, they will soon become the resting place of microbes, which will accumulate upon them in masses and very soon render the sickly flower a seat of the most fatal disease.

I have applied drugs, both directly and indirectly, to the fungus, and in my selection I was at first guided by a knowledge of what physicians use for destroying microbes in their patients. Dusting them over the affected parts of the plants, I found the following to be worthless : sulphur, borax, boracic acid, salicylic acid, camphor, tannic acid, acetic acid, tartaric acid, alum, calomel, saltpetre, Epsom salts, lime, and various salts of potassium and sodium. Many of these, if not all, are employed by doctors in the treatment of diseases which the doctors themselves attribute to the presence of micro-organisms, yet they will not kill those same bodies on a plant ; how, then, can they destroy them in the body ?

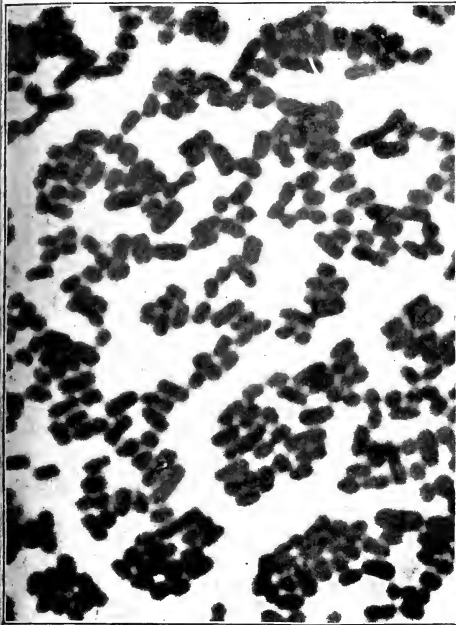
When the air was warm and moist I found that fungoid growths appeared everywhere and multiplied with astonishing rapidity. Under the same conditions milk turns sour very rapidly, meat shows evidence of fermentation, strawberries and other fruits become rapidly covered with micro-organisms which spoil them quickly ; and the microbes in my own body at the same time became lively, so that I would have to lie down and protect myself from the changes. Then at other times, especially after thunder-storms, no fungi were formed, and I too felt better, breathing more easily and being more free from pain. At the same time, too, meat and milk would keep longer, and many forms of fungus disappeared, while my plants always looked better and were more full of life.

This observation opened my eyes. My reason told me that I must look for that something which purified the air and removed the germs of fungi and disease, acting so powerfully and yet so harmlessly on the higher organs of life, for its action was far more powerful than that of

all the poisonous drugs I had before used. I felt certain that herein lay the key to my remedy. But to identify it absolutely, to make it artificially, and then to apply it correctly, were problems that occupied my attention for more than a year after. My former experiments had shown me that powerful drugs had little or no effect if applied externally to plants or trees, or if dusted on fruits. I found also that sprinkling and washing pear trees which had blight did very little good, and that even pruning and cutting off diseased parts gave at best but temporary relief, because no sooner was it done than other parts became diseased, and by pruning away all the dead matter there was soon nothing but the stump left, and then that too died.

This very much resembles what happens in the exercise of "scientific surgery," where limbs or diseased portions are cut away and the disease breaks out again, so that the patient dies from constant operations, unless the microbes are left undisturbed to fulfil their mission. Of course we all know that surgical operations are often successful, but those are mostly cases of severe injury where it is necessary to remove the injured portion. It is very different when the operation is undertaken to remove parts that are diseased from the presence of micro-organisms, or fungi, or microbes, as, for example, cancer. To cure a tree of tendency to blight it is necessary to go to the roots. Most persons know that flowers which grow luxuriantly are less subject to blight than others whose growth is slower and whose appearance is sickly. We must then furnish the tree with better food and drink, that will enter into the sap, pass through the tissues, and produce a condition where bacteria will not live. As soon as I did this to my trees their green color returned, they threw out fresh shoots, put on a more vigorous growth, and presented no further necessity for cutting off the limbs.

The organs of the body are similar in functions to portions of the tree. In plants every cell is a stomach. Nourishment is taken up by the roots. It passes up-



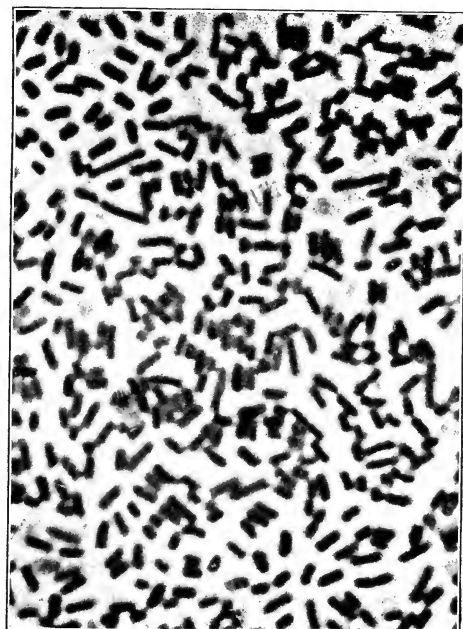
21. **BACILLUS ACIDI-LACTICI.**
 (OF SOUR MILK.)
 x 2500. Photomicrograph by Wm. Radam.



22. **BACILLUS CYANOGENES.**
 (OF BLUE MILK.)
 x 2500. Photomicrograph by Wm. Radam.



3. **BACILLUS LACTIS ERYTHROGENES.**
 (BACILLUS OF RED MILK.)
 x 2500. Photomicrograph by Wm. Radam.



24. **BACILLUS OXYTOCUS PERNICIOSUS.**
 (FOUND IN OLD MILK.)
 x 2500. Photomicrograph by Wm. Radam.



ward through certain portions of the stem to the leaves. There it is assimilated, and thence it passes downward, forming deposits of new cells over the old wood underneath the bark. While, therefore, the plant breathes through its leaves, yet if we would reach them internally we must go first to the roots. We cannot improve and enrich the sap in any other way. So in man we supply food and nourishment through the stomach, and fresh air through the lungs, if we would send a color to the cheeks and promote the health of the person. It is the stomach that we purify and strengthen first of all, and the nerves, blood vessels, muscles, and all other tissues derive the benefit.

CHAPTER VI.

DEVELOPMENT OF THE MICROBE-KILLER.

KNOWING that fermentation goes on in the stomach, I felt the value of discovering something that would stop that process. I placed some of the contents of my own stomach into a bottle of medicine, and I found that the process of fermentation continued, and that microbes were multiplied and propagated and flourished exceedingly. This showed to me, as plainly as is the sun at noonday, that the same process goes on in the stomach. I from time to time added different medicines to the same, and still the fermentation was not checked. The microbes grew in spite of the medicine, telling me that this was useless as a curative agent. Under such circumstances it became no longer any source of wonder to me that I did not get well, or that instead of improving I steadily became worse. When people are sick it is not alone money that they care for; the cost of drugs and the doctor's fees are a secondary consideration. But when disease is not stopped they become discouraged; their pain and suffering continue, and money is of little consequence to one who feels that if he cannot get help death is before him.

I have often felt pain in the stomach, either from overeating or from drinking too much water, and then I almost always get relief with whiskey. This shows that good whiskey or alcohol will stand the test; but if whiskey or alcohol be mixed with water, fermentation is not stopped. Drugs are now generally preserved in alcohol or whiskey, these in a pure state being the most harmless of antiseptics. But give a patient a pint of alcohol in twelve hours, and you not only intoxicate him, you kill him. It is not desirable to give it as an

antiseptic, and I regret to have to place it in the list with them, because it creates a taste for spirits, which is not desirable, and people are too much addicted to them already. But common sense will tell most people that even alcohol is less harmful than morphia, chloroform, or the ordinary poisons and antiseptics known to physicians.

Finding, then, that alcohol was a powerful antiseptic, and knowing that it is derived from the vegetable kingdom, from fruit, grain, rice, potatoes, and anything that contains starch or sugar, I made raids upon my garden and the prairies. I gathered up every kind of plant that had any aromatic properties, and extracted the oil. I took a similar extract by grinding up onions, sage, thyme, tomatoes, and various other fruits and vegetables, as well as leaves. In fact, I refused nothing that offered me any kind of juice, oil, or extract which would not ferment when mixed with a sufficient quantity of water to be rendered harmless in the stomach when taken in large doses. But I was not successful. I did not find anything that would answer my purpose. The more I worked, the more I experimented, the more convinced I became that there was no medicine to be found in that way which would kill the microbe and stop fermentation without killing the patient; and that is what the doctors told me when I first introduced the microbe-killer to public notice.

However, I was now thoroughly disheartened. All my efforts had failed; all my experiments had proved fruitless, except to give me negative results and to tell me I had undertaken something that could not be accomplished. I lay down to die. I felt that there was no cure for me, no hope that I could get better. I had tried everything that friends or physicians or my own reason could suggest, and all to no purpose. My weight had fallen from one hundred and ninety pounds to one hundred and forty-four. My energies were exhausted and my spirits were depressed. But the subject still occupied my mind, and my rest seemed to stimulate my

brain. I thought over the matter incessantly, until at last something happened which had not previously occurred to me. Nature had so often told me how she purifies the air, what the effects of a thunder-storm are, that it was nothing for me to go to her once more for instruction and advice. I asked myself the question: What is air? Is it nothing more than oxygen, nitrogen, carbonic acid, ammonia, and water, with electricity pervading all? And if there be anything more, what is it? and how can we make it? I turned these questions over in my mind constantly. I knew that there was pure air up in the mountains, and that there was impure air in swamps, foul greenhouses and cellars—in fact everywhere where fermentation flourishes. All this fermentation emits gases—some poisonous—which mingle with the air, making it impure. To purify the air we must remove the fermentation which produces these poisonous gases. Nature does this in many ways—by strong winds, by electricity and lightning.

Whenever we had a thunder-storm I saw my plants improving and I felt myself feeling better. Thus Nature gave me a pointer in the right direction. The question for me to solve was, how could I stop fermentation inside my body as effectively as Nature stopped it outside?

Former experiments I had made in curing plants from bacteria and fungi, by dusting or dosing them with drugs, generally hurt them in the same way as the drugs given me by my doctors seemed to injure my body. Burning the drugs in the greenhouse killed fungi and plants alike, for carbon or smoke is a deadly poison to all forms of life. Further experiments led me to discover how to purify the gas from carbon or smoke, so that only the clean gas entered the greenhouse. This gave very satisfactory results. Here at last I was on the track which pointed the direction of all my further experiments, and which finally led to the discovery of the microbe-killer.

I had often read that people go to the seashore or the

mountains or pineries for their health—not to drink salt water, nor to eat turpentine or creosote which the pines contain, but to inhale the air which contains the vapors or gases evaporated from the salt water or turpentine. If we study the process of preserving meat or hams by smoke we gain the same result. It is the gas arising from the burning of the wood which contains the turpentine or creosote which preserves the meat. The result is not injurious to life, whereas if meat or hams were soaked in turpentine or creosote they would not only be preserved, but they would be poisonous and kill whoever ate of them. This demonstrates again that the gas is harmless while the drug itself is not.

But further experiments soon told me that to make a harmless antiseptic gas the drugs themselves must be harmless. I read in a medical paper that a certain physician experimented to cure a patient with the gas generated from corrosive sublimate, and promptly killed the patient. Anybody who ever inhaled the fumes of sulphuric, nitric, or muriatic acid knows the result which follows. And right here I may mention that every imitation microbe-killer sold to the people as medicine alleged to kill microbes is made of nothing else than diluted acids, which can be compounded by any one who has not the slightest idea of the experiments that led me to discover the microbe-killer. No chemist in the world can show how Radam's Microbe-Killer is made. This was practically shown in court, and extracts of those proceedings are given in another chapter.

With the knowledge I had accumulated by experimenting to cure plants, I set to work to find out why the medicines prescribed by my physicians failed to cure me. I put some fermented matter that came from my stomach and lungs into the medicines, sealed the bottles up, and noticed the result. In about two days the medicines themselves fermented, showing they had no antiseptic powers and hence could never cure me. I tried the same experiment with all the other medicines that had accumulated on my shelves, and always with the same

result. Common sense told me now that it was useless to swallow any more medicine. If the medicine itself could not stop that little bit of fermentation I put into it, how could it stop the fermentation inside my body ?

From that day I stopped doctoring with physicians' remedies, and I have not expended a single dollar since upon them, except to occasionally test the antiseptic powers of some new remedy, always with the result that the new remedy increased rather than stopped fermentation.

This test opened my eyes. It was a long step in advance, and drove me faster than ever to make further experiments and find out if there really was a drug or combination of drugs that would stand the test as an antiseptic and at the same time be harmless to the human body.

To the drug stores I went and bought samples of drugs, poisons, especially those claimed by physicians to be antiseptics ; not for the purpose of swallowing them, or in order to find out how they would act inside my body, as physicians do with their patients—that would have been deliberate suicide, and whatever the result would have been it would have established nothing. The object I had in view was to test each drug separately outside of my body, to ascertain if it was an antiseptic and would stop fermentation, and also if it was harmless or not. I certainly had no desire to kill myself with drugs the action of which I knew nothing, the same as thousands of others know nothing about the action of certain drugs and still persist in their use. Those men who kill themselves or their patients by experimenting upon them with drugs of which they know nothing, receive at least the questionable honor that they died or killed their patients for "the cause of medical science." Any experimenting on the human body made by the profession is always done for the "cause of medical science." The patient has to submit. Does it not serve those patients right, if they will not insist that they must not be experimented upon ? Had I killed myself in a similar manner what would they say ? The

reader can easily guess. The malicious lies which some of the wise men published about me after I was successful prove that my discovery was not made for the "cause of medical science," but for the cause of the people, who now are beginning to open their eyes to a true knowledge of things which concern them intimately.

Common sense told me then that if an architect has a test to find out the strength or the breaking strain of any grade of cement, brick, stone, iron, steel, or whatever building material he may use, before he puts up the building, why could I not tell by some kind of a test the antiseptic power of any drug or medicine, and further ascertain whether that drug or medicine was harmless to the human body or not, before swallowing it? The following will show that I have settled this question, which makes all further experiment on the patient unnecessary. I will show in what way and manner I conducted my experiments, which were continued about nine months before I discovered the antiseptic that was effective and still harmless to human life.

Every drug I bought, every herb I found, and every juice or oil I extracted was tested in the following manner :

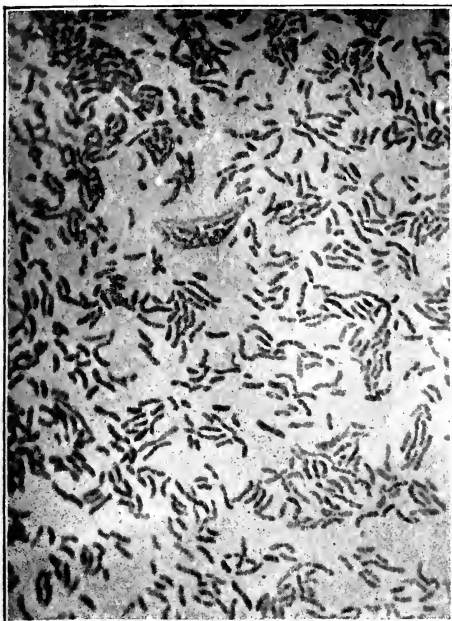
In each bottle of medicine to be tried I placed a small piece of raw meat, sealed it up, wrote on the label the date, the strength of the solution, and if it was compounded according to a prescription I pasted the formula on the bottle, and then noted the results. Every day I took my note book in hand and examined every bottle carefully to watch the action of the drug or medicine on the meat. In most cases fermentation set in after three or four days, in some later, and in a very few bottles the meat did not ferment. The drug, oil, or juice which showed no antiseptic properties was thrown away, and the record in my book was made, after the names of those drugs or combinations, "no good." Every bottle which proved to contain an antiseptic was carefully examined for weeks and months,

and the changes that the meat underwent in the antiseptic carefully noted down.

In pure alcohol the meat gradually turned to a yellowish color ; in creosote and carbolic acid, black ; in mercury diluted one to two hundred per cent it turned to a silvery color, and gradually to black. Whenever I thought I had found what I was searching for, a more careful examination made the following day revealed the fact that the meat began to shrink or twist, which closed up the pores. This was a warning which gave me to understand that the same process would go on inside of my body if I dared to drink the solution. No disease can be cured unless the system is soaked with the medicine for days, weeks, and perhaps months, according to the age of the disease. This is shown in pickling beef with salt ; we must use enough salt to soak the meat clear through, and if we try to preserve it by smoke we must smoke it clear through. Nothing can be preserved by halves. The whole substance must be preserved. This may be contrary to the teachings of medical science, but it is what Nature teaches every day.

After I had tried every drug and poison that I could obtain in the manner above described, I learned that there was not a single drug or combination of drugs that would stand the test, namely, stop fermentation in the human body without injury to the system. If any person being treated for a chronic disease will take the trouble to test his medicines in a similar way, he will find out soon enough why he fails to recover.

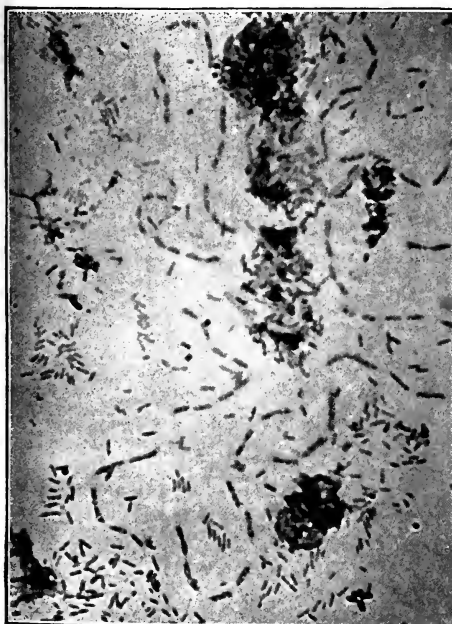
Failing to find the harmless antiseptic in drugs, I then gave all my attention to the production of gases, in the manner before described in my experiments upon plants, and which had proven so successful with them. For this purpose I selected drugs which were harmless in themselves, although not strictly antiseptic in a crude state. I tried to make them antiseptic by combining the gases in different proportions until an antiseptic gas was formed. After the gas was washed and purified, I again



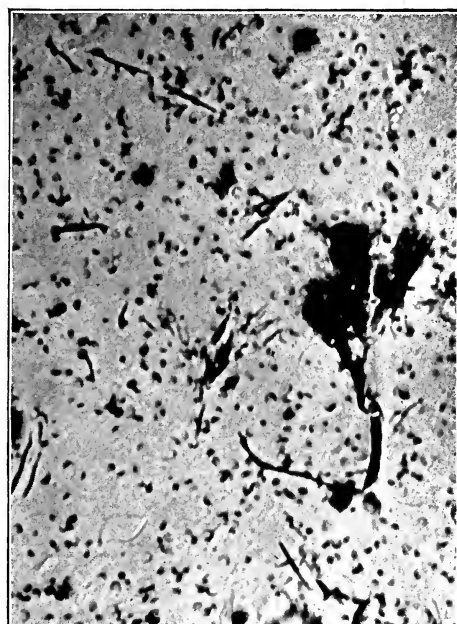
25. **SPIRILLUM MILLERI.**
(FROM CARIOUS TEETH.)
x 1000. Photomicrograph by Wm. Radam.



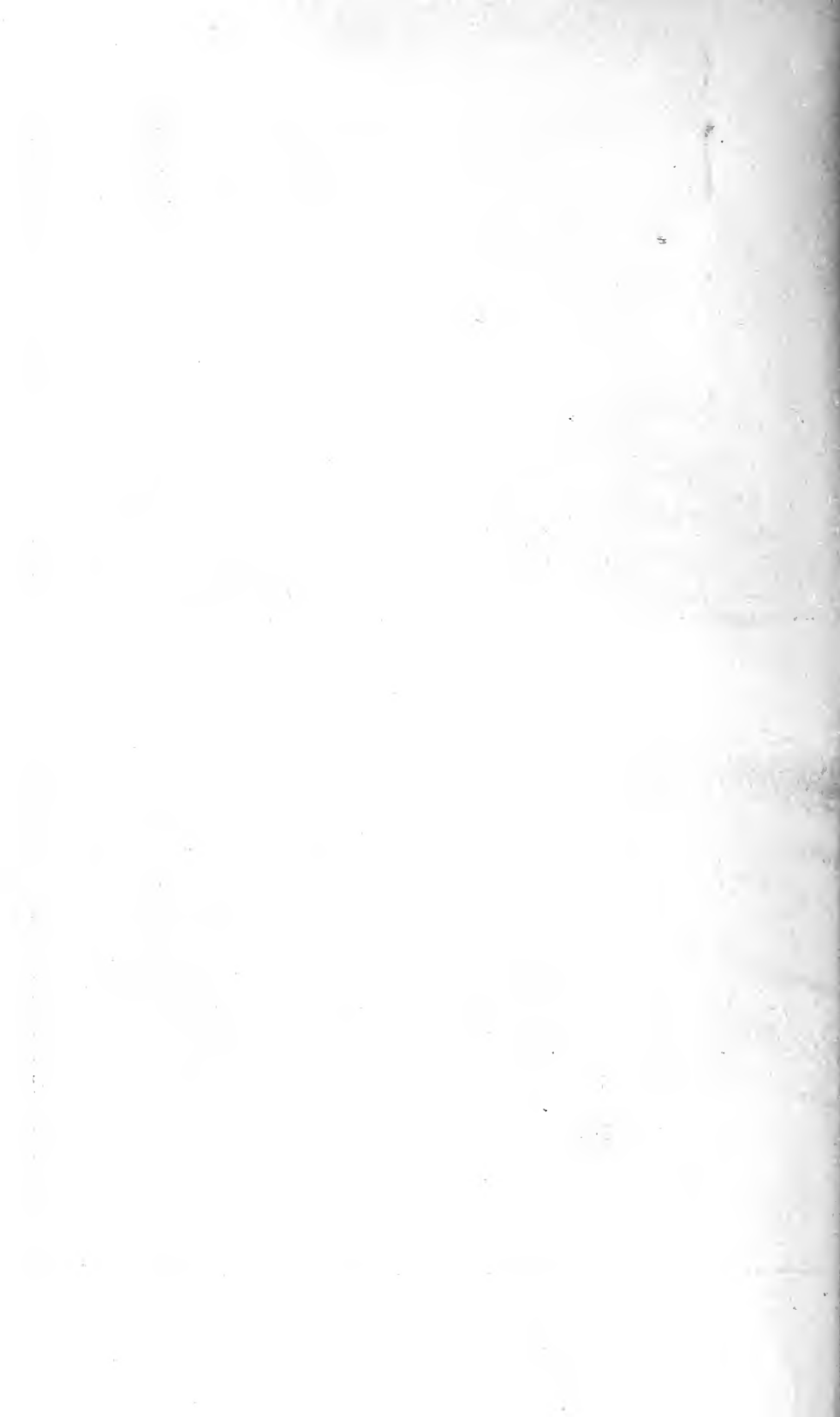
26. **LEPTOTHRIX BUCCALIS.**
(MOUTH BACTERIA.)
x 1000. Photomicrograph by Wm. Radam.



27. **ACHORION SCHOENLEINII.**
(FAVUS FROM HEAD.)
x 1000. Photomicrograph by Wm. Radam.



28. **MICROBES DANDRUFF
PRODUCING.**
x 1000. Photomicrograph by Wm. Radam.



tested each combination of gas in a manner similar to that employed with the drugs, to see their action upon raw meat. The results were carefully noted. Suffice it to say that I met with nothing but failure. My gas would not do what I expected. Three times I stopped the experiments entirely, believing that what I was searching for belonged to the impossibilities. I became discouraged and lay down to die. But I could not die peacefully. I was restless from thinking over my failure and dreaming about success. An idea came to me, and I tried again and again. Each time I seemed to be a little nearer success. This gave me perseverance, until I found my little bits of meat improving every day in color, the pores keeping wide open, without the slightest taint of fermentation noticeable. A little more improving, and I had the antiseptic that proved to be an antiseptic, without having experimented on my body. There was great joy in store for me, and I could not help going to my doctor, who generally looked in his book when he prescribed another liniment for my rheumatism. I asked him if it was possible to kill the microbes in the human body. He said "no," most emphatically. "We have to kill the patient before we can kill the microbes." I told him, without going into details, that I believed I had discovered something which would kill them. He laughed and said: "Dr. Koch, Prof. Pasteur, and in fact the whole medical world is working on this question, and no one has found the solution. And as for you, my dear Mr. Radam, I guess you have the fever again." "Well, doctor," I answered him, "fever or no fever, I won't buy any more liniment, so good-by."

Six months later he thought differently. Right here I may mention that I had a conversation of a somewhat similar character, and which resulted similarly, three years afterward with a professor at the Columbia College in New York City. I went to him with the expectation of getting a little information concerning the photographing of microbes. Without showing me his apparatus or giving me any information, he told me it

could not be done. So I had to find out myself a way in which to photograph microbes. The results of my long investigations in this line are shown in the illustration in this book. I have proven that it can be done, and successfully done too.

But to return to my antiseptic gas. I have shown that my success did not come at once. In fact, the failures were so frequent and numerous that, had it not been a question of life or death with me, the discovery would never have been made. So I put all my energies into it and persevered, with the result that at last I had in my possession the means of killing microbes that had all the requirements I had specified. I found a combination which was perfectly harmless to the person taking it, and which kills microbes with certainty; also one which is quite different from anything hitherto numbered among curative agents. I tested it fully and assured myself of its properties and powers.

I tried it upon myself, and the effects became apparent almost immediately. I increased the dose gradually until I found how much best suited me; then I persevered, and the effects showed themselves promptly. Peculiar sensations were felt all over me, but especially in the most afflicted regions, as though the microbes were shifting about my body, but there were no bad effects whatever. My stomach became clean, fermentation ceased, my appetite improved, and digestion was good. I increased the dose from three to six wineglassfuls a day, and grew weaker. My energies failed me and I became depressed. Consequently I stopped taking the microbe-killer for a few days till my stomach recovered itself, and then I renewed the treatment, but regulated the doses by my feelings. For a long time I felt very ill, some days being worse than others, but this was readily accounted for by the low and weak condition to which I had been reduced, and my state of nervous depression was extreme. The microbes that were in my body probably did not like the treatment, and they seemed to be constantly moving about. But I

knew that I had something which could not hurt me, and I persevered steadily. I knew from my garden experience how difficult it is to get rid of weeds and to cure plants of blight and fungi, especially when they have been allowed to get ahead and to increase and flourish undisturbed.

My blood must have been teeming with microbes which had been propagating and increasing for years, and it would have been folly for me to expect to get rid of them in less than twelve months. My disease had become chronic. It had remained so long that it had almost grown to be a part of my system, a part of my constitution, and it is always difficult to eradicate any disease in that condition. But I had hope, and my hope had grown into confidence. All my experiments came back to me now and assured me that I was in the way to get well, if such a way existed. So I went on, and so favorable was my progress that at the end of three months I felt almost a new man. I was considerably better. I had no longer any attacks of rheumatism, and the fever had abated so much that I felt only the slightest symptoms of its approach. Sometimes I laughed to myself at the extraordinary cure, and at the thought that a disease that had defied all physicians, all drugs and remedies that could be suggested, all the advice of friends and the rubbings of massage doctors, should be got rid of by drinking water. My appetite became so ravenous, and my digestive powers so strong, that I could eat several pounds of meat daily, and it increased my strength rapidly. My nervous prostration ceased, my energies returned, no pains annoyed me, I slept well, my mind became more acute, and there was every evidence of an improved condition and much enrichment of the blood. Of course my friends could not fail to observe the change, but for a time they were puzzled to think what was the matter with me. I kept the matter secret for a long time, for I did not wish to offend my friends or disturb the equanimity of the good doctors who had so long and so faithfully administered to the welfare of

my microbes. Six months after I had taken the first dose of microbe-killer I felt myself entirely cured of the rheumatism. There were no more pains whatever of any kind. The fever had also entirely gone, and the piles were gradually disappearing and were almost well. I then weighed one hundred and forty-four pounds, and



WM. RADAM BEFORE TREATMENT.

had the appearance presented in the picture from a photograph. My weight now is two hundred and five pounds. I felt weak throughout the first year, especially at times, but this was to be expected after the length of time that I had been ill. My blood had become thin and was reduced to a very bad condition, so it required a long while to be restored, and the system did not seem capable of restoring it as fast as the medicine removed the microbes.

When I first experienced an improvement I was curi-

ous to know how the microbe-killer would act in other diseases, but I had some fears. I thought: "Suppose I give my remedy to some patient who is under the care of a doctor, and suppose he should die from the poisons that that physician would be giving him; the blame might be charged to my bottle, and I might get indicted for manslaughter."

I knew such cases had happened, and I was well aware that the doctors or their organization would be but too glad to get hold of me and to put me in just such a position. They do not tolerate any interference from outside their own body, and although they themselves may kill, they do not allow other people even to cure if they can help it. I thought so much of my discovery that I dreamed of it, and one night it seemed to me that the people must have it. After that I could not resist asking my workmen if they knew of any sick persons around the neighborhood. "Yes," said one, "I know a man, George P—, who has consumption pretty bad. His sister will probably die of it soon, for his whole family have died of it." "Well," I thought, "if that man dies nobody can blame me." So I determined to take the risk, and I gave orders to have the man brought to me. He came, and I saw a mere skeleton. The man had wasted away. He was pale and bloodless, with sunken eyes and the hectic flush peculiar to phthisis; he was worn out with a cough and reduced to a terrible degree of weakness. Death was staring him in the face, and he well understood that the doctors held out no hope for him. I talked to him and told him that I would give him something to cure him. I explained that it had cured me, and I was in a condition little better than his own. I advised him how to use the water, and requested him to come around again soon and let me know how it worked.

Another of my men told me of a woman who for six months had been under a doctor's care, suffering from a large growth and much pain in one of her breasts, and she wished also to try the preparation. But I explained

to the man that I could not give it for any such purpose, because if the woman should die I should incur an awful legal responsibility. At the same time, if he wanted to take a gallon, there was one in the adjoining room. The gallon soon disappeared, and I consoled myself with the thought that if the woman died I could conscientiously swear that I did not give her the water, as the old man took it. Well, at the end of three weeks George P— made his appearance again at my house with an empty jug, and he wanted it filled again. He complained of pains shifting around in the neighborhood of his waist, but said that otherwise he felt generally much better. I let him understand that such a disease as his could not be got rid of all at once, and that he must bear patiently all that came, for he had given up all thought of being cured and had reconciled himself to the belief that he must die. At the same time I pointed out to him that I had also abandoned all hope of being cured and thought a speedy death was inevitable, but I had been cured by means of this same preparation, and I could see no reason why his chances were not at least as good as mine. He went away encouraged and continued the treatment. Soon after a messenger came from the woman for more medicine, and assured me that the fearful pains she formerly suffered had almost subsided. This gave me courage. I became now quite fearless and gave her a second bottle, which in due time sufficed to cure her. The man improved steadily, but his sister, under the doctor's care, died. In a short time I had twenty female patients in Austin, Texas—one with a cancer on the tongue, which disappeared after she had used three gallons. Three of these ladies had been given up by the doctors, who saw no possibility of lengthening their lives except by an operation. Certificates of cures from these patients have been published in the Austin papers, and some equally valuable appear in my pamphlets.

My plan was this: I used persuasion and advocated perseverance. No matter how low the patients might

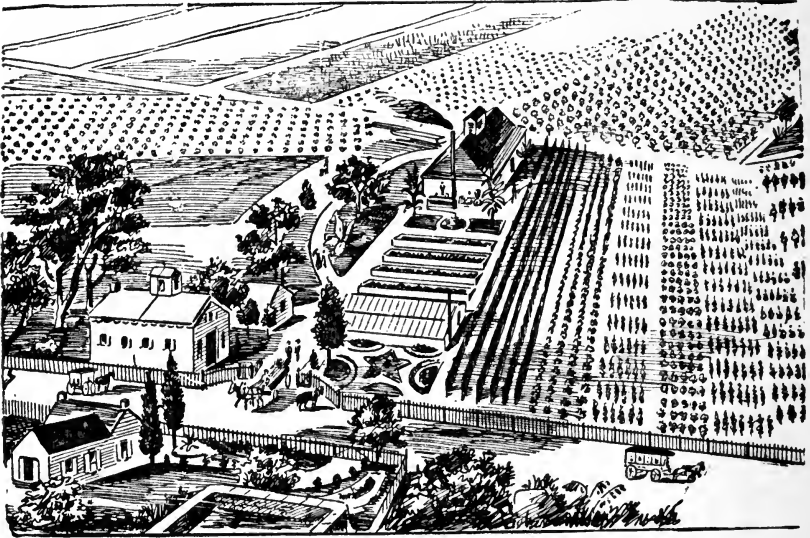
be, I induced them not to give up taking the remedy. I merely required them not to use any other medicine (except purgatives), but to faithfully take the water, to let me know what progress they made from time to time, and on these conditions I undertook to supply all the medicine that was necessary. All, without a single exception, were cured, provided they came to me in good time. If the doctors abandoned them and they died, no blame could attach to me, so I had nothing to fear from the medical profession. The cases that came to me were all different. Some had local diseases, others described their ailments as being general all over the body. They told me all they had done, the quantity of medicine they had taken without any effect, and the trouble and misery they had gone through. Some told me pitiful tales of how all their money had been spent in doctors' bills and drugs until they were reduced to the last stage of poverty as well as disease.

But, notwithstanding my astonishing success in the treatment of all forms of disease that came to me, I was very reluctant to jump into the medicine business and to abandon my flowers, amid which I felt like a father among his children.

During a stay of eighteen years in Texas I had improved thirty acres, and had a fine place and a comfortable home such as is not often seen west of the Mississippi. I was fond of country life, gloried in my flowers, fruits, and trees, loved to be among the birds and the fish, and felt all the enjoyment that belongs to the sportsman. There are health and pleasure in a life amid Nature's works which the city resident never enjoys, and I am happiest with them. There are anxieties and cares everywhere, but more independence in the cultivation of the soil than in any mercantile pursuit that can be followed; and I was loath to give all this up for the toil, vexation, and trouble of such a career as would be before me if I entered upon the business that my successful discovery opened out before me. Moreover there were other inducements to keep me where I was. I had

expended many thousands of dollars in improvements such as are seldom seen in the nursery business.

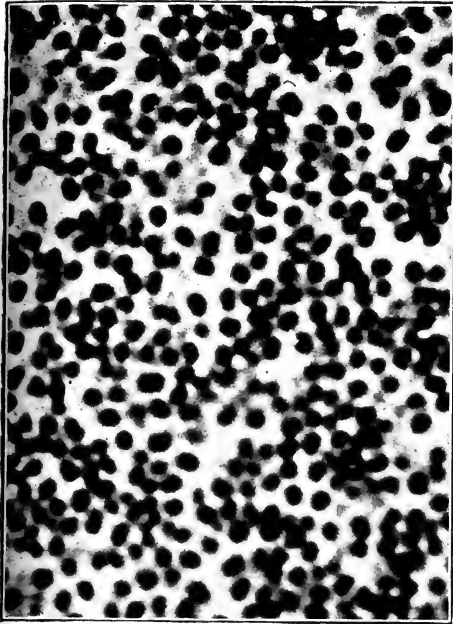
In addition to flowers I had gone into fish culture. I had five pools well stocked with German carp, and as my health improved I felt myself young again, more anxious than ever before to enjoy the pleasures of the life I had prepared for myself, and more enthusiastic also in my work. A steam pump supplied five hundred gallons of water per minute, and my fountains were filled with goldfish. The rosery contained a beautiful collection of the finest flowers, and thousands of people



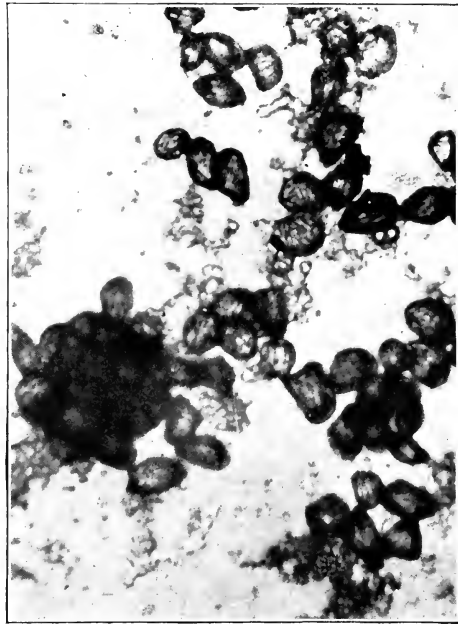
WM. RADAM'S NURSERY (THIRTY ACRES).

had come to admire it and to wander in amazement among acres of pear trees, fruit trees, and vines of all descriptions, and flowers without number growing in the greatest luxuriance under the warm southern sun.

To a lover of Nature the delights of such surroundings are more than it is easy to describe, and they are increased when is added the feeling that they are one's own production, the result of one's own conception and labor. It is no easy matter to tear one's self from such sur-



29. **MICROCOCCUS OF SYPHILIS (Disse)**
 (IN BLOOD OF SYPHILITICS.)
 x 2500. Photomicrograph by Wm. Radam.



30. **STONE IN THE BLADDER.**
 (PRODUCED BY MICROBES.)
 x 1000. Photomicrograph by Wm. Radam.



31. **URIC ACID.**
 (PRODUCED BY MICROBES.)
 x 60. Photomicrograph by Wm. Radam.



32. **BACILLI IN URINE.**
 x 1000. Photomicrograph by Wm. Radam.



roundings when they so thoroughly accord with the tastes and sympathies.

I at that time supplied the Austin people with my medicine free of charge, first for fun, perhaps not realizing the value of my discovery. But the news leaked out. People began to talk about my medicine, and some of them came to my garden and begged with tears in their eyes to have some of the water. The wonders it had done were common gossip, and people were telling each other how this or that lady had been cured. I felt for these people, for my heart beats for my neighbors as brothers, and I had to neglect my garden and my flowers to manufacture the medicine for those around me. Thus the work of eighteen years was thrown away, for I am sorry to say that my garden is gone. I turned over my treasures to people who knew the value of money, and by whom the higher merit of such things is not understood. It was, however, a painful necessity. The continuous demand for my preparation forced me to leave the business that I had learned from my father, and it has led me into so much worry and excitement that I have many times regretted ever having made a business of it. Under my groves of vines and fruit trees, in the companionship of my flowers, and amid the delightfully congenial surroundings of my Texan home I had enjoyments which nothing since has compensated me for.

My success with the medicine of course satisfies me that I must inflict a lasting injury upon medical science as it now is, and as a consequence thousands of physicians and others will become my enemies. Possibly I may be regarded as a very bad man, not because I have done any evil, but rather, I think, the reverse, but because I have done something different from others, something that must interfere with their pursuits and prejudices, and with their present means of livelihood. That is the way of the world, and I will yet show the reader something of the kind of people there are about, and of the meannesses of which they will be guilty to put, by the devil's help, a few dollars into their own pockets.

I know the world well enough to be quite aware that as soon as my discovery was well before the public, and its value known, there would be numberless imitations, numberless thieves ready to steal my ideas, to counterfeit my remedy, and to try to damage my reputation. This last they cannot do, for my character as that of an honorable, hard-working citizen is too well established in the State of Texas, but they will try to make money out of the endeavor. I have led a quiet life, minding my own business and not looking after other people's, and contests with the law or in the courts have never disturbed me. The people in Austin had confidence in me, and my publications on horticultural topics made me well known, so that when the nature of my discovery leaked out I found it useless to try and keep it secret, and I published some account, first in the Austin *Statesman* of August 30th, 1887.

That was the first announcement made to the world that I had discovered a remedy that would cure disease, and of my theory that there is but one disease and one cause of disease, no matter how varied the symptoms in different cases may be. It was the first time, also, that I laid claim to being the only man that could prove these things, and who had experimental evidence of it gleaned from a study of Nature. I showed at that time that all disease is caused by microbes, and I described their organisms, producing at the same time testimonials from persons who had been cured, but who had been given up as incurable by the doctors. This created an excitement throughout the country, and it particularly stirred up the physicians who heard of it, and all interested in the medical profession. It was at this time that we first began to sell medicine in a business way. I kept up my publications, and almost every week I had printed testimonials and evidences of cure, occasionally, too, of very complicated diseases. I was not interfered with, for I killed nobody, and of course any man may cure another with water if he likes.

There are no laws against curing or even treating an-

other person; but if the person dies, then if the man who treated him be not a physician, protected by a piece of parchment, the case is one of manslaughter, and he is liable to suffer all the pains and penalties of that offence. When a person is sick he may put himself in the care of anybody he pleases; but if he happen to die, his attendant may possibly incur a punishment of lifelong imprisonment. That is the law here, and it prevails in Europe also. I therefore ran some risk; for although I knew that my medicine was not injurious, yet the people who came to me for treatment were often in the advanced stages of disease, and if any of them had died while taking my medicine there were plenty of doctors in the neighborhood ready to take advantage and to have me indicted for manslaughter. And it was not the doctors only, for success always creates jealousies, and there were people who, for reasons of their own, did not want me to succeed, and they too would have taken advantage of any opportunity to ruin me.

My life at this period became very exciting, very different from the peaceful times I had had among my flowers. People from all directions wrote to me for information, and sometimes they sent me a description of their ailments. These letters were marvels of composition. A person afflicted with some chronic complaint perhaps must have sat down for half a day's work to describe all his troubles. Possibly he would fill half a dozen sheets of paper, and close his letter without having told anything that an ordinary physician would have felt it necessary to know. But I knew that his symptoms were of secondary importance. They were interesting to have, but not essential, because all disease is due to the same cause and requires but one cure.

I could not always make my correspondents understand this. They had been accustomed to have the most minute inquiries made by their doctors, and they could not comprehend how I could go to work and cure people without getting the minutest information and asking them an infinite lot of questions. They seemed to think

it impossible that I could put up the right medicine without knowing every particular, and perhaps some of them may have felt a little distrust on that account. But if their confidence failed them it was not to be wondered at. They had been deceived so often that they were naturally suspicious, and when people who wanted all details had failed, and I undertook to cure without such minute information, their suspicions were not likely to be lessened. I often had great difficulty in explaining this, and that I had only one remedy and one way of using it, which is all that is necessary, as there is but one cause of disease.

Then, again, they could hardly believe that I, who had myself been so long a victim to disease, and who had been so often deceived—I, too, a nurseryman and florist, could have discovered a remedy which thousands of physicians and men of science had been looking for in vain. It perhaps seemed strange. There were men engaged in scientific studies, devoting their lives to the treatment of disease, to the examination of remedies, aided with money, power, and protection from the law, with all the resources possible in this world to such kind of research, and they had failed; while I, a plain man, from a so-called backwoods country, without any such advantages, with very little money, and without any protection, had been able to start a discovery of my own which would revolutionize medical science, upturn all old theories, stop the processes of deception, enlighten the people on matters most important to themselves, and all by a simple and efficacious cure. This was done by simply putting natural proofs before the public, so that they could not fail to believe what they saw, in place of going out of my way to describe some evil spirit that I had not seen. I had raised a foundation that no power in the world can break down, and the reader who will follow me to the end will see that I have been able to ward off all kinds of attacks, some of them of the most infamous and malicious character, absolutely untruthful, and based upon ignorance where they were not inspired

by the worst motives. I have defeated such attacks invariably, and with the help of the public whom I shall have enlightened I can go on and beat down all opposition, whether it comes from a want of knowledge or from evil minds and jealousy. My army of friends, patients, and supporters is growing day by day, and there are hundreds, nay thousands, of physicians assisting me in the exposure of medical science as it is taught in the schools and practised in the hospitals and medical colleges.

It was at Austin, Texas, my own home, that the people first enabled me to introduce this medicine throughout the broad land of America, and they did so because they saw I cured the people who came to me. Many of them had influential friends elsewhere in the United States, and they sent to them accounts of the fame of my discovery. Frequently they forwarded medicine at the same time to persons whom they knew to be in need of treatment, and often my circulars went with it. The only publication I had at that time was a small four-page print, and it brought me hundreds of people who benefited by the treatment and then themselves advertised the wonderful powers of my discovery. But my business grew so rapidly, and so earnest a desire was evinced to know more about my medicine, that I soon found it necessary to enlarge my publications, and what was at first but four small pages grew in two years to a large octavo pamphlet of fifty pages. This contains in not the least valuable portion a number of testimonials from persons who have been cured by my treatment, and they are unimpeachable.

Still the public curiosity was not satisfied. Intense interest was very naturally felt in the discovery, which was recognized as something not only wonderful in its effects, but evidently calculated to bring about a sweeping reform in the management of disease and in the methods of medical men. Further than that, I had in self-defence to protect myself against the machinations of unprincipled people, and for that there seemed to be

nothing better than to take the public into my confidence as fully as possible. Hence the reason for my preparing this book, which is an emanation simply of my own brain, with a statement of my own thoughts and experiences. It is original. I am not indebted to any other books for ideas or opinions, nor to any hearsay evidence upon the topics touched upon. It is my own property, the result of my own hard work, and I hope that it will be respected as such and that no one will steal or pilfer its contents.

There is no permission from me to anybody to use my writings; whoever takes them steals, and when the thief is caught justice and the law shall be meted out to him.

Almost from the first the cures I made with my medicine were reported far and wide. The reputation of my discovery spread rapidly. Many who had been under physicians' care took it and found themselves benefited as they never had been before. Others had recourse to it as soon as they felt themselves sick, and they were relieved so readily and satisfactorily that they had no occasion to apply to a doctor at all. It was therefore quite natural and not at all to be wondered at that physicians should begin to take an interest in it. They wanted to learn something about a discovery which was thus so materially affecting their interests. But before learning anything they condemned it. Their plan was to hang their man first and try him after. All that they knew about the microbe-killer when they first abused it was that it was interfering with their business. They began by telling the most wonderful stories about it. They described to their female patients what a terrible thing it was, and that, if they took it, it would in a short time burn up the coating of the stomach, producing incurable disease and ultimately death. But while painting this alarming picture they saw that, like all such things, it would have its day and then die out. They gave it twelve months in which to disappear and be heard of no more.

I heard all this, and it amused me, the more so be-

cause I found that some of the doctors who so energetically condemned it were using it themselves. Life is sweet, and while there is life there is hope. *Ægroto dum anima spes est.* So the sick doctors, when their own medicine failed them, had enough hope left to try mine, and they got well. But they would not give me credit for it. They were afraid, because every sick man cured by me was so much loss to them. So they went on abusing me and at the same time seeking my help. How could I avoid laughing at such a scene?

The demand continued to increase. It grew beyond my ability to meet it, and I was forced into making arrangements for meeting the requirements of what had now become a most successful business. This indicates the success that has fallen to me, and the appreciation which the public have bestowed upon my remedy; for people are not slow to determine the merits of something that is what it is represented to be, and there are none of us of sane mind who do not set good health as higher in value than gold.

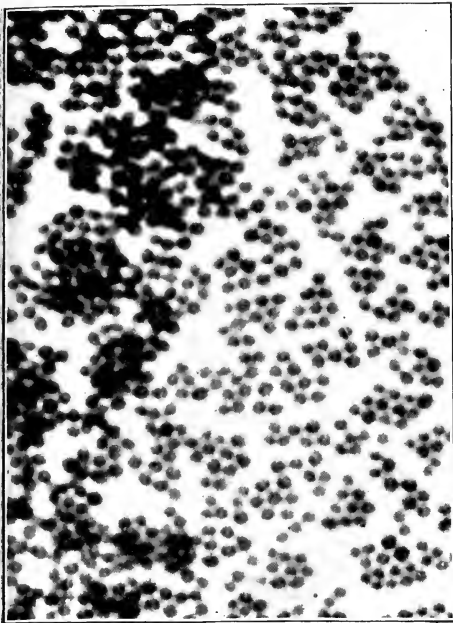
CHAPTER VII.

FAILURE OF MEDICAL SCIENCE.

WHY medicine fails to cure disease is a proposition that we have all, at some time or other, probably asked ourselves. It is an important problem, and one that should be solved. But, at the outset, I am reminded of a question which, it is said, was once proposed to the Roman senators: "Why does a pail of water with a fish swimming in it weigh no more than the same pail of water without the fish?" It is said that a long discussion took place over this, and that various explanations were suggested, until some one fell back on experiment, and then it was discovered that the water with the fish in it did weigh more.

So, in the question, why does medicine fail to cure disease? I may be required to show first that it does fail. I have no objection to this; on the contrary, it is a logical and a proper way to proceed, clearing as we go. At the same time the too frequent failure of medicine as a science must be evident to every observer. We have no right to ask that the doctors shall cure under all circumstances and all conditions. But we all know quite well that medicine fails when we are justified in looking for success. Physicians themselves are aware that, while their best talent and abilities may be given to a patient, he nevertheless dies, and often they live to look back upon the case with regrets that, with increased knowledge of Nature, a different result might have been attained.

All medicines that are employed to-day, whether inorganic or organic, should be antiseptics—that is, agents capable of preventing fermentation. Now, there are many such in use by the medical profession, and in



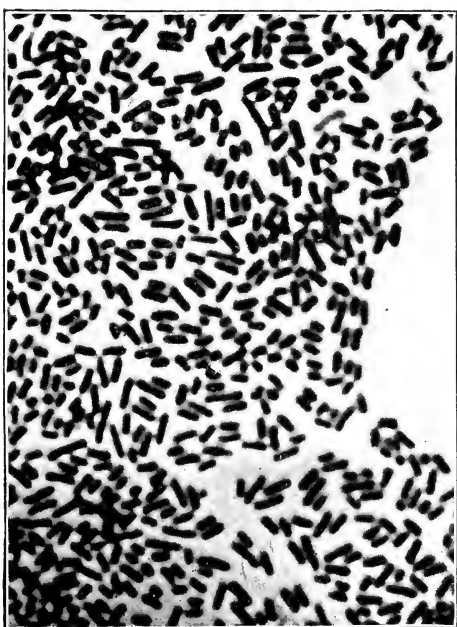
33. MICROCOCCUS BERI-BERI FLAVUS.
(A SCROFULOUS DISEASE IN INDIA.)
x 2500. Photomicrograph by Wm. Radam.



34. BACILLUS OF LEPROSY.
(IN SECTION OF SKIN.)
x 1500. Photomicrograph by Wm. Radam.



35. STREPTOCOCCUS ERYSIPELATIS.
(OF ERYSIPELAS.)
x 1000. Photomicrograph by Wm. Radam.



36. BACILLUS DIPHThERIE (Loeffler).
x 2500. Photomicrograph by W. Radam.



order that there shall be no misunderstanding I will advert to one or two of the most characteristic. First of all is bichloride of mercury, an agent so powerful that it can only be administered internally in minute doses, and which even then, and with the closest watching, produces poisonous effects.

Salicylic acid is also an antiseptic, but serious consequences have sometimes followed its use. The poisonous qualities of carbolic acid are well known. It is one of the most powerful corrosive poisons known, and yet druggists distribute it freely and will sell it to anybody who asks for it. A case is recorded by Dr. Billroth, of Vienna, where a patient lost four fingers by gangrene produced through the application of carbolic acid to a trifling wound. Its effects are very rapid. A marine hospital steward swallowed a small quantity by mistake, and was dead within three minutes; and a case is mentioned in Philadelphia where a man entered a drug store, purchased a very small quantity of the strong acid, drank it, and was dead before he could leave the store. Moreover, carbolic acid is not as powerful a germicide as some other things in use by the profession.

Permanganate of potash is so active that one grain in twenty-four hours is a full dose. Iodoform, nitrate of silver (common caustic), are also in use, and arsenic is a favorite antiseptic. Two grains of arsenious acid have proved fatal, and a fourth of a grain may produce poisonous symptoms. Arsenic is the basis of many quack preparations and forms the active agent in complexion wafers, cancer plasters and ointments, and of many compounds that are sold in unlimited quantities in the stores and by advertising adventurers. It is an accumulative poison. Its effects may not be injuriously apparent until it has been used for some time, and they then appear in full severity, producing symptoms not unlike Asiatic cholera, only with more pain. Thirst is intense, consciousness usually remains to the last, but not always, and convulsions, tetanus, and severe vomiting often precede a state of collapse and death.

Besides the injurious effects produced upon the tissues and the system generally, even where no seriously poisonous results follow, many of these poisons are injurious to the teeth and to the appearance of the skin—another fact which should militate against their use. All are antiseptics of more or less power, but what is wanted is an antiseptic that can do no injury to the patient, but which shall at the same time be effectual and of such a nature that it may be taken in large quantities, so as to thoroughly saturate the tissues. It must be capable of absorption, so that it will enter the blood. It must be adapted to check, for instance, such damage to the blood corpuscles as I previously explained to have been observed in malaria, where the microbe acts directly upon the vital fluid and destroys the corpuscles by attaching itself to them and absorbing them, as it were, into itself. It must be fitted to take part in the circulation without poisonous effects, and yet to be so destructive of microbe life that it will at once destroy it, and in that way free the system of all germs of disease.

Physicians have never yet discovered any drug that is as harmless as water and yet as powerful, in the right way, as any of those agents I have mentioned from among the list of poisons. They can have no such medicine, for if they had they could cure disease, and that they certainly cannot do, for persons die long before they get old, and they should not do that if the diseases to which they are subject are curable. I have tested most of the drugs in general use, with a view to ascertain whether they have any real power over the existence of micro-organisms independently of other properties, because a drug may be a very powerful poison and still not be an antiseptic ; and I have found that not one-half of the agents mentioned in medical works, or of the formulas recommended from time to time in medical periodicals, have any antiseptic properties at all. In a large number of instances the whiskey or alcohol used in the manufacture of tinctures and other preparations plays the most important part, and it is used, in fact, itself as

an antiseptic to preserve the drug from fermentation—in other words, to destroy or keep away fungi and microbes. This is of the utmost importance, since a drug that is in the process of fermentation is no medicine. It has no curative properties. The more of it that passes into the stomach the more fermentation goes on in the system, and disease is rather increased than diminished. But if you can find a preparation that does not ferment, and which you can take into the stomach in large quantities and continuously for weeks and months, so that the blood and the whole system become saturated with it, then you have a good medicine and one in which you may place full confidence. But, as I said before, you may go over the whole Pharmacopœia, and examine the catalogues of drugs that are in use or for sale, and you will not find one that fills these requirements.

My inquiries into Nature's processes, and into the remedies in use for treatment of disease in both plants and animals, have not been superficial. I have gone into them deeply. My studies have not been restricted, and I have exercised my thoughts carefully, so that I feel that I can enter into Nature's mysteries understandingly and to some practical purpose.

It is acknowledged by its disciples that medical science has made great progress during the past half-century, and that it is still advancing year by year. This shows at least that it is not an exact science, that is, not perfect, but that new discoveries can be made, changes can be effected, and, possibly, what is now considered excellent may ere long be discarded in practice for something that is at present unknown, or at any rate unaccepted. It follows, therefore, that, if the door for improvement be open, nobody should be precluded from entering because he happens not to be a graduate of a medical college.

No day passes but illustrations occur everywhere of the fact that medicine fails to cure, and that, too, where failure should be impossible. The reason of this is what I propose to elucidate, and, in order to do it, it is of

little use to theorize. We must discover facts; we must look at the matter in a practical way, and endeavor to deal with it so that it can be readily understood by any one who wants something more than a string of technicalities.

The reader has probably indulged in the perusal of medical books which tell him how to cure himself. Most of the books which attempt to popularize these subjects are pernicious. They give symptoms and remedies. They draw the usual differences between ailments, and define particular remedies for each. People who read them are prone to imagine themselves afflicted with symptoms that they see described, and many get up from their perusal convinced that they have cancer or Bright's disease, or consumption, or heart trouble, when in truth they have nothing whatever the matter with them, or, at most, a disordered stomach.

From my point of view they are yet more pernicious, being bad not only in their consequences, but in their principles. For the position I take is entirely at variance with that which the advice of the usual family physician supports. My discovery, as may be gleaned from what I have already said, is entirely different from anything that has ever been introduced from the beginning to the present day for the purpose of curing disease. My proposition is simple, but it comes from study and observation of Nature. I have found that all disease may be concentrated under one head. It may assume different forms in different persons. It may be known, for instance, as fever in one, pneumonia in another, diphtheria in a third, cholera or diarrhoea in a fourth, and so on. But the differences which give rise to the necessity for using such names are merely details. There is, in truth, but one disease. It develops in various ways. It produces different symptoms, all of which are dependent upon conditions, some of which may readily be defined. But, in the first instance, disease is uniform. And just as there is actually but one disease, so there is but one cause of disease, and that may be

limited in the common acceptation of the one word "decay." But what is decay? The visible result of fermentation. And what is fermentation? The phenomena produced in organic matter by the action of microbes.

In this consideration, and for all practical purposes, it is quite immaterial to know the peculiarity of the microbe that we find in any particular instance. It may be interesting to the close observer to watch the forms and mode of evolution of these little creatures, and it may be satisfactory so to differentiate their forms and habits as to be able to classify and to name them. But this does not affect the mode of cure. A microbe is a microbe. The same treatment affects them, the same curative agent kills them, whatever their form or whatever be the effects which they produce. The only difference that we notice is in regard to time, some ailments being more readily reached than others.

It is not of so much consequence to the farmer to know what weeds are in his cornfield, as it is to learn the best means of cutting them down and keeping them out of his crops. He need not be a botanist. He does not require to know the natural order and the generic and specific names of a plant before he puts the hoe to it; nor does he pause to learn the construction of its fibres and the character of its cells. He merely recognizes it as a noxious plant, and he destroys it. Neither is it of much consequence to him to know that weeds are not all alike. It is enough to be sure that they are weeds, and he applies the same remedy to get them out of the way. If his crops look yellow, or show evidences of rust and disease, he does not go to his study, to his microscope and his books, in order to satisfy himself what sort of microbe or fungus it is that is endangering his property, but he goes to work in a practical manner to cure the disease and to rid himself of the pest. It is not necessary to learn the particular character of the fungi that he sees on his plants, his fences, his timber, or his house; all he wants is to be convinced that they are there and that they are injurious, and he immediately

tries to find out and to apply the remedy for their destruction.

Let me not be misunderstood. I have not a word against scientific investigation. I understand too well its value. I would not disparage the spirit which leads to a close examination of the minutest of Nature's works. On the contrary, I am interested in their description. I prize the work which shows me their distinctive peculiarities of structure, form, size, properties, mode of existence and development; and I appreciate the patience and the skill of those who pursue such a course of investigation, and are capable of arranging for scientific purposes these most wonderful organisms. But, at the same time, I hold that, for purposes of curing only the diseases to which the human body is subject, it is not necessary that we should know the form, size, development, and classification of the microbes that produce disease. There may be one or a dozen, each producing its own symptoms or affecting different parts. You do not stop to examine them and give them their place in the lists of science; you only ask how to get rid of them, how to restore the health and preserve the body from their depredations. To delay for the sake of diagnosis is simply to waste valuable time. It is one of the errors of so-called scientific medicine, and should have nothing to do with the cure. The thing of all importance is the remedy. I am acquainted with a large number of various forms of disease germs, but I do not know all, and I could never learn to know them, because the microorganisms hybridize and produce new forms, and, of course, each one exhibits some different characteristics in habit and results, while they have their special pabulum, some being found in plants or animals and others in man. This I purpose to demonstrate by practical evidence derived from observation of Nature, and I shall certainly be able to sustain the truth of my position. So much has been written which cannot be proved, so many promises are made which cannot be kept, and in various ways the people are held so much in ignorance

of things which they ought to know, that their confidence is weakened in all. They have been blindfolded and led astray so often that they distrust everybody who offers to enlighten and lead them, however much he knows himself to be in the right. But facts should convince, and I think I can in every instance produce facts to prove all that I claim.

I wish this to be distinctly understood. I set no value on theory. My studies have been practical. The groundwork of my discoveries is in observation of Nature. I say nothing which I cannot prove, nothing which is not appreciable to the senses. I rely entirely upon facts to sustain the value of what I have done. I do not claim that the field I have wrought in is untrodden. Thousands of investigators and of the brightest intellects in the world are at work in it. The problem of how to stop fermentation, to destroy fungi, and to prevent the appearance and neutralize the development and operation of microbes is being well handled, but the solution is here.

We paint our houses not only because they look better painted, but because this process preserves them from decay. The paint checks or stops the development of micro-organisms which find their favorite resting place in wood, brick, or stone, and the best material of that kind is the one which most certainly produces such result. The painter or builder does not stop to inquire the nature of the fungus that threatens him. He does not trouble himself about a scientific investigation. He knows that there is a danger to be met. He knows how to meet it. He understands the remedy to be applied, and he applies it. He is also well aware that the oftener he applies it, and the more effective he makes the application, the better will he preserve his property. One coat of paint is useful, but several are necessary. The matter requires constant attention. The steady repetition of the remedy alone secures all the advantage and makes the protection perfect.

On the same principle upon which tar and creosote

are applied to timber do we submit meat to the effects of wood smoke. This permeates the substance, kills microbes, and of course prevents their development. It would indeed be easy to cite thousands of cases where applications of a more or less poisonous character are used, which would kill not only microbes but every living thing, whether animal or vegetable. The embalming of bodies, now so fashionable, is nothing more than a use of poisonous solutions calculated to prevent the process of decomposition or fermentation, and many of the so-called remedies used by physicians to treat disease are likewise of a highly poisonous character. Sometimes what seem to be simple and harmless remedies are not so. An Italian physician has recently suggested the use of sulphur in the treatment of typhoid fever, but in enormous doses frequently repeated. He would also cover the patient and the bedclothes with sulphur, and, to the ordinary reader, this may seem a very innocent remedy. But chemical changes take place, and the well-known yellow powder is converted into very energetic compounds, and it then becomes a question whether the microbes or the patient will die first. That is all. Again, many of the compounds advertised for popular application are extremely dangerous, and too much caution cannot be exercised in their use, though people who are wise will leave such things alone altogether and fall back upon those only which are known not to be injurious.

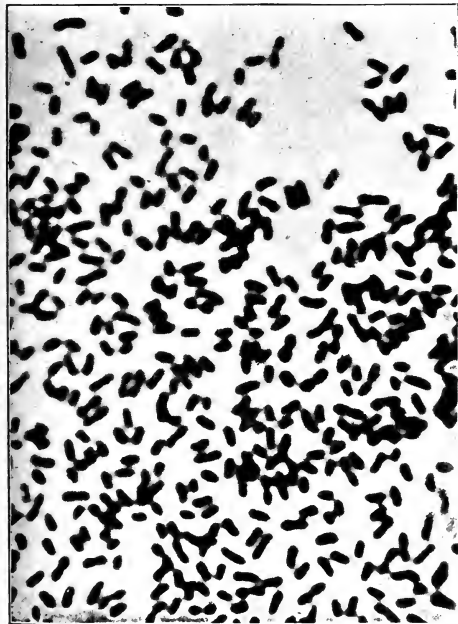
The pharmacist may look with pride upon his well-filled shelves, where arsenic and corrosive sublimate stand side by side with morphia, carbolic acid, laudanum, nux vomica, chloral, creosote, chloroform, and a host of similar preparations, all of which are used by physicians to kill microbes, or, as they say, to cure disease. And these things do kill microbes, but not until the blood and the tissues are saturated with them, and then the effect is not for a day but forever. No one denies that we can kill microbes in the human system by soaking the body with poisonous substances, just as



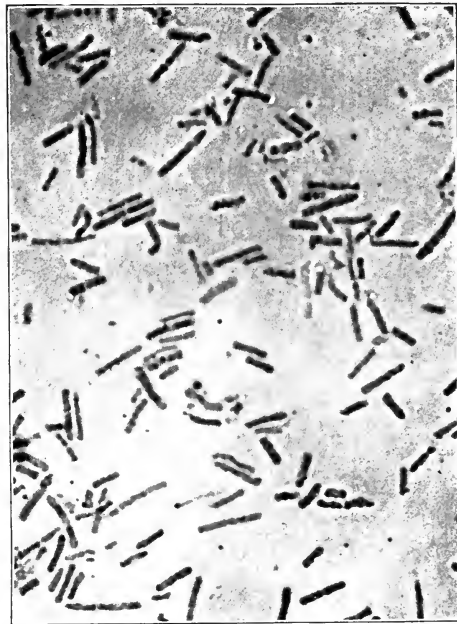
37. BACILLUS TUSSIS CONVULSIVÆ.
 (SPASM—KRAEMPFE.)
 x 1000. Photomicrograph by Wm. Radam.



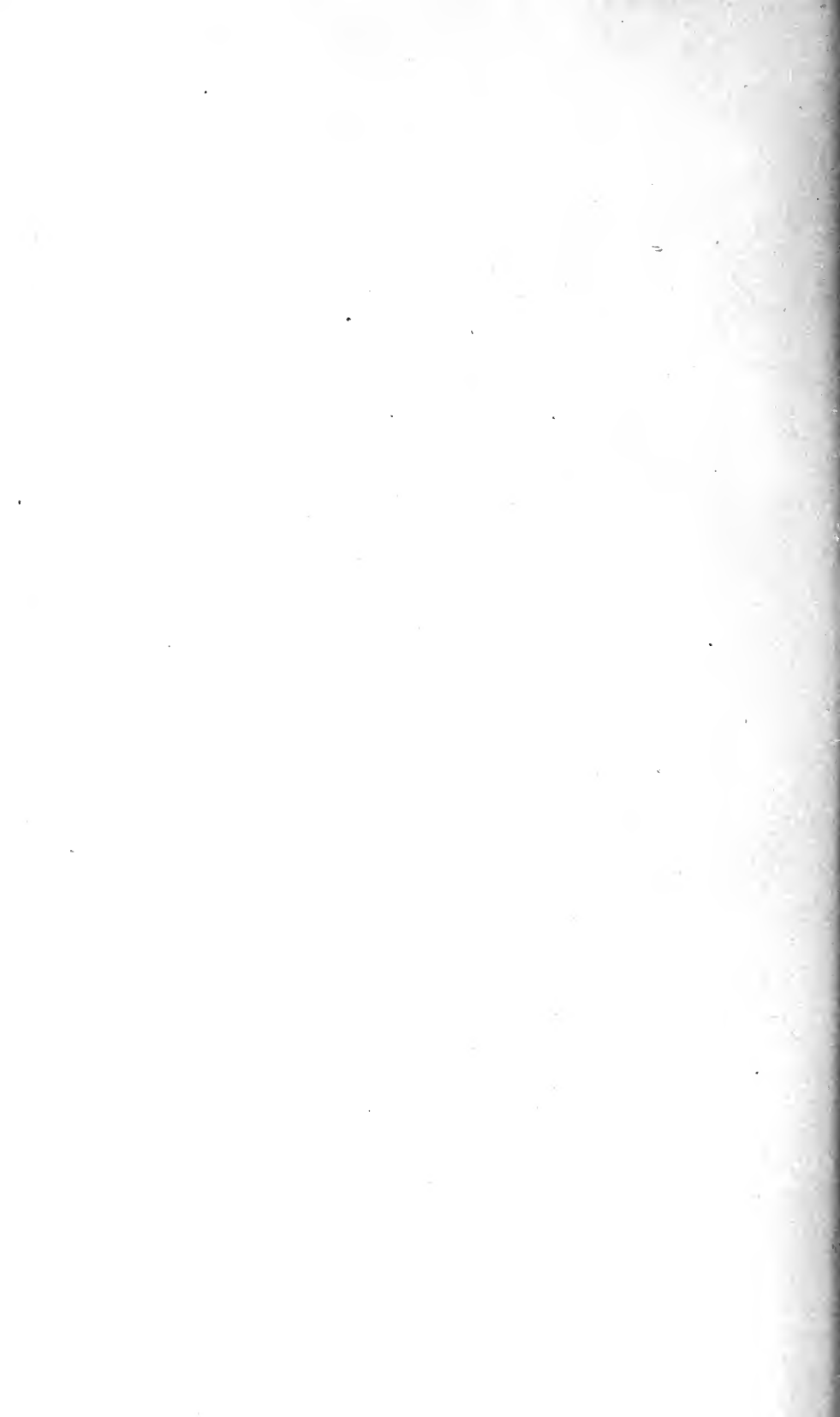
38. BACILLUS NEAPOLITANUS
 (Emerick).
 (FOUND IN CHOLERA INFANTUM.)
 x 2500. Photomicrograph by Wm. Radam.



39. BACILLUS ENDOCARDITIDIS
GRISEUS.
 (ENDOCARDITIS.)
 x 1500. Photomicrograph by Wm. Radam.



40. BACILLUS BUTYRICUS.
 (OF RANCID BUTTER.)
 x 1000. Photomicrograph by Wm. Radam.



the embalmer attains a similar end by similar means, but it is at the cost of the patient's life. The body may be filled throughout—the blood, bones, muscles, nerves, all the tissues, may be filled with a poisonous antiseptic, just as the railroad tie may be permeated with creosote, and assuredly the microbes will be killed and their propagation will be rendered impossible, but the body will be killed, too. And, on the other hand, if the railroad tie be not thoroughly soaked it will not be preserved, while the body, if not effectually saturated with poison, will not be freed from microbes, and consequently will not be put out of danger. That is the dilemma in which any person is who places himself at the mercy of medical science as it is practised. The remedy is worse than the disease. If he does not die of the one he does of the other, or if he gets well it is because his system was superior to both. The only escape that he has is to find something which, while it effectually destroys microbes and prevents fermentation, does not act injuriously upon the bodily organization. It is useless to take a small quantity of a poison which is insufficient to kill the microbe, and it is fatal to take a larger amount, which, while staying the disease, is itself destructive.

I have no fear that the many able, learned, and progressive men that the medical profession numbers among its members will read these strictures as applying to them. I have no contention with physicians, many of whom are my most favorable critics, but I war against bad methods and false principles.

CHAPTER VIII.

HISTORY OF MY DISCOVERY.

I WILL now go back to the first few months while my discovery was before the public. This will necessitate the narration of several interesting incidents which have taken place in the interval.

It will readily be understood that my correspondence has been large. For some time I was in direct personal communication with my patients. They would write me full particulars with all details of their complaints as far as they could give them, and all such letters I replied to personally, giving advice as to the best way to use the remedy and all necessary instructions. But people soon acquired confidence. They soon learned what to do. The reputation of the medicine spread, and people ordered it without writing any particulars or asking any information. In this way thousands of people have availed themselves of it, but of whose maladies I know nothing. The information that came to me was surprising, but it is not necessary to detail it here. Where full statements were given I learned the varieties of the disease that doctors described, the effects of climate, the quantity of medicine that had been swallowed, and the large sums of money spent in fees and drugs which had entirely failed to do any good.

I had letters containing pitiful stories of distress and misery quite unalleviated by the medicines prescribed, and many wrote me who said that they were bedridden ; others, that they were nearly helpless and unable to move ; and others, again, whose powers to work and earn their living had been terribly interfered with. I was at times amazed at the revelations put before me, and found in all an indorsement of the results of my own

experiments and a further proof that the doctors ignore Nature's teachings and work in ignorance and darkness. When a patient came to me or wrote me for advice, I always explained to him his situation, describing the action of microbes, and how, when thoroughly in control of the human system, they produce a general condition of fermentation and rottenness. I let him always understand that a total renovation was necessary, that the purification of the blood must be complete, that no microbes or causes for fermentation must be left behind. This was an absolute necessity ; and then it would have to be seen how much healthy portion remained. The whole treatment was different from anything they had been accustomed to, and my advice may sometimes have opened their eyes and given them new ideas ; but I can conscientiously and truthfully say that in every instance where my counsel was listened to and my instructions were followed a cure was effected, no matter what name the doctors may have given to the complaint. Where advice was not followed, when the patient went by his own judgment and rejected the rules laid down for him, the treatment was not entirely successful, and I never expected that it would be.

I treated all my patients with the same medicine, just as in my garden I would treat all weeds alike. There are endless varieties of weeds, a very large number of which are familiar to me by name, but that would not cause me to pause about their extermination or the method of effecting it. What matters it what the scientific name of a weed may be ? So long as it is a weed, that suffices. It is swept away. We do not adopt one method of removal for one kind, and another for another. It may be interesting to the botanist to classify his plants, to name them and describe them, but that kind of knowledge is of only secondary moment to the practical gardener, who wants to see the most vigorous health and growth among things that are his special care.

Suppose a gardener were to see one of his flower-beds

overrun with weeds of various descriptions, and were to tell his assistant first to classify those weeds, then to pull up one kind, afterward to cut off another, and so on. By the time the work was accomplished the flowers would be smothered to death, and new weeds would be coming up where the first had been removed.

So it is with disease in the human body. We are not to waste time and endanger the patient's health by trifling about special symptoms. We know the person is sick. We know the cause of his sickness; let us, then, remove that cause, and the person will be well. If we choose to talk among ourselves about his symptoms, that will not harm anybody, but we have no right to endanger a patient's life or to delay his cure. Did you ever go into a hospital when a leading physician is going around the wards? A new patient may have come in whose case particularly interests him. He will stop at the bedside of that patient, and, although the poor fellow may be too sick to rise or turn, he will spend half an hour pounding and thumping him, listening to his heart and his lungs, and going through a tedious ceremony, simply to try and diagnose some minute points which have nothing whatever to do with the cure or with the mode of treatment that the disease calls for. It looks scientific. It tends to surround the doctor's calling with a halo of mystery. It deceives the patient and the public. It keeps them in ignorance. It hides from them the true simplicity of medicine and disease, and leads them to suppose that there can be no chance for them in this world or the next if they attempt to cure themselves without a physician's aid. Diagnosing disease is simply blindfolding the public, but physicians dare not acknowledge it, for if they did their glorious work would be undone, their services would not be needed, and they would have to fall back upon other occupations.

I have ever been a close observer of human nature and of the world, and I have seen a great deal of it; but never till my discovery came before the public was I

aware of the numberless tricks and devices that are used to deceive and take advantage of the sick. There seems to be something very heartless in a system which enables any set of men to avail themselves of the time when a person is suffering, and perhaps in despair, to prey upon his credulities in order to draw money from his purse. Many physicians are more regardful of their own honor and the people's rights, and when they waste time in diagnosis it is done in ignorance. They believe they are enlightening themselves and serving their patient, not knowing that all the trouble they take is unnecessary.

While expressing this opinion, I cannot be blind to the spirit of charity which abounds in the medical profession, whose members certainly do more for their fellow-men, without thought or hope of reward, than any people who depend upon their own efforts for their livelihood. People owe more to the physician than they acknowledge or perhaps realize. Nevertheless medical science is imperfect, medical ethics are obstructive, and medical men, even when acting up to the fullest requirements of their profession, are too often in a rut that leads them to error and militates against the best interests of the sick.

There is much evidence at hand of the value of my discovery. It may not be necessary. I have probably adduced enough already to satisfy my readers, but I wish to make this work as complete and as thorough as possible. I must therefore cover the whole ground, in justice both to myself and to the public. I have already mentioned that some of the doctors foretold how my discovery would go the way of quack medicines, by which they meant that in a few months it would be forgotten. The present state of my business, the facts that there are many factories engaged in making the microbe-killer, that it is already established throughout the United States and is being sought after in Europe, in other parts of the great American continent, and in Australia, all go to show what false prophets those doctors

were. In place of going the way of worthless quack medicines, the microbe-killer has become an essential in thousands of homes, and it has cured thousands of people also whom the doctors had failed to relieve. It has risen rapidly into public favor.

Every one who has been cured by it recommends it, and so the microbe-killer goes over the world on its merits. Its success has demonstrated its merits, and it has shown also that it supplied a want, that people's confidence in medical science was failing, that they were ready to grasp at something that promised to enlighten them and cure them.

Other physicians treated the matter less lightly. Instead of ostensibly regarding it as of no importance and soon to perish for want of support, they cautioned their patients against it. Some said boldly that it was dangerous, that it would destroy the tissues and intensify disease instead of mitigating it. In reply to such imaginings people came forward who had been cured, and others mentioned the names of friends who had likewise been cured. Of course there was no getting over facts like that, so then the doctors took other ground. They acknowledged that possibly it might have some beneficial effects in diseases produced by microbes, but that it would be absolutely worthless and even dangerous in such diseases as are not caused by microbes. When I heard this I offered to give my check for one hundred dollars to any one who would name a disease that is not caused by microbes, and who could prove his position. The offer has not yet been accepted, and it still remains open. Here is a chance for some of the young students at our medical schools and colleges, to any one of whom I shall be most happy to render that amount of pecuniary assistance if he will earn it by complying with the conditions. His discovery would immortalize him. He might carry his piece of parchment out into the world with the fame of having been a successful explorer in a region where others had groped in darkness. He would have made a discovery that never has been made, de-

spite all the knowledge of human ills and all the science of which the medical profession claims to have a monopoly.

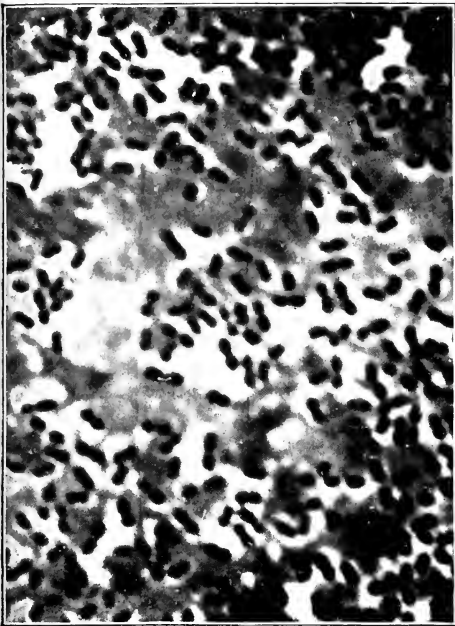
Those persons who have followed me through the preceding pages will see readily why the reward has never been called for. Disease is fermentation, and fermentation without microbes is impossible. Therefore disease must be accompanied by microbes. You cannot have an effect without a cause, and where a particular effect can be produced only by one cause it is at once apparent what that cause must be. Nothing is easier than to talk and to say what is and what is not, but talking is of no value in an assertion without proof, and directly we come down to proof my position is impregnable. The few doctors who say that disease can exist without microbes are either ignorant or guilty of wilful deception, and they show their weakness by refusing my offer. When a disease has been years in the system it has become almost a part of it. Indeed, there are instances where an old complaint having been apparently removed, another, in a different form, makes its appearance, showing that an abnormal condition has become so much a part of the being as to be rendered almost normal. In a chronic disease the entire body is more or less involved. But when the trouble has been of short duration only, it may be but local; or, if not, it certainly has not acquired the same hold upon the constitution. It is therefore very clear why a chronic disease requires greater patience and more steady perseverance if we would remove it entirely.

The example of the weeds in the garden illustrates this again. Where they are few and of but short duration they yield readily to our efforts for their removal, but when they have seeded through several seasons they resemble a chronic disease in man, and are more difficult to deal with and require a longer time. Then note the effect of weeds, and our illustration goes further. Observe a field of corn where the land is clean and in good order, and compare it with the adjoining field, where,

although the land may be of the same nature, it is covered with weeds. In the one the corn is strong and vigorous, the stalks and leaves are clean, and the plants show every indication of thriving. In the other the stalks are small and slender, the leaves are sickly and pale in color, and in every probability there is evidence of fungus having attacked it. This, if left to itself, feeds upon the unthrifty plants, and soon they die for want of air and sustenance, crowded out of existence by a host of enemies that followed quickly on the impoverished condition caused by the weeds surrounding them. So in the case of a person suffering from chronic disease. He has something that, like the weeds, impoverishes the soil, feeds on his life blood, and gradually drags him down to death. Then where a neglected cornfield is cleaned and the weeds removed you may have observed how it looks shocked; it has an appearance as though it were going to die, and continues so until it gets a start. Then, there being nothing around it to draw nourishment away from the soil or to deprive it of the vivifying effects of the air, it grows thicker and stronger, blossoms, bears fruit, perfects its seed, and, having fulfilled its mission, it dies of old age.

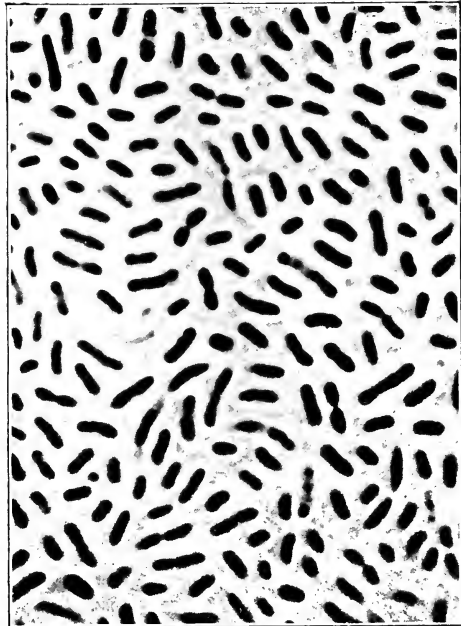
It is necessary I should mention these things in order to carry conviction to the mind of the great public concerning the methods of Nature in working out her laws. I want to enlighten the public, to teach them that things which they have hitherto felt to be complicated and difficult to understand are simple and quite within the comprehension of all.

The discovery is an unusual one. It involves so much that people have a just claim to insist upon complete conviction. They are right in demanding absolute proof. The risk is too great to justify any one being satisfied with a mere assertion. When anybody is sick he does not want to experiment with himself, or to be experimented on by others; he wants to be cured. He must find something that is useful, not something that will probably prove ineffectual and which may be inju-



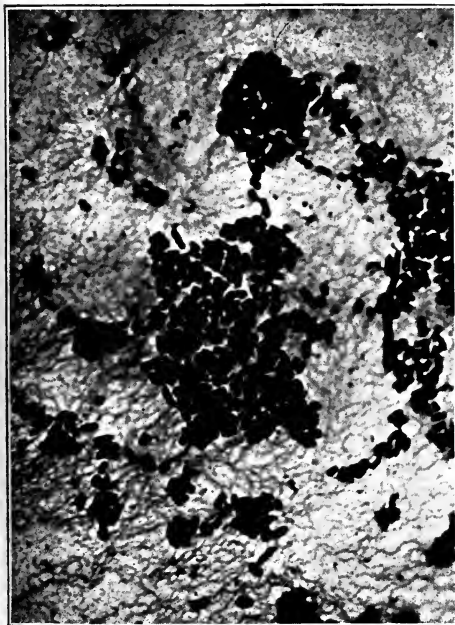
41. DIPLOCOCCUS PNEUMONIE
(Fraenkel's.)
(OF PNEUMONIA.)

x 2500. Photomicrograph by Wm. Radam.



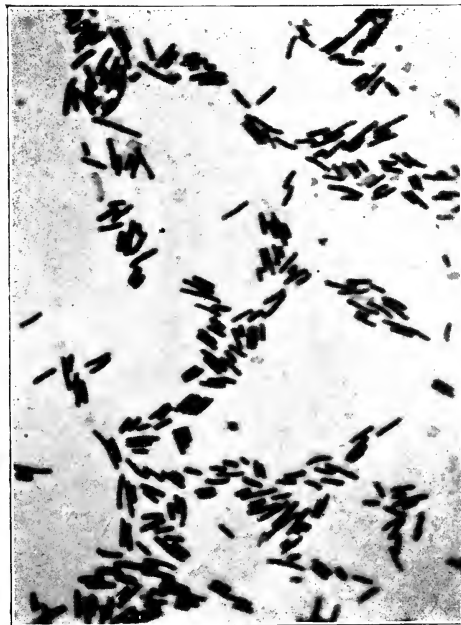
42. PNEUMOCOCCUS (Friedlander's).
(OF PNEUMONIA.)

x 2500. Photomicrograph by Wm. Radam.



43. BACILLUS TYPHI ABDOMINALIS.
(OF TYPHOID FEVER—SHOWS FLAGELLA.)

x 2500. Photomicrograph by Wm. Radam.

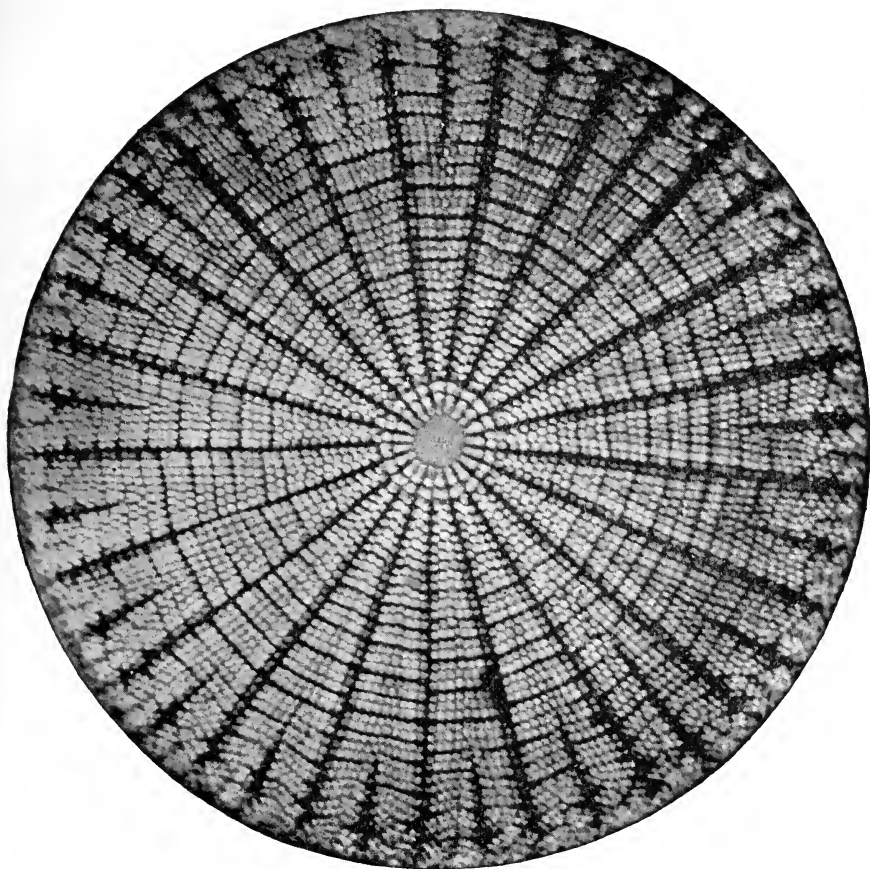


44. BACILLUS TYPHI ABDOMINALIS.
(OF TYPHOID FEVER.)

x 1000. Photomicrograph by Wm. Radam.



rious. I offer to cure all diseases with but one remedy, and to stop children dying of disease—for of course I cannot prevent accidents—in all cases that are taken in time and where my instructions are faithfully followed. This is undertaking a great deal, and it would be worse than an error on my part to make it unless I knew that I could carry it out. I have this certainty. It is no supposition, no theory. I have the experience and the proof, and I wish every one to convince himself as fully as may be necessary.



CHAPTER IX.

HOW DISEASE CAN BE CURED AND LIFE PRESERVED.

No question can be of such importance to humanity as that which deals with the cure of disease and the preservation of human life. I now come to a more detailed discussion of that subject, and can epitomize in a few words the results of years of observation and patient investigation. Use the microbe-killer as a preventive and as a cure; read this book from the beginning to the end, and your common sense will tell you what disease is and what the remedy must be to cure it.

I have sufficiently explained that disease is fermentation caused by microbes. I have also shown that no remedy has been discovered that will stop fermentation in the human body without killing the patient, except the microbe-killer. I have described a test that anybody can make, which proves that the microbe-killer is an antiseptic, and it also shows that it is harmless. Both of these have been substantiated in open court by many witnesses. Whoever reads this book carefully will see at once that the microbe-killer cannot be classed with drugs or medicines now in use. Medicines do not stop fermentation, but the microbe-killer does. Any one who is suffering from chronic disease should test his medicines by putting a little piece of raw meat into them. He will soon discover that it ferments, and this demonstrates that microbes grow right in his medicines. No further reason is needed to show why his disease goes on and becomes chronic. If any one cannot understand this fact he has need of sympathy. I am forced to use the plainest language in order to counteract all that scientific nonsense that has been taught to the people for generations—that disease is a mystery and

that the remedy must necessarily be a mystery also. I have received many letters from people suffering from chronic disease, explaining to me that they had lost all faith in medicines because they had tried almost everything—they had consulted the best doctors, changed climates, and spent their money broadcast in useless efforts to be cured or gain relief. Each of these letters described the fruit of medical science.

Then, again, others come to my offices completely drugged and filled with fermentation. These poor creatures tell me that the doctors have said they could do nothing more for them. It is almost impossible to believe that such things can be allowed to go on. I have read and seen so much about quackery that I am disgusted whenever I read those letters or listen to the tales of woe from persons who spend all their money in microbe foods. Not one of those who have written or come to me have thought it necessary to ask his or her physician the most important of all questions, "What is disease?" What causes it? What is the root of all illness? If these questions were asked, common sense would suggest the answer without the use of complicated medical words which are practically meaningless, and at the same time the proper remedy would be suggested.

That people did not know what disease is can be excused, because I did not know it myself. But after I discovered and published it again and again there is no more excuse for being unable to answer those questions or for being afflicted with disease. If any one wants to be humbugged, drugged, and either killed outright or be allowed to die through ignorance, that person or his relatives should not complain. People should demand to know what they buy for their dollar. If a man pretends to cure rheumatism, cancer, consumption, or any other disease, ask him first what causes rheumatism, cancer, or consumption, and if the man is honest he must admit that those diseases are caused by microbes which cause fermentation. Then ask him if his remedy

will stop fermentation. If you do this you get him down to the point. If you test his medicine in the way and manner I have described before you swallow it, you may have learned something which had you not learned would have resulted in an injury to your system.

Should any one dare tell you that rheumatism, cancer, or consumption, or in fact any kind of disease, is not caused by microbes, just tell him that I have offered and still offer one hundred dollars for each and every disease that can be proven not to be caused by microbes, the reward to go to the person or persons making the discovery. Such a man has not been found, nor will any one ever be able to demonstrate that any of the conclusions I have reached in my investigations are untrue or only partially true. I cannot blame the doctors for doctoring the people in a medical and scientific way, nor can I fail to understand that their business demands that they should keep the cause and cure of disease a secret; but I can blame the sick who swallow everything and anything, without knowing what those remedies contain and what they are supposed to do, and why they can or cannot cure them. It is remarkable how people have been humbugged and blindfolded into the belief that symptoms can be cured without removing the cause.

Some have used medicines to cure a cough, fever, nervousness, pain, or other symptoms, without knowing what is the cause of those symptoms. They also have been told that their trouble is in the heart, lungs, kidneys, throat, or any other part of the body, and that, in order to cure the different symptoms in a certain part of the body so diagnosed or guessed, it is necessary to swallow a certain medicine and send that to the very spot diagnosed as diseased.

Now, the human body is not built like a house, full of water pipes, with stop cocks, to lead the water to a certain compartment just where it is wanted. Whatever we eat or drink goes into the stomach, and from there every part of the body is nourished or cured. This

proves that we can never cure a part of the body without curing the whole body, and as the cause of disease is but one, we cure all if we have the right remedy. Just as the sap circulates through every part of a plant, so does the blood circulate in man. All disease is in the blood, for the blood is the life. When that is pure and clean, sickness is impossible. I have written a special article about the blood, which will be found in another part of this book. The photomicrographs I made of blood obtained from sick persons show the microbes in the blood (see Plate III.). There is not a single portion of our body which is not reached by the blood. When the blood is full of clots of microbes, as seen in the photomicrographs, trouble will be felt just where the circulation is interrupted, and that spot will commence to swell, and pain is the result. If we use the microbe-killer externally as a poultice over the painful spot, it will relieve and stop the pain for a time, just as many other lotions or liniments do ; but this is no cure, as disease will again break out. The cure can only be made internally by purifying the blood from all microbes. If a person suffering from any skin disease, for instance, uses the microbe-killer externally only, he will drive away the microbes, to appear again sooner or later, and that is the way of all remedies sold to doctor the people. I say doctoring, for it means healing, or patching up ; for no remedy has been discovered that will cure disease, outside of the microbe-killer, which fact is even admitted by medical scientists. That the profession has curable and incurable diseases is well known. But it is not known by them nor has it ever been explained why some diseases disappear, and others do not but continue until death results.

My study in the great book of Nature enables me to explain any and all questions referring to the cause and cure of diseases, and to shed full light on the subject. I have described the most important questions, including curable and incurable diseases, in a separate article in this book.

Now, every one knows that disease has its beginning before it spreads and grows. If a remedy fails to stop a disease before it develops, how can it stop it after the whole body is full of microbes and fermentation? The many afflicted with chronic diseases who come to our offices are ample proof that no remedy has been discovered that will cure disease. To cure means to stop and not allow it to progress. When a cancer has been cut out or burned out with plasters and has reappeared again, which is always the case, is this not ample proof that the cancer was never cured? And when we have shown by overwhelming testimony that we cure cancer after several operations have been performed, each time cutting out the supposed cancer four or eight inches in diameter, why should not the microbe-killer cure it in the beginning when it is no larger than a pea? Here is something to think about. When consumptives with bodies full of fermentation are cured by the use of the microbe-killer—as has been shown in open court and is daily being proven all over the land—why would this remedy not prevent a person from getting consumption if used at the beginning? Under such circumstances, do I not show that the fault lies with the people alone?

Every disease has a beginning, and if not stopped it goes right on and develops its course. If a man intended to paint his house with chalk or molasses or any non-antiseptic, fermentation would never be arrested and his house would soon rot and break down. The same process goes on in our body. Nature puts something to grow everywhere. If a man wants to raise potatoes he must hoe them to keep the weeds away or the weeds will smother his potatoes. If he wants to preserve his house, wagon, or other structures and implements he must paint them with an antiseptic paint, and if he wants to cure disease, to preserve his body from an early fermentation and decay, he must kill the microbes that cause it. There is no use trying to deceive the people by using scientific tomfoolery and volapük language, because it will not alter the fact that disease is fermentation and

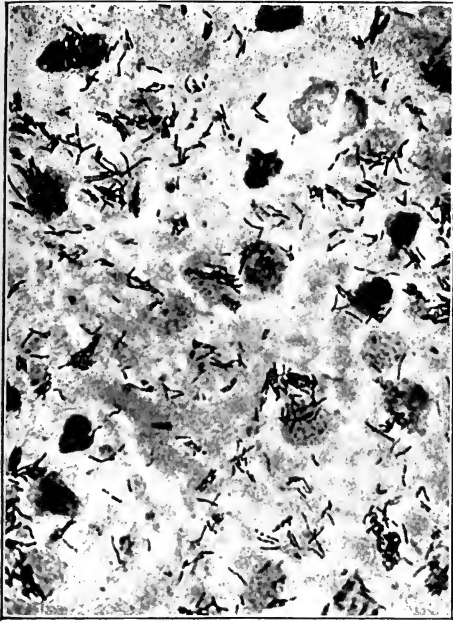
the remedy is to stop it. The microbes are a reality and can be seen, although it may take a microscope. But they are there just the same. If the people could see microbes as they see weeds in their gardens, they would soon see the value of the microbe-killer and thus prevent any disease before it could develop and kill the patient. If the seeds of weeds fall into the garden they will sprout and grow, and, if left unmolested, will shed seeds again, which are finally scattered over the garden to such an extent that many hoeings will be required to exterminate them. The very same process goes on in the human body when it is infected with microbes. They are easily killed and the process of fermentation is soon arrested when the microbe-killer is used at once ; but in chronic diseases of years' standing it will take just as long to get the microbes out of the body as it would to clear a garden full of weeds, because, so long as seed is there to sprout, the hoeing must be kept up.

Many persons have written to me that they have used a few gallons of the microbe-killer, but gave it up because they noticed no improvement. In their letters they state how many years they have doctored and how sick they are now ; that they are affected with the disease all over ; that they are nervous and cannot sleep or eat anything substantial. Now, if these persons would compare their body, full of microbes and fermentation, their stomach lining coated and fermented like the roots on sick plants, and their blood filled with microbes like water full of slime—if they would compare all this to a crop smothered or nearly smothered with weeds, they would have a good illustration of what is necessary and what results may be expected from certain experiments. Now, the microbe-killer is just as reliable in killing microbes as a hoe, in the hands of a proper person, is in killing weeds. If a gardener becomes disgusted and gives up hoeing because he cannot get the weeds out fast enough, for weeds always shed seed again, can he blame the hoe ? Is he not himself to blame for allowing the weeds to grow ?

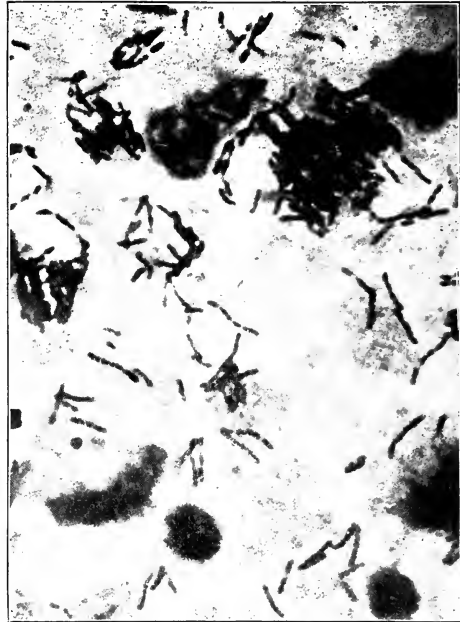
Now, every glassful of microbe-killer kills microbes, just as every stroke of the hoe kills weeds. I have discovered how to test it. A gallon of the microbe-killer kills a great many microbes, but one hundred gallons will kill one hundred times as many. This explains that every gallon of microbe-killer used by the patient has done its work, although he may not feel the benefit until the most of the fermentation is removed and the coatings of the stomach renewed. Then a gradual improvement can be expected. To stop using the microbe-killer when half-cured will have the same result as to stop using the hoe when the ground is still full of seed shed by weeds. Hoeing must be kept up so long as seed is sprouting, and when all microbes in the blood are killed the germs are still there and gradually developing into living microbes to produce fermentation again.

To make the cure successful the patient must use the microbe-killer until every trace of the disease is removed, and by that time his blood, color, and strength improve, and an increase of flesh will soon cause a picture of health.

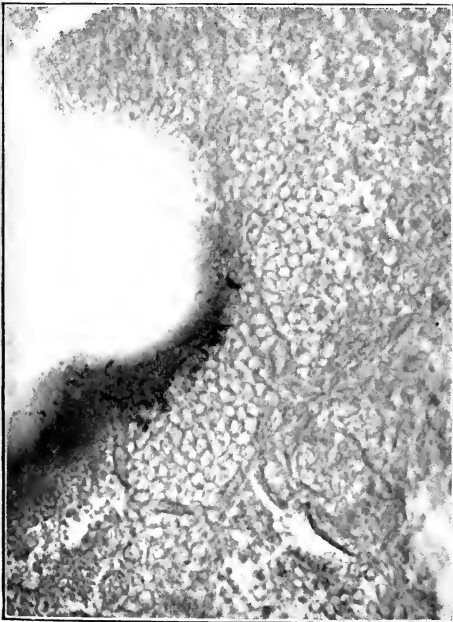
Every person who testified to his cure in the Supreme Court of New York City (extracts of their testimony appear in another chapter) proves that the microbe-killer does for every one what I claim, namely, that it kills microbes and stops fermentation in the human body. That is all I have ever claimed that it did. Whether it can cure a person, that is, destroy the microbes and germs in his body, so that there are no more there, depends entirely upon the patient. If he has power, substance, and, above all, a good stomach that will enable him to eat and build up new tissues, then he can be cured. When a house is rotten the best paint cannot save it, but the same paint will stop the fermentation if the house is only partially rotted, and entirely prevent it if applied before the rotting process begins. This refers to the microbe-killer in curing or preventing disease in the human body. When my discovery is better understood, people will use the microbe-killer in time, that is, before they



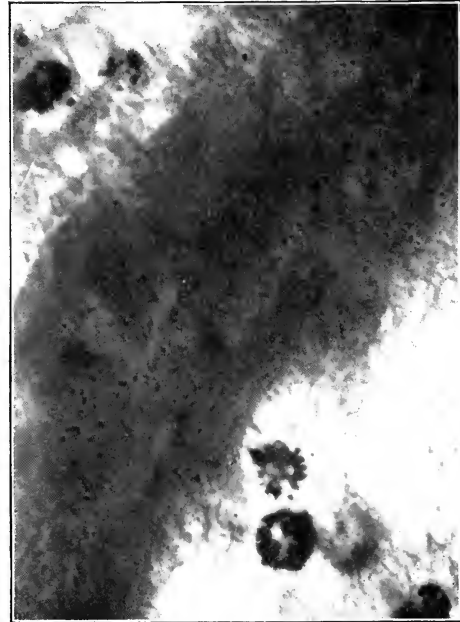
45. **TUBERCLE BACILLI.**
(IN SPUTUM.)
x 1000. Photomicrograph by Wm. Radam.



46. **TUBERCLE BACILLI.**
(IN SPUTUM.)
x 2500. Photomicrograph by Wm. Radam.



47. **TUBERCLES IN LUNG.**
x 1000. Photomicrograph by Wm. Radam.



48. **TUBERCLES IN KIDNEY.**
x 1000. Photomicrograph by Wm. Radam.



get sick, just as we kill weeds before they shed seed and spread over the garden, or as we paint a house, iron structure or implement before it rots.

Prevention is always better than cure. If people could see their own blood filled with more or less microbes (and there are very few who have no microbes), they would use at least one glass a day of microbe-killer all the year through, just to keep their blood clean. The time will come when this will be done, and the microphotographs used to illustrate this book, especially of the blood, cannot fail to set the majority of people thinking, who in return will use it for their benefit, and as an act of humanity they will try to drive it into the heads of their friends who think less quickly. Just cure one person and you have a friend who will help you cure another. This is really the way the fame of Radam's Microbe-Killer is being scattered broadcast through the world. As salt or vinegar is kept in the house to flavor meats, so will ultimately the microbe-killer be kept in every household as an ever ready preventive of disease. There are now thousands of families using the microbe-killer in large quantities to cure and keep well the whole family. They would never be without it, for a cut, a scratch, bruise, or burn, on their hands or body, is healed and the pain stopped at once by a free use of the microbe-killer. I myself would not travel one thousand miles without carrying a bottle of the microbe-killer with me, for accidents may happen or sickness of any kind may overtake one in travelling. So I always carry my own cure and preventive with me. I have made up my mind that microbes shall not kill me. If I die through an accident, then the doctors can't say that microbes went away with me, as was said in a San Francisco paper. I showed them afterward that I was very much alive. A lady and her aged mother have both used a great deal of the microbe-killer, and when they made a flying trip to Europe recently took along two jugs of the microbe-killer to guard against seasickness. I instructed them to drink it very freely, espe-

cially should the first symptoms of seasickness appear. The result was that neither was sick, and they were the only ones who never missed a meal. A lady who had used the microbe-killer in New York wrote to me from Europe that she had never passed so pleasant a trip across the ocean as the last time when she used the microbe-killer. Previous voyages had been so disagreeable that she was compelled to keep her berth from the beginning to the end. It is the purification of the blood and the removal of fermentation from the stomach several weeks before making a voyage that prevents seasickness. It is the sick who suffer most from seasickness. Healthy persons are rarely affected with it.

What the microbe-killer cannot cure, if taken in time, I am unable to say. I cannot see the end. It can only be reached by experience. I claimed at first that I had discovered the cause and cure of all diseases in man. This I have already proven by the cures. But as we have cured horses, cows, chickens, canary birds, and other animals by the same microbe-killer applied in the same manner, I am entitled to claim more. Discoverers generally claim more than they can prove. My discovery is different. Whoever has read this book carefully will readily understand that whatever cures man must naturally cure animals, for their diseases are caused by the same process—microbes, which produce fermentation. To reach satisfactory results in curing both, we must use a certain quantity of the microbe-killer, according to the bulk to be preserved. When a tumblerful of the microbe-killer is required to saturate the system of a man, a quart will be required to saturate the body of a horse. A quart of microbe-killer will cure any form of colic in a horse within from fifteen to thirty minutes, whereas if the horse suffer from a disease of long standing many gallons will be required to cure him.

A rule which applies to the cure of man and animal is that if a disease develops and kills quickly, the microbe-killer must be used without delay. It must also be administered in large doses and at short intervals, so that

the whole system at once becomes saturated with the gas. As soon as pain ceases the microbes are subdued from further propagation and the disease is arrested. Smaller doses taken at intervals of one or two hours for some time longer will complete the cure. Should the patient be unable to swallow so much microbe-killer, external applications over the painful or swollen parts will aid in effecting a cure. This applies especially to the cure of cholera, yellow fever, diphtheria, pneumonia, galloping consumption, small-pox, typhoid fever, blood-poisoning, hydrophobia, scarlet fever, or any other quick-developing disease. The improvement in such cases will be noticed almost at once, whereas in slow-developing or chronic diseases the improvements are slow or sometimes very much retarded, according to the nature of the disease. In diseases of long standing we must use the microbe-killer in smaller doses—about one wine-glassful from four to six times a day, according to the strength of the patient. Trying to hurry a cure in such cases would make the patient too weak, because he cannot build up fast enough. As the microbes are living, they can be felt shifting around when attacked by large doses of the microbe-killer. The microbe-killer never produces sickness, as some people may think. It is the disease that produces the effect when attacked by it.

Any smarting felt after using the microbe-killer indicates death to microbes. It proves the remedy is doing its work. When all the microbes are killed and the disease is cured, there will be no more smarting or disagreeable feeling, no matter how much of the microbe-killer is taken.

The above explains that people should never complain to us about the bad feeling caused by killing the microbes which they have so dearly and scientifically nursed before by medicines which did not stop fermentation, hence could not kill them.

Remedies which do not kill microbes do not produce any effect. Another point I may mention right here is that to cure disease all fermentation in the human body

must come out, and the microbe-killer brings it out. When fermentation has been stopped, improvement will then progress more rapidly. Other medicines feed the microbes and leave them in the system, but the microbe-killer destroys them and brings them out.

It will be seen by this that the action of the microbe-killer is just the opposite of that produced by medicines. Hence it should never be classed as an ordinary medicine, or, in fact, as a medicine at all. It is a new discovery altogether. If doctors want to test the microbe-killer, to see for themselves if it will do what I claim, they should select cases which are quickly fatal, such as cholera, diphtheria, small-pox, or any other disease in the first stages, and never in the last stages of consumption, cancer, leprosy, or wherever the cure may take a whole year. If the microbe-killer would fail to stop a disease at its beginning, when properly applied and used, it would indicate that it never could cure afterward. Nobody will ever expect from a painter the experiment of trying his paint upon a house that is rotten. How could any one expect to settle the value of the microbe-killer on a patient given up by doctors to die? There is no sense in such a test. The patients thus treated will either die before the microbes are removed, or it will take a long time to cure the patient. As I said before, the microbe-killer does one thing—it kills the microbes, which no other medicine can do, and at the same time it is so harmless that even the eyes of a baby could not be destroyed.

The cure of a patient depends upon how much fermentation is in his body and how much good there is left. It is useless for patients to write to me or to the microbe-killer companies for further advice as to whether the microbe-killer will cure a certain disease that has become chronic, or the describing of that disease by a long array of symptoms. We cannot answer, because we do not know and do not care to guess. The patient must find this out for himself. What disease is, and what the microbe-killer does, I have fully explained in

this article, and it should relieve us from further correspondence upon the subject.

When a young child is sick, no matter what the age be, no time should be lost, but the progress of the disease should be checked immediately with microbe-killer. For the medicine may be used with perfect safety to the youngest child, even to one only a few hours old. It cleanses the blood, prevents fermentation, and is beneficial in all diseases to which children are subject. I have had considerable experience with children, and have found that when the microbe-killer is used regularly children seldom have trouble of any kind, thus proving that it acts as a preventive as well as a cure. This might be expected, because by the habitual use the system is kept in good order and microbes are destroyed as fast as they appear. Children are fond of it. The flavor is agreeable, and they take it readily ; and, when they are allowed to do so regularly, their skins become perfectly clear and healthy. The capillary circulation becomes normal, the little ones have rosy cheeks, and not a pimple or spot upon their bodies.

We can preserve wood and stone from fungi ; it is natural, therefore, that we should preserve the body, as my medicine proves that we can. It only needs to be known to every family as it is to me, and children will no longer be down with measles, scarlet fever, or any of the other troubles of childhood. They will take the microbe-killer freely in time, when the very first symptoms appear, and they will hear no more of such epidemics. In fact, even if the medicine is not used habitually, it should be taken whenever any disease is prevalent, and it will protect the person from an attack.

It may be thought that by constant use its effects will be lost, but it is not so. Some medicines, especially many aperients and cathartics, do act in that way. They produce an immediate action on the bowels, and a torpidity follows, just as the action of some medicines is cumulative, like arsenic. So no effect may be produced

at first, and then when a sufficient amount is in the system poisonous symptoms supervene.

But the microbe-killer is a tonic. It never loses its power of killing micro-organisms, and is more effective the longer it is persevered with ; and it acts constantly, strengthening the system, purifying the blood, and supplying food to the blood and tissues that Nature demands. It may therefore be used safely and advantageously at all times, and it is essential when contagious diseases are prevalent, no matter what names be given to them, whether typhoid or scarlet fever, small-pox, cholera, influenza, or what not. If your child has already been in the doctor's hands, and even if he has given it up, take my advice, give up his noxious drugs and poisonous medicines, and avail yourself of my discovery.

A gentleman in Dallas, Texas, wrote me and said : " Mr. Radam, your microbe-killer cured our baby, and I can hardly find words to express my gratitude. We expected it would die. The doctor told us he had done all he could, and advised us to give it no more medicine. He gave up all hope, and left. He had no sooner done so than the wife of one of our neighbors came in and told us of your microbe-killer. We read your circular, and, feeling that the child would die, we determined to try it. We warmed the medicine slightly, then wrapped the child in flannels and poured the microbe-killer all over the body. We also used a little as an injection, mixed with starch, and gave the child three teaspoonfuls internally. Then the child was wrapped in warm, dry flannels, and, to our surprise, in half an hour it was asleep, and not asleep only, but it slept quietly till early morning, and then awoke laughing and free from pain. It nursed freely, and the milk was not rejected by the stomach. We continued the medicine ; the child continued to improve, and is now living."

For aught I know to the contrary it still lives. The case is instructive, for if the father had been content with merely administering the microbe-killer internally, I doubt if he would have cured the child. Its illness had

advanced too far, and it was necessary to use the medicine externally, as well as internally, to attack the microbes wherever they could be reached. The case shows also that we may be able to rescue a patient, even from the edge of the grave, if we go the right way to do it, and if we are able to act with an understanding of Nature's laws and methods, so that we may see the importance of using the medicine in such a way as to permeate all the tissues, and thus, as it were, soak the body, as I have before explained.

The microbe-killer contains no drugs of an organic character. It is simply a solution of gases, which pass readily through the tissues, much as the perspiration passes through the pores of the skin, and thus they get into the blood and circulate throughout the system. It will be seen, therefore, how important it is to thoroughly carry the remedy everywhere, to leave no part of the body free to enable the microbes to increase ; and the facility with which this medicine passes thus into every tissue and to the remotest parts by means of the capillary vessels adds very much to its great value.

In serious diseases which run their course quickly, and in the treatment of which prompt action is important, such as typhoid and scarlet fever, measles, small-pox, and the like, external applications are also necessary and important. The skin absorbs the active principle of the medicine almost as freely and as quickly as, sometimes even more quickly than, the absorption through the stomach, and its effects must in such diseases be obtained as rapidly as possible. But in ordinary diseases, especially where treatment can be begun without delay, internal dosing in sufficient quantities will effect a cure, and, as already stated, it acts as a preventive when taken during health.

Some doctors have asserted that the microbe-killer contains poisonous drugs. It is a bare assertion, made in complete ignorance of what it really is ; but the folly of such statements is apparent on its face, for if such were the case how could it be administered in large

doses to children without injuring them? As a matter of fact, it contains, as I have said, no drug at all. If it were what these doctors say, it would soon kill itself. No poisonous medicine such as they describe would be allowed to exist. The people would soon find it out and they would not have it. The microbe-killer is harmless, and that it cures all who use it according to directions is an assertion that proves itself.

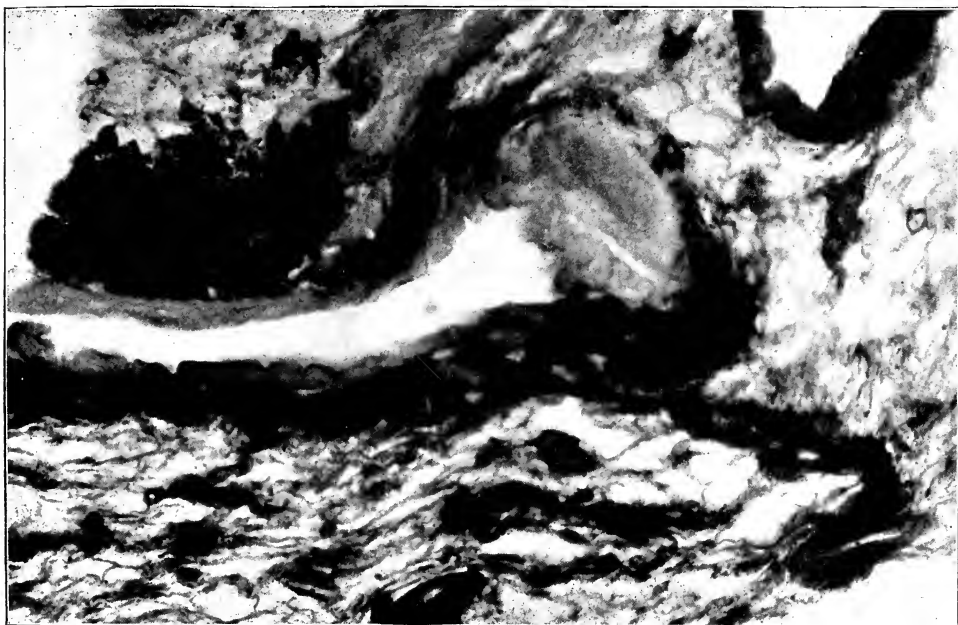
When a child is taken sick, no matter what the sickness may be or what name the doctor chooses to apply to it, remember what I said at the beginning of this book. The disease is caused by a microbe, possibly a special microbe, and your duty then is to use the medicine immediately, as long as necessary and as freely as possible, until the child is cured, as it most assuredly will be. Young children require less than adults, and I have found that small people can do with less than larger ones, as might be anticipated from the method by which the medicine is known to operate. It is not necessary, for example, to use as much to secure a complete saturation of the tissues in a small body as in a large one. For very small children two teaspoonfuls will usually suffice for a dose, and this may be repeated as often as is necessary, but every four hours is about the frequency that I find to answer. The size, age, and temperament of the patient all have to be considered. In the treatment of wounds, ulcers, boils, or local inflammations, poultices saturated with the microbe-killer should be kept constantly applied to the surface, and the internal treatment should be attended to at the same time. But it must not be forgotten that whenever employed externally it should also be used internally at the same time. This is necessary. Taken internally it purifies the blood, and when used externally some may become absorbed; but its chief value then is to relieve pain and to prevent the increase of microbes on the injured surface. A wound left exposed or improperly attended to becomes a nidus for microbes, sometimes in the simplest form, as micrococci or as bacteria or ba-



50. **DISEASED HUMAN LUNG.**

x 50.

Photomicrograph by Wm. Radam.



52. **WALL OF TUBERCLE CAVITY.**

x 50.

Photomicrograph by Wm. Radam.



cilli, but the result is the same whether they be in the form of simple cells or as tubular or spiral bodies (see Plate IV.).

The process of fermentation has always been known, at any rate so far as history carries us, and it is understood among savages, but it was only about twelve hundred years ago that it was identified with putrefaction. The air containing micro-organisms in large quantities, if these fall upon a wound or an ulcer there will be some which will find it a suitable place for reproduction, and then fermentation, inflammation, suppuration, and possibly gangrene may be the consequence. But if this be stopped, as it may be by the prompt application of the microbe-killer, the wound heals, the process of Nature being uninterrupted, and none of those dangerous results ensue. The rationale of this must be clear.

It is my firm conviction, taught me by experience, that if a child dies it is from some cause that might be prevented. I do not refer to children who inherit disease from parents to such a degree that their lives are forfeited as soon as they are born, but to all ordinary cases of disease. For example, the remedy may be applied too late, or in insufficient doses, or in a manner contrary to directions, or it may have been given irregularly or not continued long enough. When death occurs in such circumstances it is the fault of the nurse, not of the medicine.

Nothing is easier than to cure children, if action be prompt and effective. They are easily affected by disease, but so, too, their system readily yields to medicine, and with competent attention rules are more easily carried out.

It is much more difficult to cure chronic disease, whether it be of years' or only of months' duration. And, to return to my former similes, the florist finds it in truth more difficult to attend to his seedlings and to protect them from fungus than it is to defend children from the attacks of microbes, of which most doctors know nothing.

When a plant has become matured and the wood is hardened, it can withstand more rough usage ; and so it is with the human family. Statistics show that there is a greater mortality among children than among grown people. A child cannot describe its symptoms ; it merely cries with pain and discomfort. Then comes the doctor, who guesses what kind of microbe has got hold of it, and in accordance with his theories he puts up a lot of drugs which are probably no antiseptics at all. They do not affect the microbes, which go on producing a state of fermentation in the child's body, and are possibly encouraged rather than otherwise by the medicines that have been administered. In this case the child grows worse, the doctor gives it up, and presently it dies. The doctor did all he knew, but he was ignorant of the true cause of the sickness, and more likely hastened the child's decease instead of doing anything to prevent it.

The treatment of older children and young people is similar to that of young children, only it requires longer time usually and more of the medicine to perfect a saturation of the body. It also usually requires more time to complete a purification of the blood. Chronic diseases require still longer time and more medicine. They are long coming, and they go slowly. In them the process of fermentation probably began years before the disease made itself felt. Then the microbes have probably advanced to such an extent that the circulation of the blood is impeded, the microbes clogging up the vessels, causing pain, and not until then, perhaps, does the person complain of being sick. Even these diseases can be cured by the microbe-killer if it be taken with enough perseverance, so that not only the microbes are destroyed, but the red corpuscles of the blood are renovated, the circulation is freed, and the red color of the skin is restored through a complete action of the capillary vessels. Young women about arriving at maturity should use the medicine freely. It purifies the blood and increases the tone of the system, arousing the circulation, so that they would not feel the change. In the same way it is useful

to women looking forward to maternity. It is beneficial to the child, keeping the blood in a strong and healthy condition, and assisting the mother both before and during confinement. It also tends to facilitate the flow of milk and to render it more nutritive to the child.

Where there is any sickness there is some blood impurity—that is, microbes are at work, and fermentation to a greater or less extent is going on, and the microbe-killer is the only discovery yet made which directs itself immediately to the cause of the disease.

Ladies can find ample testimony from those of their own sex as to the value of my medicine to themselves. There is much to discover and much yet to learn, and it is not my wish to keep back anything that has been ascertained by me since I made my first cures. I must therefore touch upon this more fully.

The discharges attending menstruation, when examined under a powerful microscope, show blood containing vast quantities of microbes. Investigations made among many patients always show that the darkest blood is a mass of living micro-organisms, and that when women complain most of pain in the back, headache, neuralgia, etc., they are suffering from these enormous quantities of microbes. When women thus affected have taken the microbe-killer for several months, the character of the discharges changes. It becomes red, and when examined it is found to be free from microbes; the woman at the same time suffers no more. The headache and pain in the back have left her, the periods are more normal and free from inconvenience, and the patient puts on a healthy appearance. Her eyes are bright, and her complexion is clear, and she has more energy.

My first discoveries of this kind showed the nature and cause of woman's sufferings at these times, and that it is Nature again acting on her own laws, the pain and inconveniences being caused by a process of fermentation as usual, and the pain ceasing when the cause of that process is removed.

But such cases are not cured right away. It is absurd

to suppose that they can be, and it would be wrong for me to say that they can. The blood must be purified, and, as the microbes must be killed, the remedy must be one that accomplishes this object and thereby puts a stop to fermentation. At the same time no antiseptic can take effect until it has entered the cells by passing through their walls, and so can be brought into contact with their contents. This explains how persons are deceived by those medicines which are given to purify the blood, and which have no power whatever to destroy the causes which render impurity possible. Medicines which have no effect upon the life of micro-organisms cannot purify the blood, and none of the medicines used for the purpose do accomplish that end. We must have something that kills microbes, and hence the value and necessity of my discovery, for, as I have shown, there is nothing else that does that without also killing the patient.

Any one who advertises or claims to be able to purify the blood should prove that he does so, and, if he will allow his medicine to be fairly tested, it is quite easy to ascertain whether it will do all that is promised for it, because if it cannot prevent fermentation it certainly cannot do what is promised for it; and if it will do that it can cure disease everywhere, whether in man or other animals. If anybody doubts this or fails to understand it, I have tangible, visible evidence that I can produce, but I hardly think that the people generally will fail to find ample proof in the cures I have already effected. These should alone be convincing, even though my medicine is the same for all, and I myself, in place of being a professor with a long name, am nothing more than a close observer of Nature.

This is certain, that Nature cannot be denied. Whatever she teaches is beyond contradiction at the hands of the doctors, and medical science, if there be any science in medicine, is not in a position to oppose it. But I do not see the science. I know the profession is wrong, emphatically wrong, and my only wonder is how people can

allow themselves to be misled by it. Let me not be misunderstood. I do not say that there are not some good and useful medicines. But those, for instance, which are useful to regulate the bowels cannot be called blood purifiers. Even those act in different ways—some influencing the functions of the liver and other organs. But none of these actions implies a purification of the blood. There are probably thousands of medicines sold as blood purifiers. Some of them, through being kept constantly before the people, are popular, and occasionally they may do some good, or, if they do not, people think they do. They are announced as being free from mineral compounds, and the medicine man declares they are made exclusively from herbs, roots, barks, seeds, and so on. Now, the fact is that those things would ferment and they would promote fermentation in the blood, and to prevent that the manufacturer of the compound uses alcohol or whiskey as a preservative. If he did not do that the stuff would breed microbes in the bottle in which it is sold.

Any one can prove this for himself by taking some of the vegetable compounds and diluting them with water, or making an infusion of the roots or herbs ; add to them any of the fluids or excretions of the body—add the ferment with the medicine—and keep the mixture closed in a bottle. In a short time you will see whether or not the medicine has prevented fermentation. You need not be an expert with the microscope. You will see the process going on rapidly. If, then, the medicine that you are asked to take increases fermentation, how in the world is it going to cure you ? This experiment you can pursue with any of the nostrums that are offered to the public and which are prescribed, and you can learn for yourself, without swallowing them, whether they are likely to accomplish what is promised for them. Or you may take a piece of lean meat, place it in a bottle with any of the popular medicines, and see whether they prevent fermentation and the formation of microbes.

This, however, must be remembered : Suppose that

any particular remedy stands the test. In order that it shall be efficient as a medicine it must be of such a nature that it can be taken like water, so as to saturate the body, permeating all the tissues. A small quantity taken into the stomach is of no use. You may take strong alcohol and it will stand the test, but can you saturate your body with it? You may, indeed, go on experimenting until you have covered all the drugs known to the doctors, and still you will not find one that will effectually kill microbes without also killing the patient.

Many things will give relief. Chloroform, morphine, mercury, and numberless drugs will, on occasion, do that : but relief is not cure. Many persons have told me—some personally, others by letter—that years ago they had some form of disease ; that they went possibly to some celebrated doctor and got well ; then, sometimes later, they had another attack of the same disease, and again they got well under some physician's care ; and now they have it again. The truth is, these people never were cured. They were simply relieved either by a partial suppression of the microbes or by driving them to other parts of the body

Persons have often come to me who had suffered from cancer. They showed me where it had been removed by the knife or checked by plasters. At the time they had thought themselves cured, but now evidences of cancer were appearing in various parts of their bodies, and it was more severe than it had been at first. Cutting away portions of the human body that are diseased in that way is evidence of the grossest ignorance. If a person have cancer of the tongue a removal of that organ will not cure him. If he have cancer in the throat the removal of a portion will not cure him. The amputation of a leper's limbs would not remove the leprosy. Whereas, if we can purify the blood, there is no occasion even to think of the knife, and this refers to almost any kind of surgical operation.

They say that exceptions prove the rule, and I will

name one. There are cases where, from some cause or other, mortification supervenes on an injury. As soon as that process stops, of which Nature gives unmistakable signs, then the diseased portion may be safely and rightly removed; for, if it be not taken away, and assuming the patient's health to continue good, Nature herself would remove it, but the process would be slow and the stump would be unsatisfactory.

If I had a compound fracture of one of my limbs, I should be content to keep the parts in place, keep the wound saturated with microbe-killer and use it freely internally, and I should have no fear for the results. Microbes would be prevented interfering with Nature, and I know that everything then would progress satisfactorily.

Persons whose bodies are mutilated usually die from inflammation—that means fermentation, which again means microbes. But if the microbe-killer be used intelligently no microbes can exist, no fermentation can take place, and consequently there can be no inflammation.

We shall always require surgeons. That is certain. There are numberless forms of accident and injury where their assistance will be necessary; but in all their work the microbe-killer must fill an important place, since it stops fermentation and what the doctors call blood-poisoning, which is simply blood filled with microbes. When the value of my discovery is fully understood there will be but little use for surgical instruments. We may take any diseased growth on the human body; call it lupus, or cancer, or a tumor, or what you will, there was a time when it had a beginning. In the future, when such things are first observed, the microbe-killer will be used immediately, and thus the growth will be stopped and no trouble will ensue.

During the short time that I have been using the medicine I have seen many cases of cancer, ulcerated sores, abscesses, etc., etc., all of which have been cured by a free use of the medicine. Not, recollect, by small

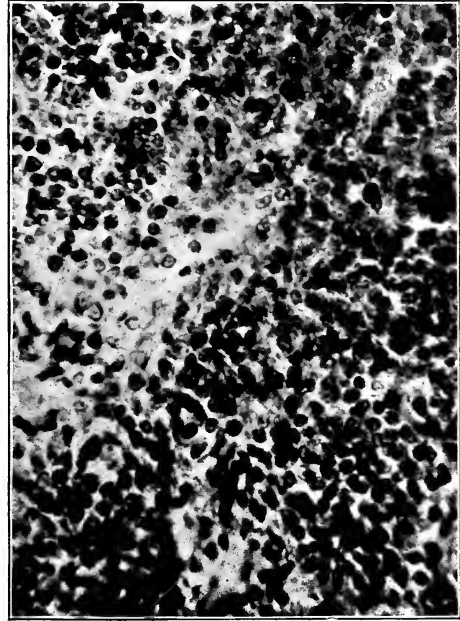
doses, but by sufficient quantities taken regularly and perseveringly.

If we remove a limb from a tree, and at once stop the cut surface and protect it from the atmosphere so that no fungus shall be deposited on it, the heart wood will not suffer, and the tree will soon protect the part itself by the bark growing over it. But if the exposed section be not protected the surface will soon become black from fungoid growths, and these will at times extend throughout the tree, of course shortening its life. The same process goes on in the human body. A person may be ever so healthy, but if he lose a limb or become wounded, and microbes are allowed to form and enter into the blood, his life may be shortened or even lost. On the other hand, if he can prevent fermentation altogether, the parts must quickly heal, and no further injury will be done to the system.

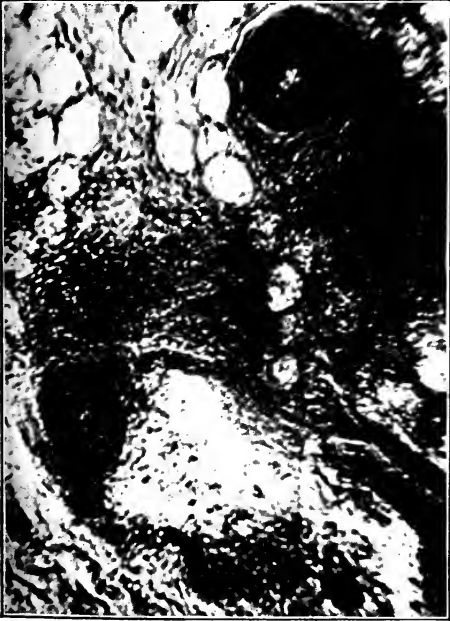
Antiseptic plasters, so-called, cannot be of any use. They cannot do any good in surgical operations. They cannot be used internally, and consequently they cannot reach the general circulatory system. There must be some internal remedy as well, and something that can be used so freely that it may saturate all the tissues and thoroughly, as it were, soak the body. Most surgical work must cease. The removal of limbs for leprosy must be stopped. All cutting around the eyes, face, and limbs is unnecessary. Every case can be cured through purification of the blood by means of the microbe-killer.



53. BACILLUS OF CARCINOMA (Cancer).
(SCHEUERLEIN.)
x 1000. Photomicrograph by Wm. Radam.



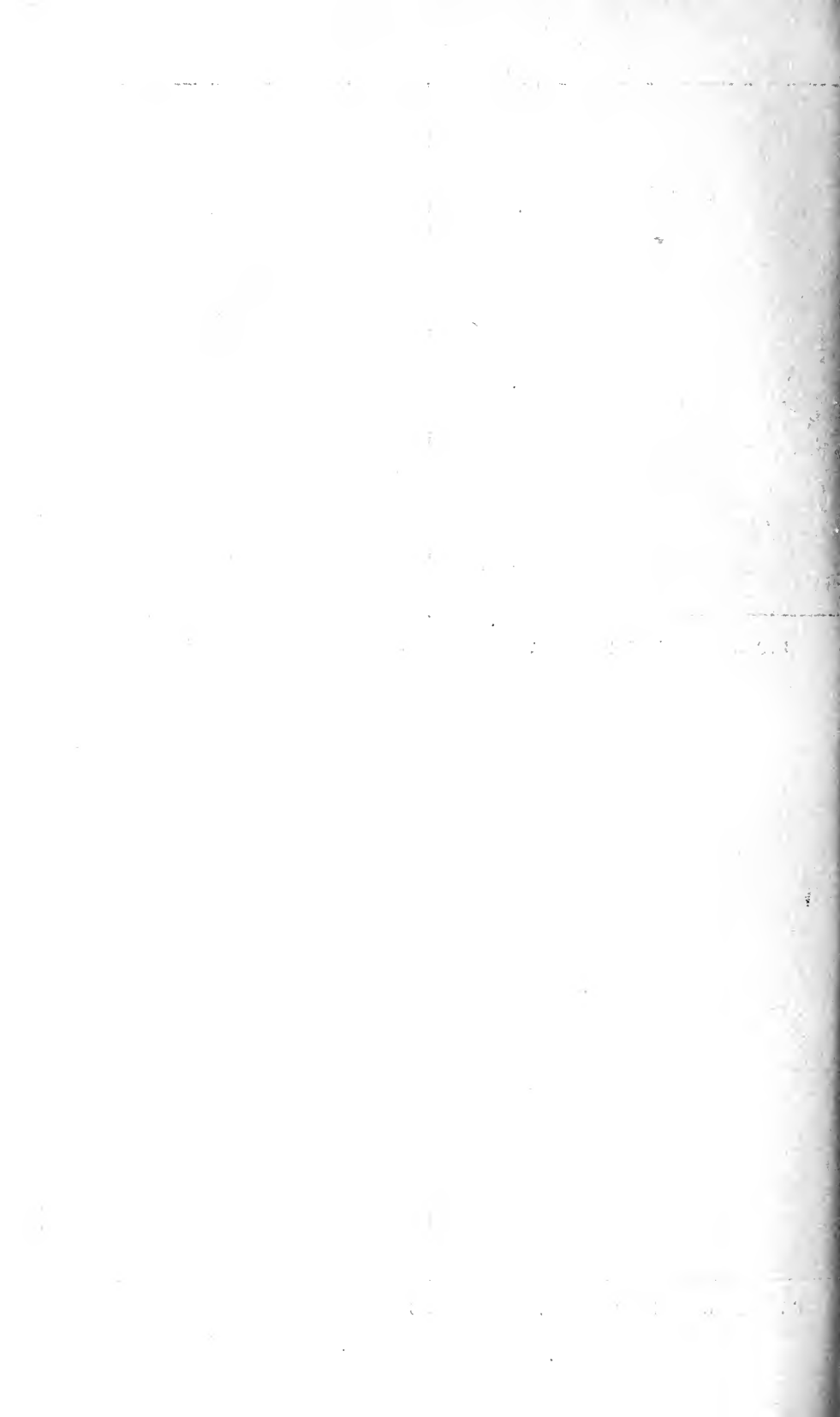
54. SMALL CANCEROUS CELLS.
x 50. Photomicrograph by Wm. Radam.



55. CANCER OF THE BREAST.
(SHOWING FORMATION OF CANCERS.)
x 50. Photomicrograph by Wm. Radam.



56. CANCER FROM THE BREAST.
(DROPPED OFF BY USING M. K. SIZE 4 X 8 INCHES.)
Photomicrograph by Wm. Radam.



CHAPTER X.

THE BLOOD.

PURGATIVES, laxatives, and even tonics are generally prescribed or advertised to purify the blood. But what the impurities are which the blood contains physicians and advertisers do not explain. The patient is simply expected to take his medicine regardless of consequences, without having it proved to him that the particular medicine does purify. Has not the patient a right to know by what process the blood is expected to be purified?

If medicine men would take the trouble to examine a drop of blood, taken from a sick person, under a microscope of high power, they would see at once groups of microbes and germs of different shapes and colors between the discs or corpuscles. The photomicrographs I have made of the blood obtained from sick persons clearly demonstrate this fact (see Plate III., Nos. 10, 11, 12). This proves that a blood-purifying medicine must kill the microbes which cause the fermentation in the blood.

If we test the antiseptic power of alleged blood purifiers by placing a little raw meat into them, it will be seen that they do not stop fermentation. This demonstrates that microbes will grow right in these medicines, hence the medicines can never purify the blood, as to purify the blood the fermentation must be stopped. Purgatives and laxatives are excellent for the bowels under certain conditions, and tonics to assist in building up the system; but they have nothing to do with purifying the blood. A remedy that purifies the blood cures all forms of disease, for disease is in the blood only, and when that is clean, sickness is impossible. Considering

these facts, a proper test made with all the alleged blood purifiers proves that they are valueless. The only blood purifier yet discovered that fulfils all the requirements of an antiseptic is Radam's Microbe-Killer, which is harmless to the patient. This claim has been substantiated in court and by the overwhelming testimony of people cured of all forms of disease by its use. It is all nonsense to prescribe iron and nerve food for the blood filled with microbes. Such a course shows ignorance of Nature and disease. They will have the same effect upon the sick that guano has upon a crop that is full of weeds. Get the microbes, which are the cause of all forms of disease, out of the blood, and your daily food will furnish all the elements necessary to make pure blood, flesh, and color. There are thousands of men selling or prescribing medicine who know absolutely nothing about what disease is or what causes it; if they did, the remedy would suggest itself.

Although a person sees the results of fermentation running from his nose, an abscess, a wound or sore, and expectoration, still it does not occur to him to ask for the cause of it; but he tries to get the symptoms cured in a medical, scientific way that he cannot understand, till he can bear up no longer or till his medical adviser admits he can do no more. At the last moment, then, he comes for Radam's Microbe-Killer, thinking that this remedy will work miracles, and if the miracle does not come immediately he blames the microbe-killer. The patient has himself to blame for not killing the microbes in time, just as the gardener has to bear the responsibility and loss for not killing the weeds that smothered his crop.

How small microbes are can be best illustrated thus: A microbe is many times smaller than a blood corpuscle. A single drop of blood contains about 200,000 discs or corpuscles. Consequently a drop of blood taken from a sick person may easily contain 1,000,000 microbes. When a drop of blood is spread over a cover glass, it will form a circle three-fourths of an inch in diameter. The

diameter of the lenses in high-power objectives as used by me in my experiments is no greater than the diameter of a pin, still they magnify a clear field of eight inches. To bring the entire drop gradually under the lens requires at least one hundred movements. This will actually magnify a single drop of blood to a field eight inches wide and five hundred feet long.

The blood from an average healthy person shows very few microbes and white blood discs. The corpuscles are circular in form and scarlet in color. With the highest power objectives we are able to magnify the blood corpuscles to the size of a five-cent piece. If the light be good the movement of the blood can be seen through the glass, the surface undulating like the waves of the ocean. The blood of a sickly person has less red corpuscles, these being irregular in form and serrated or star-shaped. The white corpuscles are diseased and full of germs, which develop into microbes and resemble a collection of fine seed. Microbes in the blood generally grow in clusters or groups having different shapes and colors. As a rule, the more unhealthy a person becomes the greater the number of microbes and white blood corpuscles we find, which accounts for the pale color of the patient. Groups of microbes cause an interruption in the proper circulation of the blood through the blood vessels, which produces symptoms called by the medical profession heart disease, neuralgia, rheumatism, inflammations, etc. The symptoms may vary greatly; but the cause is always the same—namely, microbes in the blood. The heart is not at fault; the trouble is in the blood that passes through it.

In my former business as a nurseryman and florist, I made a special study and examined the sap of plants and trees which I intended to use for budding or propagation. I found that the sap of a green, healthy-looking tree or plant is clear white or a yellowish white in color, while in a sickly, yellowish-looking tree or plant it is discolored, almost brown, sometimes black. And this discoloration can be distinguished even in the some-

what healthier parts, because the sap is distributed from the root to the extremity of the tree or plant, and, of course, the bacteria are carried with it. To cut the most diseased part from the tree does not cure it. The natural processes going on in plants are the same as those going on in man. To cut the diseased part from the human body does not cure it, because the disease is in the blood which circulates through the system. Hence no surgical instruments should be used for the purpose of curing a disease, for it will still go on and eventually reappear in a more dreadful form in the same or other parts of the body. Anatomical surgery in case of accident, has nothing to do with curing disease. For such purpose we shall always need surgeons who are well posted about the anatomy of the human frame. When such operations are necessary the microbe-killer should always be used to saturate both the body and wound, to prevent the inflammation and fermentation caused by the action of microbes, and a healthy healing will be the result. The success of budding or grafting a tree or plant upon another does not depend upon how the cut is made, how sharp the knife, or how the graft is transferred, but upon how to prevent the process of fermentation from entering the wound. By keeping the air and moisture, that promote fermentation, from entering the sap through the cut, the scion or bud will always grow. If, however, the tree to be grafted is already sick, the operation will be a failure in spite of all the care that may be exercised. The very same results are to be observed in surgical operations performed on the human body. The successful healing of a wound does not depend upon the sharpness of the knife or skilfulness of the operator, but entirely upon how to prevent the microbes (which induce fermentation) from entering the blood through the wound. If the person to be operated upon is already sick, if his blood is filled with microbes, the operation will not be successful. By a free use of Radam's Microbe-Killer in case of accident, no healthy person need fear death.

When different organs of the human body are cut off, replaced, or shaped with the knife to beautify them, as we do plants and trees, the microbe-killer will always insure success, as it will not allow fermentation to go on. We have a case on record where an old, well-known gentleman was shot four times through his body and lungs; but as his blood had been purified by his having taken seven gallons of microbe-killer shortly before the accident occurred, no inflammation or fermentation took place. The wounds began to heal immediately, and microbe-killer saved his life. It is simply a question of time when Radam's Microbe-Killer will be used in every household to cure and prevent disease. It will be used on the battlefield to save human life. More men die from the inflammation and fermentation that generally arise after being wounded than from the bullet itself. As the microbe-killer is such a powerful antiseptic, and yet so harmless that the body and wound can be saturated with it for any length of time, microbes cannot develop, hence no inflammation or fermentation can take place, and the wound is bound to heal. Doubtless all this may be new to many, nevertheless it is proven every day and can easily be demonstrated. Thousands have seen the microbes in their own blood, under the microscope in Mr. Radam's office, before they used the microbe-killer, and they have seen it again after being cured by it, and know the result.

CHAPTER XI.

THE STOMACH.

WHAT the roots are to the plant the stomach is to the human body. The roots are the foundation of plants, and the stomach is the foundation of man. When plants get sick they lose their healthy green color and the roots commence to ferment. When man gets sick he, too, loses his healthy color, and fermentation goes on in his foundation—the stomach. This fermentation in the stomach produces acid and gas, which irritate the delicate linings and cause the stomach to reject food entirely or pass it on before it has been properly acted upon by the natural fluids of the stomach.

To cure plants we have first to remove fermentation from the roots. Then new rootlets will be formed, and gradually the plant assumes its former green color. In the same way man must be cured through the stomach. When that organ is free from fermentation, acid and gas will no longer be given off. Then the delicate linings become renewed, appetite increases or returns, and the stomach again digests the food that produces flesh, blood, and color.

If we examine the tips of white roots under a high-power magnifying glass, little, hollow tubes will be detected which act as suckers in taking up the water and food upon which the plant lives. The linings of the stomach, when examined the same way, also show hollow tubes which suck up the food and water to nourish the whole body. Fermentation on the roots of plants or in the stomach of man must naturally affect the whole system of plant or man. This demonstrates that if we attempt to cure man of disease the remedy must al-

ways go into the stomach, and from there, through assimilation, to other parts of the body.

When plants need water and food we put them on the roots or in the soil near the roots, so that they may be taken up by the suckers into the sap which circulates into every part of the plant. The surplus evaporates through the bark or leaves. Practically the same process takes place in man. The food he eats and the water he drinks goes into the stomach. There it is digested, or prepared for further digestion in the alimentary canal, and separated. What is fit to nourish the body goes into the blood, and the surplus passes away in perspiration or into the alimentary canal. Any attempt to cure a certain part of a tree or plant or the human body will be a failure if not treated through the foundation. It shows ignorance of how plants and the human body grow, how they get sick, and how they may be cured. The study that I have made upon plant life I have simply turned over to a study of mankind. There is not a particle of difference between the two, so far as the cause and cure of disease are concerned.

To claim that this or that kind of food is healthy and the other is not does not prove anything. What is sickness and what is health? The healthfulness of any kind of food depends upon whether the stomach of the person who eats it is healthy or not. The intelligent florist knows too well that fertilizers put on the roots of yellow-looking, sickly plants with their rotten roots growing in hard, water-soaked ground, can never cure them; and cod-liver oil, nerve food tonics, and the like can never cure a man whose stomach is full of fermentation.

By testing the antiseptic power of all medicine it will be found that Radam's Microbe-Killer is the only antiseptic yet discovered that will absolutely stop fermentation in the human body without killing the patient. This is the reason why it cures all diseases. To cure disease two factors are absolutely necessary. First, the remedy must be an antiseptic; it must stand the test of stopping fermentation before it is introduced into the

body. And, second, it must be perfectly harmless, so that it can be used in large doses, like water, to soak the whole system continually for any length of time. Then fermentation is bound to cease, and during all this time the stomach of the patient becomes gradually renewed, appetite returns, and blood, color, and flesh will form again.

To keep the roots warm and tops cool, plenty of fresh air, sunshine, warmth, and moisture is essential for the growth of plants. The same can be said of man. Keep the feet warm and the head cool, get plenty of fresh air, sunshine, healthy food, and sufficient exercise to keep the blood in circulation.

The man who works, walks, runs, or exercises generally, keeps healthy and has a good appetite, providing he has health to begin with. But the man who sits still, takes little or no exercise, but eats almost as much as the man who exercises, and drinks in the same proportion, soon gets sick and loses his appetite. The faster we walk or exercise the more air we breathe. The inflation of the lungs causes a constant movement of the stomach. This corresponds to the action of the suckers in plants, acting as scissors to cut and grind the food taken in.

A glance at the photograph, which is a transverse section of the stomach (see Plate V.), will explain that when the stomach is full of food every breath causes the lobes to grind against the food. The more we exercise the sooner and better the food is digested. It is thus that we feel hungry much sooner after exercising than when we do not exercise. During sleep we breathe slowly, hence hunger is not so noticeable then. In the healthy stomach the food is digested or prepared for further digestion before it gets time to ferment, but in a stomach which is not healthy it ferments because the process of digestion is much delayed.

Florists know that to raise perfect flowers and healthy, green-looking plants they must encourage the roots, feed them well, and keep them healthy. The top



57. **COMMA BACILLUS.**
(IN ASIATIC CHOLERA.)
x 2500. Photomicrograph by Wm. Radam.



58. **COMMA BACILLUS.**
(IN ASIATIC CHOLERA.)
x 3000. Photomicrograph by Wm. Radam.



59. **SPIRRILLUM CHOLERÆ ASIATICÆ.**
(IN ASIATIC CHOLERA.)
x 1500. Photomicrograph by Wm. Radam.



60. **SPIRRILLUM CHOLERÆ ASIATICÆ.**
(IN ASIATIC CHOLERA.)
x 4000. Photomicrograph by Wm. Radam.



growth of a plant needs little attention besides fresh air, sunshine, and favorable temperature.

The thoughtful reader will find in this article proof enough that the remedy employed to cure disease must go through the stomach, the foundation, and from there disease in any part of the body can be reached.

The all-important question, which has never been answered by the medical profession, is: What is disease? What is the cause of it? Diagnosing symptoms, giving them names, and guessing what part of the body is most affected, has nothing to do with the cure.

I have fully shown to the scientific world that disease is fermentation, and common sense must readily suggest to every one that the remedy for fermentation or decay is to stop it—take away that which causes it. To do this we must use antiseptics which prove on proper tests that they are antiseptics. To call this or that kind of medicine an antiseptic does not prove it. We want to have a test for it. The antiseptic power of a medicine can be easily tested. Whoever will undertake to test the antiseptic power of any medicine, and also of Radam's Microbe-Killer, as I tested medicines while making my discovery, will find that Radam's Microbe-Killer is the only antiseptic that will stand the test—namely, stop fermentation in the human body without killing or harming the patient. It will cure all diseases, because there is only one disease—decay. Fermentation is the cause of that, and microbes are the cause of the fermentation.

CHAPTER XII.

CONSUMPTION : ITS CAUSE AND CURE.

ANY disease which causes a gradual decay or wasting-away of the body may be properly called consumption ; but by general usage the term is now applied to a wasting-away of the lungs, and to distinguish it from other lung diseases, as from all other diseases of the body, it is scientifically termed tuberculosis. As this book is written for the masses as well as for scientists, I shall use the word consumption as it is popularly used, instead of employing the less understood word tuberculosis.

There is probably no disease so much dreaded as is consumption. It is more common in climates subject to sudden changes, but thrives well in all—in the north, the south, the heated Bahamas and the arctic climes, in the old continent and in the new continent, in England and France, as well as in the Indies. Everywhere the disease is known and dreaded. Were it not for consumption the mortality rate would be far lower. It is estimated that about ten per cent of the deaths in this country are caused directly by consumption. In Paris it is believed that nearly twenty-five per cent of the deaths are due to this disease. These figures, of course, refer only to the cases where death is due solely to the so-called disease. It is quite certain, however, that in many other cases consumption is combined with other ailments, ultimately causing death, but from numerous complications not attributable directly to consumption.

In a book of this character it is not necessary to describe at length the action of consumption. Every person is more or less familiar with it, because there is seldom a family and never a small community where the disease is not known and dreaded. It seems to

reach out its arms to the robust and the delicate alike, and gradually it progresses, sapping the vitality until death ensues.

All that it is necessary to say here about the action of consumption is that the disease has greatly advanced before it attacks the lungs. Gradually the lung cells are destroyed, passing away in an offensive expectoration, until finally so much of the lungs has rotted away that the disease becomes incurable.

In some cases the patient may live for years, gradually growing weaker, while in other cases the patient is suddenly seized with the disease, grows rapidly worse, and dies within a few weeks or months.

So much for the general characteristics of consumption, which are known even by schoolboys. We must look deeper and ascertain exactly how consumption originates, how it progresses and why it progresses, in order that, if possible, we can discover a remedy for it. If we examine the expectoration of a consumptive with a powerful microscope, we will see that it contains a great number of different kinds of microbes. Some are tube-like, of such small size that thousands of them might exist in a drop of the expectorated matter without being visible to the naked eye. A still more careful study of these minute objects reveals the fact that they have life and motion and rapidly propagate themselves. The tube-like microbe is called the tubercle of consumption, and it is the countless numbers of these tubercles in the lungs which cause the gradual decay of those organs. There are other microbes in the expectoration of consumptives, but the tubercle is dreaded as the main source of danger.

It was only a few years ago that the particular microbe claimed to be the cause of consumption was discovered by Dr. Koch. Since then, with the most powerful microscopes obtainable, I have studied these microbes very carefully, propagated and photographed them (see Plate XII.). The scientific world was slow to accept the microbe theory of consumption, and, when it did accept it, it went too far. It proclaimed the tuber-

cle the sole cause of consumption, and declared that if it could once stamp out the tubercle bacillus consumption would also be stamped out.

Their theories sounded pretty enough aside from their absurdity. Suddenly Dr. Koch electrified the world by announcing that he had discovered a lymph, the inoculation with which would cure consumption. Medical science accepted the discovery without question. Medical colleges and hospitals sent their physicians to Berlin to carefully investigate the matter, and the whole world believed consumption would soon be as curable as measles or chicken-pox.

Dr. Koch's lymph was simply an artificial propagation of the consumption microbes outside the body. When the patient was inoculated the process was simply to inject a few more microbes into a system already teeming with microbes. While the whole world was apparently insane over the new alleged discovery, I—who had never seen the action of the lymph upon a patient, but who believed that you might as well attempt to kill weeds in a garden with weeds as to kill microbes in the system with microbes—protested to the world through the newspapers that the lymph can never cure consumption or any other disease.

Had my advice been taken at first much misery and suffering would have been avoided. How many people died from the effects of the lymph, directly or indirectly, will never be known. The whole affair was simply an experiment indulged in by the whole world of medical science, and failed because the investigators had disregarded Nature and proceeded upon a false basis.

Until a few years ago consumption was believed to be hereditary. As soon as the microbe theory was established medical scientists declared that it was not hereditary, but contagious. On that principle they urged the isolation of consumptives and recommended every precaution that might lead to an extermination of the tubercle, which they thought is the apparent cause of the disease.

Almost every consumptive person will tell us that the first symptom of his trouble was a cough, caused by catching cold, followed by a discharge of fermented matter. This fermented matter is nothing but masses of microbes. In fact, all fermentation is caused by microbes. Sudden changes of temperature in the human body cause a rapid interruption in the circulation of the blood, as they do of sap in plants, and that process prepares a certain seed bed and temperature necessary for the development of microbes. Hence fermentation is the result. To illustrate: If a setting hen sits continually, she will hatch chickens; but if she leaves or is driven from her eggs very often, they will become cold, fermentation will ensue, and the eggs will rot.

Seed planted early in the spring, when the ground is warm, will germinate and grow; but if a cold spell should set in the seed will decompose or the plants become yellow. Greenhouse plants suddenly exposed from warm to cold also get sick. This clearly demonstrates that there is no difference in that direction between animals and plants. The cause and result are always the same.

As soon as microbes enter the system the blood becomes stagnant in the affected parts, the coats of the stomach begin to ferment (in plants the roots ferment), and the patient loses appetite, color, flesh, and weight from excessive expectoration.

As water full of slime (see Plate II.) clogs up small pipes, so blood filled with microbes is retarded in its free circulation, and when this takes place (but not before) "tubercle bacilli" find their proper seed bed and the temperature congenial to their propagation and existence prepared and aided by other microbes, and in company with them they assist in destroying the lungs.

This demonstrates that "tubercle bacilli" do not cause consumption, but merely accompany the disease. We have never heard of healthy men and women losing their lungs.

Consumption occurs in man, animals, and plants. It

means that the living body gradually ferments through the action of many different kinds of microbes, which can be seen when the product of fermentation is placed under a high-power microscope. The "tubercle bacilli" are entirely harmless to a healthy person.

There is no cause for alarm, as the tetanus bacillus, which abounds in our streets, never causes lockjaw unless some accident causes a wound, allowing it to enter; then other microbes prepare the seed bed congenial for the growth and propagation of tetanus bacilli, causing the symptoms known as lockjaw.

Thousands of persons may be seen daily on our streets with all the symptoms indicating consumption. Although their sputum be a lively mass of microbes, yet it does not reveal any trace of tubercle till they cough, expectorate, and waste away. Finally their sputum becomes discolored and they spit blood, a sign that tubercles have at last found their proper seed bed prepared, and, in company with other microbes, inaugurate the disease called consumption.

The afore-mentioned explains its cause; what follows will show its cure.

Remarkable though it be, no one has ever stopped to ask what that fermented matter is, nor has any one ever satisfactorily explained it; and by reading medical publications, and judging from the effects of remedies prescribed for cure, it seems to me that no one knows it. That this is true has been proven by the fact that physicians everywhere tried to kill the "tubercle bacilli" with Dr. Koch's lymph, thinking thereby to cure consumption. Koch's lymph contained microbes, factors of fermentation, and they sought to arrest fermentation with fermentation.

Granted that tubercles could be destroyed themselves, then I am fully able to prove by facts that this would never cure consumption, for the simple reason that the stomach and blood of a consumptive person are so full of fermentation and gas, caused by many different kinds of microbes, that the coats of the stomach also ferment,

and that organ (which is the foundation of the body) is unable to digest food. It ferments and the greater part is rejected. There is constant waste, but no repair. So long as the patient cannot eat and digest his food, he can never build up, any more than yellowish, sickly-looking plants with their roots and sap full of fermentation can ever grow green again.

Florists (who, by the way, have to study the processes of Nature more than any other profession) know too well that to cure plants they have to remove the fermentation from the roots first, then new rootlets will be formed, and with proper nursing the plants will gradually grow green again. What the roots are to the plants, the stomach is to man.

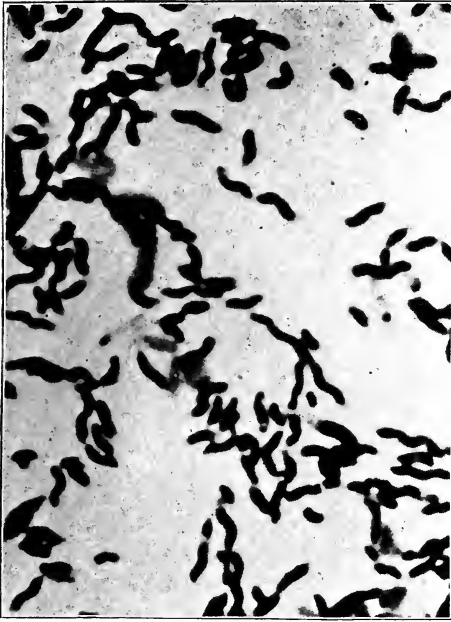
Knowing these facts, common sense tells us that to cure consumption or any other disease (never mind about diagnosis, name, or symptom, the cause being always the same), we must stop fermentation by destroying all the microbes existing in the stomach and blood. This can only be done by the use of an antiseptic, which must be harmless to the patient, so that it can be used internally in large doses to saturate the whole system for any length of time; then fermentation will gradually cease, the coats of the stomach become renewed, the appetite return, and the patient again digest his food, which, by the way, contains all the ingredients necessary to form blood, flesh, and color. By the use of Radam's Microbe-Killer, which is a harmless antiseptic, every form of disease is curable, provided the patient has sufficient vitality and substance left to build up again.

To isolate consumptives by putting them into hospitals (as suggested by some doctors) and letting them die there will not improve the situation for the future. In a rigorous and changeable climate people will always suffer from consumption. By observing proper sanitary conditions it may be prevented to some extent, and by using Radam's Microbe-Killer in time it will be easily cured.

To cure a disease means to stop it, not allow it to go on.

So long as a wagon is housed and sheltered from the rain it will remain uninjured ; but, as it is accustomed to being driven out in any kind of weather, we preserve it by coating every part with an antiseptic paint to prevent it from rotting. Nature has placed something everywhere to grow. She destroys everything that she creates, and in man makes no exception. Man cannot always stay in the house, he must go out into the wet and cold, and if not prepared to resist the sudden changes of temperature he will catch cold. That produces a cough, and fermented matter is discharged. Now, stop this fermentation by the use of a genuine antiseptic, and disease is cured. By this means we preserve the body from an early fermentation and decay. Our Creator has given us a pair of eyes to see the fermentation, a nose to smell it, and a brain to think over what this fermentation really is. But, strange as it may seem, most people do not care to use these organs, but rather pay others for using theirs.

In spite of those natural facts which no one will dare to deny, people still listen to such nonsense as that disease cannot be cured unless a regular medical, scientific examination be made on their bodies to find out if the lung is affected, and that a great many questions in diagnosing the symptoms have to be asked (which proves that the doctors do not know) to discover in what particular part of the body the disease is (just as if every part of the body could be cured separately) ; and after much valuable time and money have been wasted in destroying the common sense possessed by the patient, he is now led to believe that he will get well again if only he keep on swallowing punctually every hour (without knowing what he swallows) the magic drops from the large and the small bottle, which have no more to do with stopping fermentation (which is disease) than green apples have in curing dyspepsia. Hence disease goes on, it becomes chronic, and the patient gradually ferments, many in the prime of life.



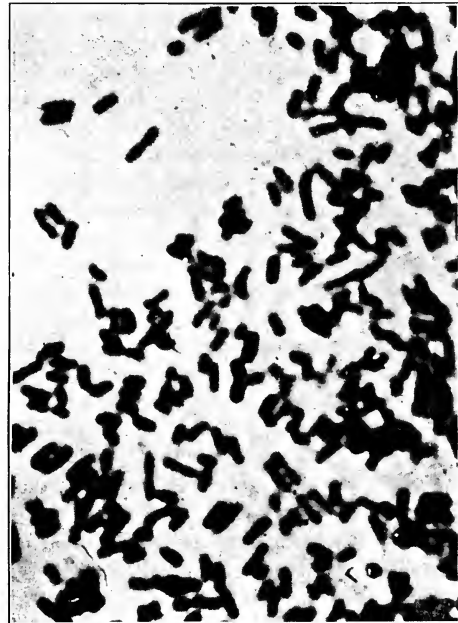
61. SPIRILLUM FINKLER ET PRIOR.
(IN CHOLERA MORBUS.)
x 2500. Photomicrograph by Wm. Radam.



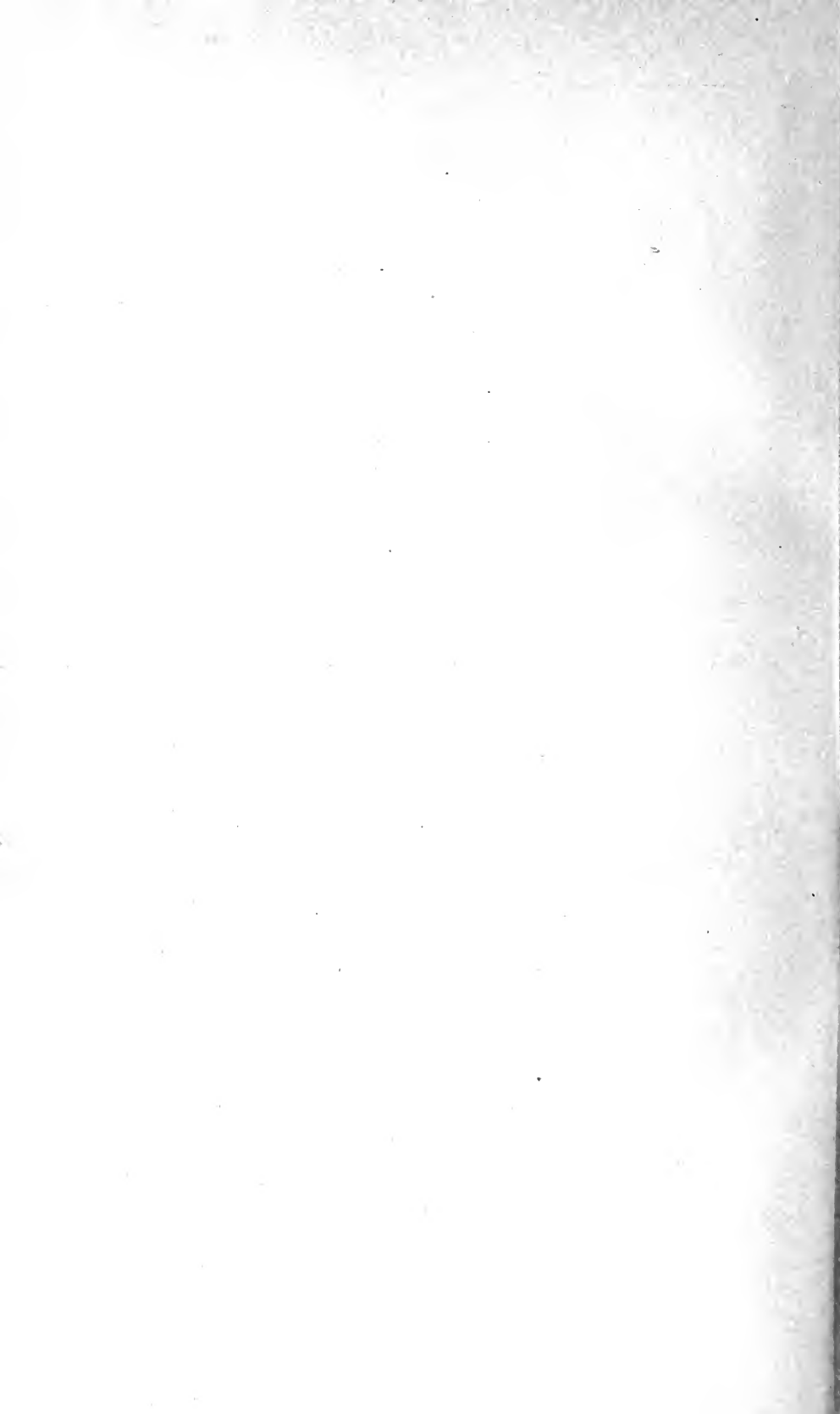
62. SPIRILLA VIBRIOSA.
x 1000. Photomicrograph by Wm. Radam.



63. SPIRILLUM CONCENTRICUM.
(IN PUTREFYING BLOOD.)
x 2500. Photomicrograph by Wm. Radam.



64. BACILLUS CRASSUS SPUTIGENUS.
(IN SPUTUM AND BLOOD.)
x 2500. Photomicrograph by Wm. Radam.



CHAPTER XIII.

CROUP AND DIPHTHERIA IN CHILDREN.

IF you should ask the mothers of the land what two diseases above all others they would like to have stamped out of existence, the answer would come, "croup and diphtheria." It is needless to describe the symptoms of either of these diseases. Every mother knows them, and every mother trembles when she hears the rasping from the little cradle or hears her children complain of sore throats.

The possible fatality of the diseases is what causes this fear. Probably not thirty per cent of the children attacked by the croup, nor more than fifty per cent of those seized with diphtheria, fail to recover. The fear that her child may be one of the unfortunate number terrorizes the mother.

Both croup and diphtheria are microbe diseases as well as all others. The reason that they have been considered dangerous is that they have been treated regardless of a thorough understanding of the disease. The microbes of both diseases develop amazingly fast. There is one microbe in the system to-day, to-morrow there are millions, and within a few hours longer the system is teeming with microbes. In order to better understand this fact let us examine both diseases separately and carefully.

Croup probably develops quicker than any other disease, not excepting cholera or yellow fever. Under certain conditions microbes produce certain effects. They are in a child's system, not necessarily working immediate injury, but waiting for a favorable opportunity to develop further. The weakest portion of the system is first attacked. Finally a sudden change in temperature

or exposure to cold chills the system of the child. The throat happens to be the weakest part of the child's system, and in the shock which follows the throat yields first. The microbes find a seed bed in the throat and develop most rapidly under the most perfect conditions. Inflammation takes place, and in a few minutes the product of the fermentation which ensues clogs up the air passage by forming on all sides of the throat and reaching toward the centre of the narrow channel, until a false membrane, composed of microbes, germs, and serum, seeks to cut off the communication with the lungs. If the membrane is formed entirely across the throat and cannot be immediately broken, strangulation naturally follows. In other words, death by croup is caused in a manner that may be compared to the clutching of a child's throat by a powerful hand and the grip remaining fast until the little life has ebbed away.

All attempts to cure croup are directed toward one end—the breaking up or dislodging of the false membrane. If this can be accomplished the cure is complete, although the disease is likely to return again under favorable circumstances. To dislodge this false membrane physicians employ harsh remedies and oftentimes the handle of a small spoon. Occasionally their efforts are successful. Often they are not.

The investigations I have made in croup demonstrate that it is seldom treated upon principles true to Nature. It may be a step in the right direction to break this false membrane, but how much better is a treatment directed against the cause which forms the membrane! Arrest the fermentation and you immediately arrest the formation of the slime which finally becomes the membrane. The microbes which cause this fermentation are almost instantly rendered inactive by the microbe-killer. In the thousands of cases treated by parents themselves with the aid of the microbe-killer, I have never heard of a single case of membranous croup that did not yield within five minutes to the microbe-killer. Instantly the cause was stopped and the membrane

partially formed was dissolved. Another noticeable result of the use of the microbe-killer in such cases has been that rarely was the child affected with the disease again, but if so it yielded still more easily to the gas-impregnated water.

The trouble with many people is that either through carelessness or ignorance they do not have at hand the necessary remedies when they are most needed. I knew once of a wealthy manufacturer whose child was dying with croup. Those who were with him said that he wrung his hands and cried, "My fortune, my prospects, my very life for something that will cure my child." But the child died. Had the microbe-killer been in that household, and instantly used, recovery would have been certain. This illustration only shows how important it is to have the right thing at the right time, as an ounce of prevention is well worth a pound of cure.

Diphtheria is a most singular as well as dangerous disease. It develops much slower than croup and yet much more effectively. It is contagious and malignant, and the special microbe (see Plate IX., No. 36) which causes it does not require a seed bed of long development, but assists in making its own seed bed. The microbes attack the lining of the throat, producing fermentation, which is shown in the little pustules or festers which make their appearance. The microbes, of course, are in the blood, and there are few microbes more poisonous than the microbes of diphtheria. The whole system is saturated with poison, and even if the patient recovers months will elapse before this poison is driven out of the system. In many cases death does not occur until after the fermentation has practically left the throat. The physician then attributes death to Bright's disease or some other ailment—and indeed those organs are affected, but the main cause of death was the diphtherial poison in the system. It attacked the weakest portion of the system. If that portion happened to be the kidneys, as is often the case, then the cause of death was attributed to Bright's disease.

The effect of the microbe-killer in diphtheria has been remarkable. The microbe yields quickly, and a use of the microbe-killer a short time afterward drives the poison out of the system and makes recovery speedy and certain. I have never known a case of diphtheria treated with this discovery which proved fatal, and I do not believe it would be possible for a fatal case to occur when a liberal use of the microbe-killer was the prompt treatment.

Physicians long ago accepted my theory that diphtheria was caused by microbes. The remedies they universally employ to cure the disease are antiseptics. The most common, probably, is to spray the throat with a weak solution of carbolic acid. Carbolic acid is a good disinfectant, but experiments I have frequently made show that a solution containing carbolic acid, weak enough to be employed in spraying the throat without injury to the patient, will not kill the microbes. This can be readily proven by placing the microbes from diphtheria in that solution—they will still live. But, on the other hand, place those microbes in Radam's Microbe-Killer and their propagation is immediately stopped and in a short time the microbes are actually dead. Could any one need stronger arguments than these to convince him that disease is fermentation, and to cure it there must be employed an antiseptic, absolutely harmless to the weakest system, but still so powerful as to kill the microbes which cause that fermentation? It naturally follows that such an antiseptic should be always at hand, to be used whenever the emergency arises.

CHAPTER XIV.

CHARACTERISTICS OF DISEASE GERMS.

THE propagation and growth of microbes is governed by air, heat, and moisture. They also need a certain seed bed in which to grow, just like plants. For instance, the fungi that grow on a rosebush do not grow on a geranium. The fungus that grows on a pear will not grow on an apple, orange, plum, or cherry. The microbes that grow and produce disease in a horse are not necessarily harmful to a cow. Even children are attacked by different microbes, hence they suffer from diseases different from those which attack adults. In fact, each and every species of microbe needs a certain seed bed and temperature before it can propagate.

Disease germs only which propagate and grow in the human body are the cause of our diseases, although there are many different kinds of these germs, and consequently they cause the different classes of so-called diseases. All other germs or microbes which may enter our system, but do not find there the proper seed bed and temperature for their existence, are perfectly harmless. Some physicians say that there are good and bad microbes, and that both are necessary for our existence in order to produce digestion and fermentation. This is not true. In a clean, healthy stomach the food never ferments, but is digested before it has time to ferment. Food eaten in a certain state of fermentation will affect the stomach and produce sickness, in the same way that fresh stable manures just in the state of fermentation will produce sickness in plants if placed around their roots. Any fermentation that may go on in the food at the time we eat it produces sickness at once. Whoever has eaten stale meat or spoiled food of any kind knows

the result. If a horse eats too much green corn and drinks water immediately afterward, fermentation sets in before the stomach has time to digest the food. Hence there is fermentation, and the horse is attacked by the colic—that is, volumes of gas are produced by the action of the microbes which cause the fermentation. This gas naturally causes the body to swell, and pain is the result. Sometimes this pain is most excruciating, and frequently death is the result.

A quart of the microbe-killer administered in such cases kills the microbes at once. Hence fermentation ceases and no more gas is produced. If relief does not follow at once, a pint of microbe-killer injected into the rectum will cause the gases to disappear immediately, and consequently the swelling of the body also passes away.

I tried to produce the same symptoms of colic in my stomach, in order to test the efficiency of the microbe-killer. I ate a large quantity of unripe pears and then drank a bottle of stale beer. In fifteen minutes fermentation set in and I had the colic. After the pain became too severe to be endured I drank the tumblerful of the microbe-killer. This stopped the pain somewhat, but two glasses additional, swallowed at intervals of five minutes, relieved me of all pain, and my stomach had then time enough to digest the food, as this was thoroughly saturated with the microbe-killer.

The same results have been experienced by others who have suffered from indigestion. A glass of microbe-killer, drunk immediately after eating, always gives relief. This goes to show that the food does not ferment in a healthy stomach, and that, if we can stop it from fermenting in a sick stomach, it will always be digested. Had I possessed a quart of the microbe-killer at the time my two children were ill, they would not have died from fermentation in the stomach, which caused all food to be rejected. I point out this incident simply to show what the result will be if people listen to and believe that we need good microbes and that the food in our stomach must ferment.

Now, the fact is, microbes produce fermentation, and no fermentation of any kind is wanted in the human body. Tapeworms, trichinæ spiralis, flesh worms, and the like are parasites and not microbes. They may eat, even pierce holes, but they can never bring about fermentation, although they may bring about a condition in which the microbes can more easily cause fermentation. Buttermilk is full of microbes, and so is beer. We drink them to nourish our body. As our system has not the ingredients of milk or beer, these microbes die. Hence they are harmless. There are thousands and thousands of so-called good microbes that we eat, drink, or inhale, but none of them grow in our body or blood, consequently they are harmless. When we are sick we do not fight the good microbes, but those which propagate and grow in our body and are generally called disease germs.

There is so much nonsense written or told about microbes to patients by men in the profession who do not know anything about Nature, that I am forced to produce stubborn facts of Nature, over which they may ponder a little. The question has also been asked, if we can kill all the microbes in the human body, will this not kill the generative microbe?

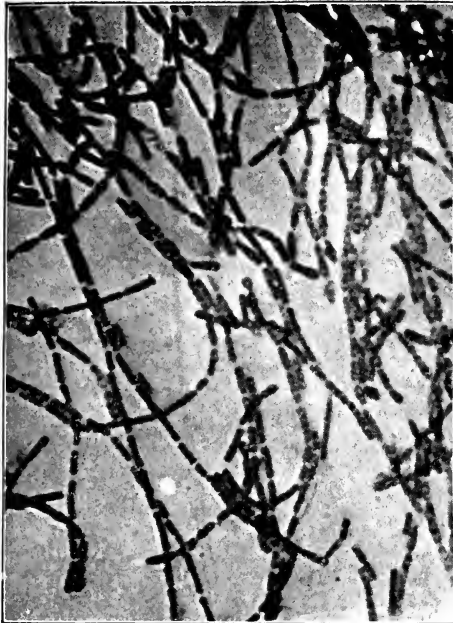
My answer is that there are no generative microbes, there is no generative fermentation. The seed in man or woman is no more microbe or disease than the seed of a plant or tree is a disease. When a plant is sick the flowers and seed will never be perfect; in most cases the seed will be hollow. When a man or woman is sick their seed, too, is not perfect, and in some cases not fruitful. To cure a man or woman of incompetency and nervousness, their blood must first be purified from all microbes, so that they may become healthy. Then plenty of seed will be produced. The whole process observed in the propagation of plants by seed acts in the very same manner as in the propagation of mankind. In fact, whatever I learned in raising plants through hybridization, cultivation, and curing them of disease, can safely

be applied to mankind without making any mistakes. Nature brings forth new plants and new flowers every year by hybridization ; Nature also in the same manner brings forth new microbes, hence we have new diseases. Physicians bother themselves about diagnosis of symptoms in trying to give the disease a certain name, and while they are delaying and consulting each other the patient dies.

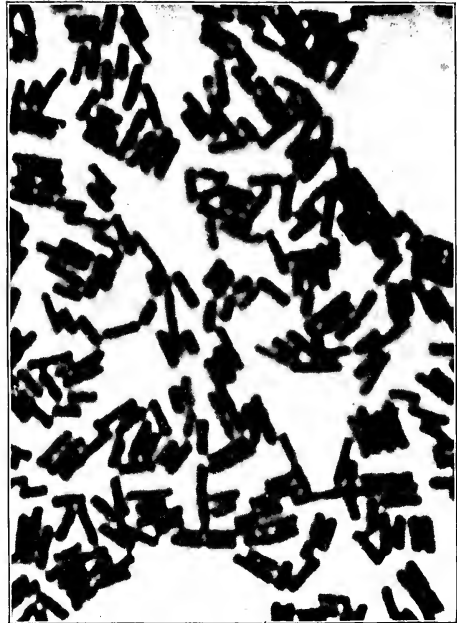
Another great mistake I found in reading over books treating about bacteriology is the process employed by those professors to settle the question whether this or that disease is caused by microbes. They generally inject a drop of pus or fermented matter obtained from a sick person under the skin of a rabbit or guinea-pig, to see if the animal will be affected with the same disease. Some of them try to isolate the different microbes contained in the fermented matter obtained from a sick person, by raising them artificially on agar-agar, beef broth, potatoes, rice, etc., where the microbes separate into different colonies. These are then injected under the skin of rabbits or guinea-pigs. If the process fails to cause sickness and the same symptoms as those displayed by the patient from whom the fermentation was taken, then they say that it has not been demonstrated that this particular kind of disease is caused by microbes.

And so they go on trying to establish diseases caused by microbes on a test which the reader will see, from my observation and experiments made on plants, proves what can be expected.

I found that if I graft a bud or scion from a peach tree suffering from the blight to a healthy peach seedling, the disease is transferred to the seedling, as can be seen by the yellow leaves. But I have never succeeded in producing the same result by transferring diseases peculiar to the peach tree over into apple, pear, or cherry trees. In fact, the scions or buds refused to unite or grow at all, for the reason that the apple, pear, or cherry is entirely different in growth, structure, sap, leaves, and fruit from peach trees. But, in my opinion, they



65. **BACILLUS ANTHRACIS.**
 (GER. MILZBRAND. FR. CHARBON.)
 x 1000. Photomicrograph by Wm. Radam.



66. **BACILLUS ANTHRACIS.**
 (GER. MILZBRAND. FR. CHARBON.)
 x 2500. Photomicrograph by Wm. Radam.



67. **BACILLUS ANTHRACIS.**
 (SHOWING SPORES.)
 x 2500. Photomicrograph by Wm. Radam.



68. **BACILLUS ANTHRACIS.**
 (IN KIDNEY.)
 x 1000. Photomicrograph by Wm. Radam.

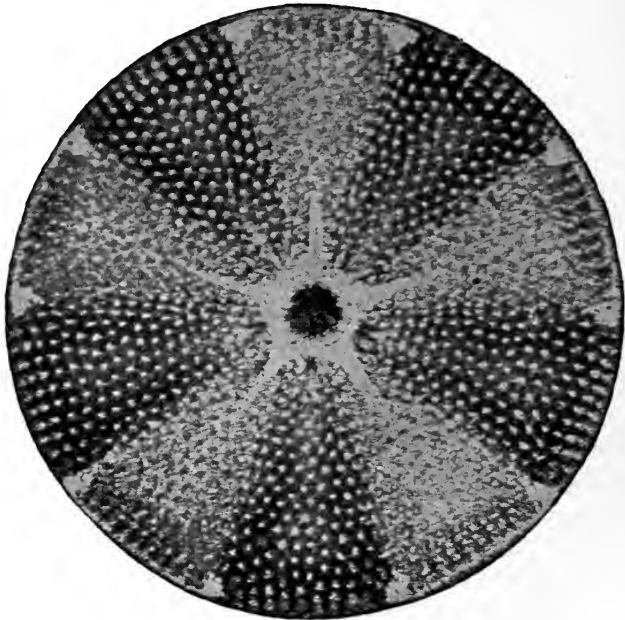
are not as far away as man is from a guinea-pig, rabbit, or mouse. If we look at the form of the blood corpuscles obtained from an ox, fish, frog, or pigeon, we see at once that they are different in size and form. As the blood corpuscles are different in each animal from those of man, this explains why each of them suffers from diseases which would never affect man, or *vice versa*.

In my article on consumption I have shown that even the tubercle bacilli would refuse to propagate in a healthy person, for the simple reason that each kind of microbe requires a certain seed bed and a certain temperature in which to grow, just as the different varieties of plants require.

We know very well that not every person catches the cholera, small-pox, diphtheria, typhoid fever, etc., for the simple reason that each variety of microbe and disease germ needs a certain seed bed and temperature in order to grow and develop. The raising of microbes in bottles, injecting them with instruments into small, innocent animals, may look scientific, but my observations of Nature prove that those experiments have nothing to do in settling the question if a certain disease is caused by a certain microbe or not. If the disease is not caused by a microbe, how is it caused, then ?

Whenever I examine any fermented matter under the microscope I see microbes ; be the matter gall stone, gravel, tubercles, pus, or whatever name the physicians may give, it is life. And that these little creatures possess some sort of sense can be seen by their movements. Like stars, some varieties shoot over the field without running into each other, and some of them seem to amuse themselves by trying to catch each other. Sometimes one swims over the field and another follows ; then the first suddenly turns and the other follows in the same angle. Does this not show that even the smallest creatures, that can only be seen when magnified a thousand times, must possess some sort of sense ? And how many microbes may there be which we cannot detect at all ? How many stars do we see, and how many

may there be which we cannot see? Any man who denies that all diseases are caused by microbes has no business to be meddling with scientific subjects, because he will do more harm than he can possibly do good. To claim but not to prove anything shows nothing. Whatever I did claim I proved, for the reason that I write nothing down except what Nature actually shows. There may be some subjects omitted in this volume, but what I have written is sufficient proof that the cause and cure of all diseases has been discovered. The photo-micrographs are subject to improvement, but the facts of Nature—how she destroys, and what must be done to stop the destroying element—cannot be changed. Hence what I have written needs no future revision. It is written for all time to come.



CHAPTER XV.

GENERAL OBSERVATIONS AND SUMMARY.

THE reader who has carefully perused the preceding chapters and examined the photographs of microbes will possess a better and more thorough knowledge of a difficult scientific subject than possessed by ordinary medical scientists. In fact, if the reader has become convinced that the cause of all disease is fermentation, that this fermentation is caused by microbes, that in order to cure disease you must stop fermentation, and that in order to stop fermentation you must kill the microbes which cause it, the object of the author in writing this book is accomplished. A few general observations on microbes is all that is now necessary.

Fungi differ from all other vegetable organizations, as I hinted previously. Other plants live upon inorganic food, and produce protoplasm by the combination of water, ammonia, and carbonic acid, whereas fungi live upon organic matter and are genuine parasites. Some even propagate in a sexual manner, and for that reason have been placed by a few biologists in the animal kingdom, but the distinction is not universally acknowledged, and they still hold their place in the vegetable kingdom. In the production of diseased conditions the fungus is no less active than the yet more simple forms—in fact, it is probably more active, since it seems to possess a greater power in promoting fermentation. The exact rationale of this process has not, so far as I am aware, ever been explained, but when we know the peculiar difference that separates a fungus from other plants it is not difficult to form a theory. Take, for example, the microbe of intermittent fever. This circulates in the blood. It lives upon the blood corpuscles, destroying their vitality

and form, appropriating oxygen and exhaling carbonic acid. The older chemists thought that it was a mere effect of contact, but that idea must be laid aside in view of the certainty that a chemical decomposition takes place, and that the destruction of the properties of the blood is really due to that cause.

The extreme minuteness of these micro-organisms is a feature that must always be borne in mind. Not only are they small, often beyond reach of any but the highest microscopic powers, but their tissues are extremely delicate, so as to render them imperceptible sometimes to all but the most practised eyes. For this reason it is extremely difficult to meet with them when they do not afford a sufficient resistance to light to enable us to obtain photographs or any natural delineation.

And it was this difficulty which I had to overcome in producing most of the plates that appear in this work. No attempt had ever before been made to convey by means of such illustrations to the general public an idea of what microbes are, and, when it is remembered that they are so minute and so translucent as scarcely to cast a shadow, the reason may be understood. So-called engravings of microbes of la grippe, for instance, and other diseases, which have appeared in the papers, are purely the work of somebody's imagination. They bear no resemblance whatever to the reality.

This peculiarity does not affect the vitality of microbes. Minute and delicate though they are, they are extremely tenacious of life. They cannot be destroyed readily. When my factories were first established I had abundant opportunity to make a collection of numerous forms of microbes. My patients brought me bottles of matter, for examination, in a state of fermentation, and sometimes I discovered in one of them as many as from six to ten varieties, showing to me conclusively that that person had as many forms of disease, while the patient may have been treated for but one ailment by his doctor. Sometimes I received matter from the stomach of a patient immediately after he had taken his medi-

cine. This I usually preserved for the purpose of learning whether the medicine would stop the fermentation. I kept the matter in carefully stopped bottles, and invariably I found that the fermentation continued. The microbes were not killed, but they went on multiplying throughout the whole time, showing that the medicine that had been given was utterly useless to destroy the cause of disease. Physicians are well aware of the ineffectiveness of many of their remedies, and they are willing to acknowledge among themselves that the only really powerful drugs in battling with microbes are fatal also to the patient. Of these the principal are corrosive sublimate and carbolic acid, but they must be used in considerable strength. Strong alcohol has no effect on dried microbes, but, especially if used in its fullest strength, it is a powerful agent when the germs are in a moistened condition. Boracic acid, once thought of so much value, has been shown to possess no action whatever, after ten days' trial the germs resisting it most effectually. Iodine has been tried for forty-eight hours, and found also to produce no effect. Chloride of zinc, oil of turpentine, thymol, and eucalyptol have yielded similar negative results. Ointments of iodoform and iodol are equally ineffectual. The strongest iodoform simply retarded the development of microbes after twelve hours' exposure. It did not kill them. Hot water does not destroy them, unless it be raised to near the boiling temperature. Permanganate of potash has been recommended, but the effect here is curious. Instead of the salt killing the microbe, the microbe decomposes the permanganate and renders it ineffectual. Peroxide of hydrogen is uncertain, and at the best produces very little effect, and chlorate of potash is, for all practical purposes, useless.

In like manner, physicians admit, as the teaching of experiment, that oil of mustard, arsenious acid, and even the much-vaunted salicylic acid, are quite unreliable and inefficient. It comes, in fact, to this, that the three most powerful agents used by the doctors are car-

bolic acid, corrosive sublimate, and strong alcohol. But how can the body be saturated with either of them? One-sixtieth of a grain is a dose of corrosive sublimate, yet, to destroy the cause of a disease, it is necessary to reach throughout all the tissues, and long before that point were reached the patient would be dead.

I wish to avoid conveying the impression to even the most unsophisticated reader that I claim any originality in attributing disease to the presence of microbes. That view is fully accepted by the medical profession. The difference is that, whereas physicians attribute only a few diseases to this cause, I aver that it is the origin of all. Every year, too, adds to the doctors' list, and zymotic ailments are gradually becoming more numerous. Even in diseases like small-pox, whooping cough, and measles, where the special microbe has not been absolutely identified in the blood, its existence is admitted. In this way the whole subject has received attention, and many points of interest and practical value have been obtained.

Some forms of microbes have the power of producing spores, and these are more capable of resisting antiseptics than are the fully developed germs. Diseases where this form of bacillus exists are consequently more difficult to cure, and it is more than probable that small-pox comes in this category. Experiments instituted by Prof. Koch for the German Imperial Board of Health are among the most important that bear upon the resistance of these organisms, and the effects of various agents. It created no little surprise among physicians when Koch reported that many of the most popular and, as was supposed, the most powerful antiseptics or germicides were, in fact, of no use at all. Carbolic acid restrained their growth, but unless used in very powerful form it was much less efficacious in destroying their vitality. A one-per-cent solution required fifteen days in which to kill them, and then only when they were kept submerged in the fluid the whole time. It is remarkable, too, that when the carbolic acid was

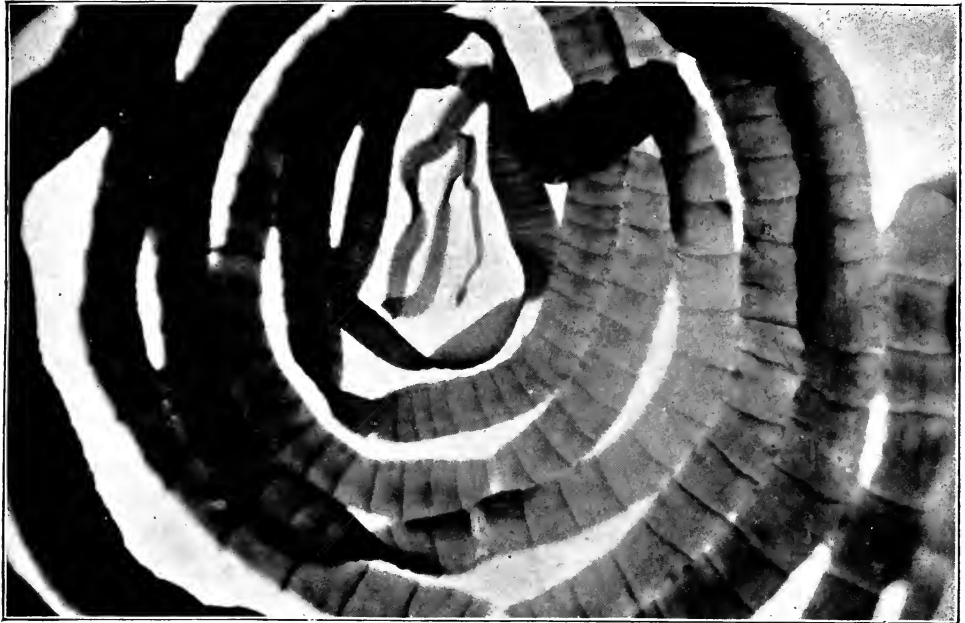
mixed with alcohol it had no disinfecting influence at all. Bisulphide of carbon had no effect upon them until a temperature of 176° was reached, which, of course, is far beyond any practical temperature for the body. Bacteria that are free from spores may be destroyed at 212° , the boiling point of water, but spore-bearing microbes will resist 280° . Excepting the germ of yellow fever, their bodies are proof against cold as well as against heat. The microbe of typhus withstands a considerable degree of cold, thus indicating a typical difference between that and yellow fever.

I have succeeded in propagating microbes in different fluids in which some of these medicines, as carbolic and muriatic acids, were mixed. Hydrochloric acid is indeed present in the stomach during digestion, where, being in small quantities, it certainly does not destroy fermentation. I have added to my bottles of microbe culture as much as twenty-five per cent of mercury, and even with that degree of strength it required from three to ten hours to kill them. All this line of experimenting convinced me that I have to use large doses of medicine, and to carry it through all the tissues, if I would destroy the microbes of disease; but with the medicines that the doctors prescribe this cannot be done, and, with the small doses they are forced to give, nothing but a very imperfect result is possible. I often found the contents of bottles which I carried about with me to be dried up. Nothing remained but a dry, dusty substance, which would break up like the ashes of a cigar. When I added a little distilled water to this, and allowed it to stand for a few days, the microbes would be alive again, multiplying as rapidly as before, because the germs remain dormant in a dry state, just like seeds, but they will grow when kept moist. Every housekeeper knows that yeast cakes may be kept dry for months, and that as soon as they are moistened and placed under favorable circumstances, with a sufficient temperature, they induce fermentation. This is nothing more than the yeast plant, which is a fungus or microbe, revivifying and in-

creasing and growing, feeding for the time on the material in which it is placed, and, like an animal, giving out carbonic acid.

Some organisms cease to exist when the process of putrefaction to which they gave rise has attained to a certain excess, as if the results of the chemical changes were themselves sufficient to destroy life. But this condition is beyond my province to notice except as a matter of interest. Disease germs in a state of activity sufficient to reproduce disease may be conveyed, as already explained, directly from the body or discharges, including the exhalation from the skin, also from the clothes or bedding, or through the air or articles of food, or by dust that settles on the walls or floor, or from the soil, or through defects in sewerage. Fire is the only absolutely perfect disinfectant, but other means will suffice if accompanied by proper precautions.

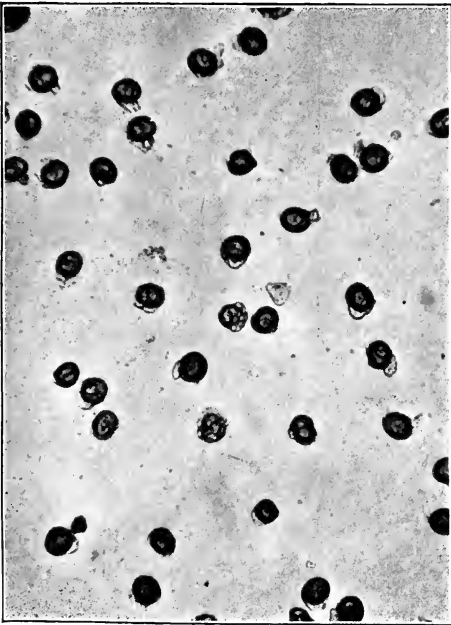
From what I have previously said it is easy to see how germs may be taken into the system from the atmosphere. Those ordinarily there may not be productive of disease, but that is of no practical import. I have shown the danger arising from the too prevalent habit of expectoration. But if we pass from outdoors into the sick-room it is greatly increased. A person suffering with diseases such as scarlet fever, measles, etc., may be the means of allowing microbes to get into the bed coverings. This will dry up and remain there until disturbed, when immediately they float about the air and may pass into the lungs of other individuals. This, again, indicates two points that are not sufficiently attended to. One is the folly, before referred to, of having draperies, curtains, and hangings about the sick-chamber; and the other the mistake that is often made in the use of disinfectants after illness, since it is shown that germs in a dry state will resist antiseptics that would be effectual if they were merely moistened. It is for this reason that chlorine and sulphurous acid gas so frequently fail to produce the effect desired. Thus people are often very unnecessarily surprised when, after what



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TAPEWORM WITH HEAD.

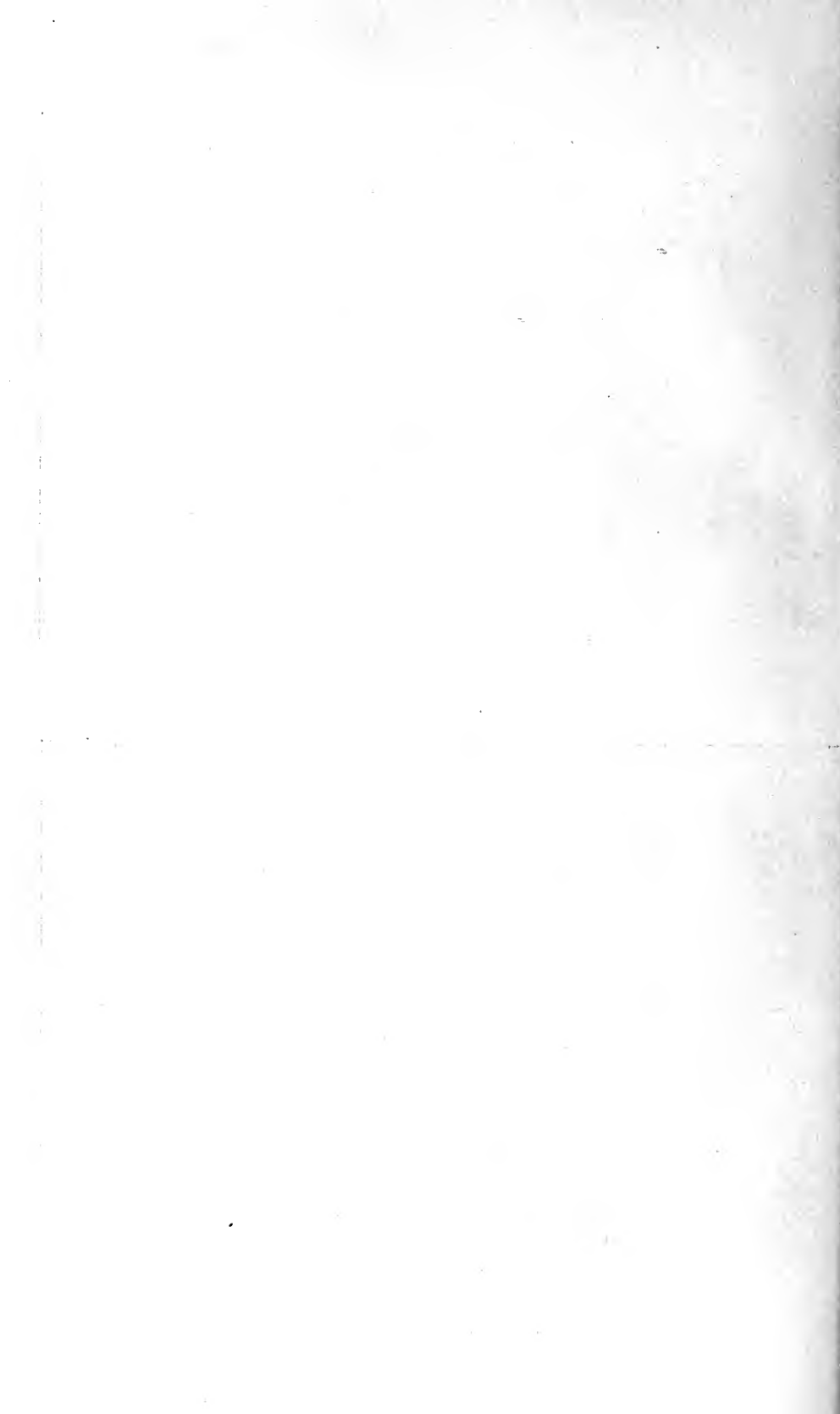
Photomicrograph by Wm. Radam.



71. EGGS OF TAPEWORM.
x 30. Photomicrograph by Wm. Radam.



72. TRICHINA SPIRALIS IN FLESH.
x 50. Photomicrograph by Wm. Radam.



they think has been a disinfecting process, cholera, yellow fever, scarlet fever, or some disease of that kind will break out again, often with more virulence than before.

If meat that has been hung a few days in unfavorable weather, until an odor of fermentation can be discovered, be placed under the microscope, microbes may be detected producing fermentation and putrefaction ; and thus the nose becomes an organ to warn its owner against a danger which the eyes fail to discover. I have no doubt that considerable sickness is caused by the recent custom of eating meat improperly cooked. Doctors sometimes order their patients to eat raw meat and to drink fresh blood. In these instances the patients take nourishment into the system, and they also take the germs of disease. We all know the terrible effects produced by trichinae that infest raw pork ; how, when taken into the stomach, they soon develop throughout the whole system, and the victim soon dies in indescribable torture. Persons who take raw meat, or eat underdone meat, are liable to a similar evil, if in a less degree. Microbes are not killed except by a very high degree of heat—a degree much higher than that which enters into the substance of meat that is insufficiently cooked.

A temperature of 212° will, as I have stated already, suffice to destroy many germs, but there are some that survive a higher degree of heat unless it is continued for a considerable time. Epidemics are certainly conveyed in milk, but wherever the milk is carefully and sufficiently boiled no disease is ever induced by it. A case is on record where a number of persons were seized with a severe attack of choleraic diarrhoea after partaking of a boiled ham at a public lunch. It was proved that the meat contained numbers of spore-bearing microbes, which are always difficult to kill, and that it had been insufficiently cooked. In another instance similar results followed after a number of persons had eaten of well-cooked pork. But in that case the micro-organisms had taken their origin in the food after it had been cooked—a fact which again conveyed a useful lesson.

In freezing, the microbes of meat are not destroyed ; they simply remain dormant and cease propagating, as they do in dry dust, but as soon as the meat is thawed they begin again to do their work ; they increase and multiply ; the process of fermentation begins and that of putrefaction soon follows. It is extremely difficult to kill them. Even where sulphurous acid gas is used, several hours become necessary in which to continue the process, and all atmospheric air must be carefully excluded. The sulphur gas must have access to every crack and crevice, for if but a vestige of microbe life remains it will develop, and the fumigation or disinfecting process will have been in vain. To say that microbes may be dissipated or destroyed by firing cannon, building fires, or spraying something into the air, is simply a result of ignorance.

Microbes are known to exist in sulphuric acid and in many other powerful poisons, but they are not of a kind that would produce disease in the human body, because they could not find a suitable nidus there. It shows, however, what they may be, and how capable they are of sustaining life under conditions where it seems impossible. If microbes from the body be placed in sulphuric acid they are, of course, instantly consumed.

The micro-organisms are universal. If all were detrimental to the human body we could not live for twenty-four hours. We inhale them with our breath, take them into the system with our food, and can barely handle anything without coming in contact with them. Some are even healthful. The yeast plant is one of them, and the fungi that we have in wine, beer, and vinegar are not injurious. It is only disease-producing germs that we have to combat, and those which find a suitable nidus in the human body for propagation.

Sometimes doctors have told me that in destroying disease germs we destroy also microbes that may be useful. To that I can confidently reply that I have destroyed disease microbes in myself and in thousands of other persons, and that if the good ones have gone too

they have never been missed. An unhealthy tree does not produce healthy fruit, neither does a constitutionally unhealthy person produce healthy offspring. His vitality is destroyed by another microbe, which is out of place and dangerous. But get rid of the disease germs, and Nature will build up the system and produce vigorous health and life-giving powers. When a person tells me that he suffers from nervous irritability or depression, feels weak and wanting in energy, is unable to bring himself to his work, and is generally incompetent, I know that he must take microbe-killer, which will destroy disease germs. This can only be done when the body has been built up and the whole system is strengthened, so that the blood, purified and enriched, shall circulate freely and impart vigor and tone to the sensations as well as to the body. For with improved circulation the whole nervous system is strengthened. Irritability and extreme sensitiveness disappear. The nerves perform their legitimate functions and the individual is brought up to a standard of normal health such as the body is fitted for. Water that is not kept in motion becomes foul and stagnant. Fungi grow in it, and fermentation and putrefaction are encouraged. And so it is with the blood. Directly it ceases to circulate freely we have an indication that there is something wrong, that it contains something that ought not to be there. When it is well nourished and clear, so that it circulates freely, no palpitation or nervousness or any pain will worry us. Under that condition we cannot be sick or ailing. The blood is the life. If we can keep it always free from microbes and impurities, and in a condition where it furnishes sustenance to the tissues as it should do, we may prolong our lives till old age ends them. Children and young people who are free from hereditary trouble die as a consequence of the ignorance of the medical faculty, who mistake or misunderstand the cause of the disease, and consequently err in providing a remedy.

With the microbe-killer near at hand sickness is shorn

of all its terrors. We need not fear it, for the remedy is with us. We can stop it at once and renew ourselves again, even as a house may be painted again and again to preserve it from fungi, which, of course, cannot attack it as readily as though it were not painted. Precisely the same thing occurs in the body when the microbe-killer is applied, as must be evident to those who have followed me through my description of the cures I have effected in chronic diseases. Nothing is more simple than to cure disease when it first begins, provided we deal with it intelligently and according to the directions and principles that I have laid down.

Any one who goes carefully through the foregoing pages will have to admit that I have set down nothing which is incapable of proof. I deal in no guesswork, empiricism, or theory, but in hard facts; and these, I think, I have made clear and convincing.

Man had better never have been created, if he was to be destined to everlasting misery and wretchedness. People's brains are not of equal value or equal force, but everybody has at least some, and, such as they are, he should make the best use of them. They must be very bad indeed if they cannot be made available to do a little thinking, if only just enough to take care of the body they are attached to. The man who, unafflicted by disease or some natural debility, cannot take care of himself can hardly expect that other people will take care of him. People should not be led away by every charlatan who jumps up before them and talks; but as long as the world lasts there will probably be fools in it, and fools are a godsend to rogues. There is a fascination in being humbugged. Make it known to the world that you are going to do some impossible thing, and the world will pay money to come in and see you do it, although well understanding all the while that the thing cannot be done. It is a part, possibly, of the perversity of human nature, which in practice refuses to realize that talking about something and giving proof of it are two very different things. There are hundreds and thousands of

men—ay, and women too—who have a great deal to say about disease and medicine who have the stamp of impostors branded on their face. It is not enough that a man shall promise to cure disease; let him give practical demonstration of his ability to do what he says. Until he has done that, he is unworthy of credence or confidence. It is nothing that he writes books and calls it science, and asks the people to pay for it as such. He must show by actual proof that it is not the outpouring of worse than unpardonable ignorance. Genuine science gives facts and proof that they are facts, so that people who will take the trouble may judge for themselves and be satisfied.

That is the principle that has actuated me in my discovery. I religiously abstain from making any promise which I cannot fulfil. I have stated nothing as a fact which I cannot prove. I have given honestly and as plainly as possible, so that all may understand, the whole history of my discovery, how I came to make it, and what it has done, and there is not a single assertion throughout this book bearing upon the microbe-killer which is not absolutely true. But, to put the whole matter as concisely as possible, the facts which I have discovered and which I am especially prepared to prove are these :

1. The discovery that the cause of all diseases is fermentation, and that this fermentation is caused by microbes. Any person who tries to contradict this must show by facts that there is one single disease which is not caused by microbes.

2. The discovery of the universal remedy which will stop fermentation in the human body without killing the patient or causing injury in any manner. The universal remedy may be called the cure of all diseases.

In addition to discovering the cause of all diseases and the cure of all diseases, I have conclusively proven the following facts :

1. That the sick can be cured without regard to symptoms.

2. That the sick can cure themselves without expensive medical treatment, thereby saving time and money.

3. That little children who cannot tell their symptoms or ailments are cured by the microbe-killer without danger, because their diseases are caused by microbes.

4. That by the use of the microbe-killer every disease can be cured without the use of surgical instruments, thus doing away with painful operations.

5. That disease can be cured by the microbe-killer without causing drunkards, morphine or cocaine fiends.

6. That by a free use of the microbe-killer every disease can be stopped before it can develop sufficiently to kill the patient, thus saving time, money, misery, and in most cases painful death.

7. That with the microbe-killer in the house, all danger of being poisoned, especially in the dark, by mistaking a poisonous medicine for a harmless one, is removed.

8. That as the microbe-killer is always ready, absolutely harmless, and easy to take, it saves time and needless expense in arresting disease which would otherwise run its course.

9. That as the microbe-killer has cured every kind of disease upon which it has been tried, it is reasonable to expect that it will stamp out cholera and other epidemics.

10. As diseases in animals are also caused by microbes, the microbe-killer naturally cures diseases in animals.

11. That I have discovered a practical way how to test any medicine or drug outside the human body, if it can cure or not, and if it is harmless or not, thus doing away with all dangerous experiments on the patient. It was this test which made me declare in the public press that Dr. Koch's lymph could not cure consumption.

12. That I was the first to present to the public the cause of diseases by true illustrations as seen through the microscope. The photomicrographs seen in this book were made by me after years of patient work. Their object is to cause the reader to think and investi-

gate, and to remove the absurdities which have grown up through ignorance on the part of medical science.

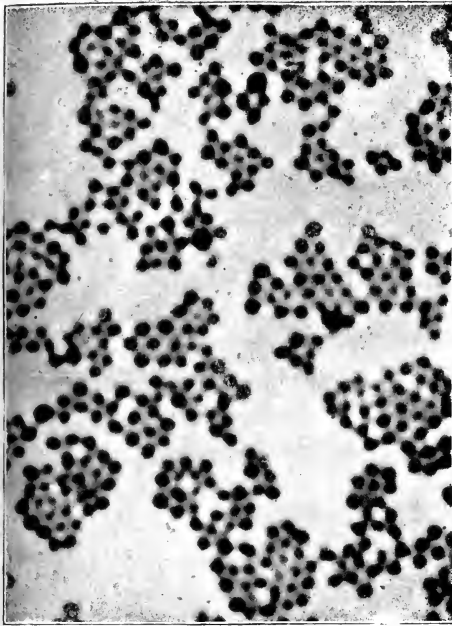
13. And last, but not least, that the studies of Nature, in all her various forms, which I have made renders me competent to defend myself against all medical theories and guesswork.

CHAPTER XVI.

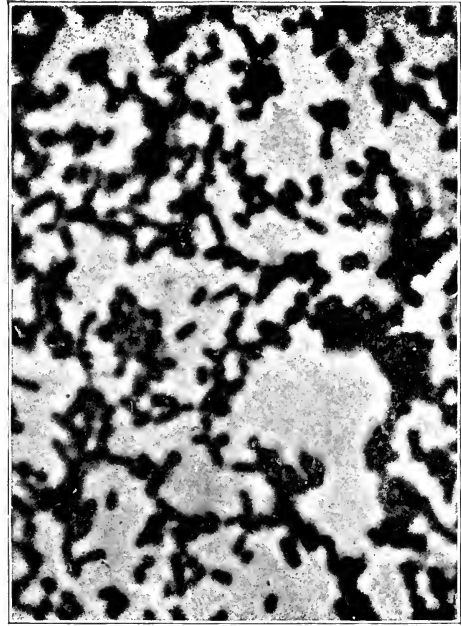
IMITATIONS OF, AND PERSECUTIONS AGAINST, THE MICROBE-KILLER.

UNFORTUNATELY for science and humanity, there is a large class of unscrupulous men who are continually seeking to profit through the genius or labors of others. They have not the power to originate, nor even to copy where to copy requires any degree of skill. If they can copy or imitate they do so. If they are unable to copy or imitate they pretend they have done so. In the infancy of a discovery they stand idly by, but as soon as the discovery is proven of value to humanity, then they begin at once to imitate.

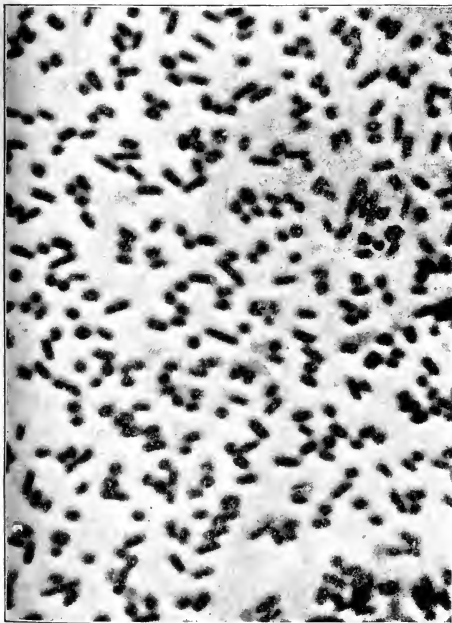
The microbe-killer has probably had more imitators than any other scientific discovery. The first was a few months after my discovery, when a druggist near where I lived placed a medicine on the market which he pretended would destroy microbes. Later, however, dozens of remedies sprang up all over the country under the names of "Germ-Killers," "Germicide," "Microbine," or similar names, alleged to kill microbes. It is needless to say more about them. They were imitations, pure and simple, and not only failed to kill microbes, which was claimed for them, but were dangerous to use. In addition to stealing the theory of my discovery many of these imitators even went further. They copied my circulars and changed my testimonials, claiming them for their alleged remedies. My resort, of course, was to the courts. Suit after suit was instituted, and always with success. If an alleged remedy was driven out under one name, in a few days it would appear under another name. Frequently there were cases in which my name and labels, as well as the jug I have used in put-



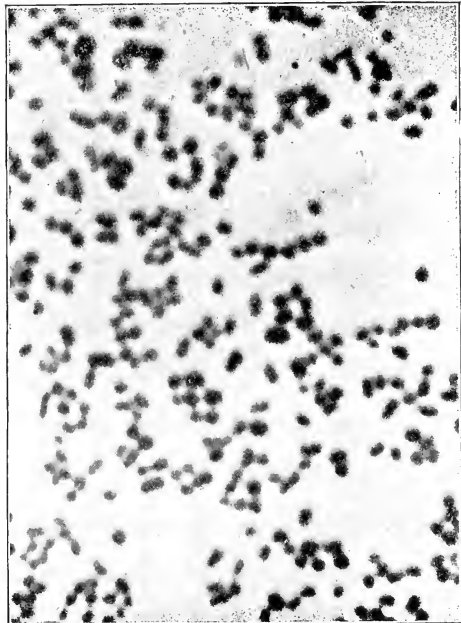
73. **MICROCOCCUS TRACHOMA
CONJUNCTA.**
(TRACHOMA.)
x 2500. Photomicrograph by Wm. Radam.



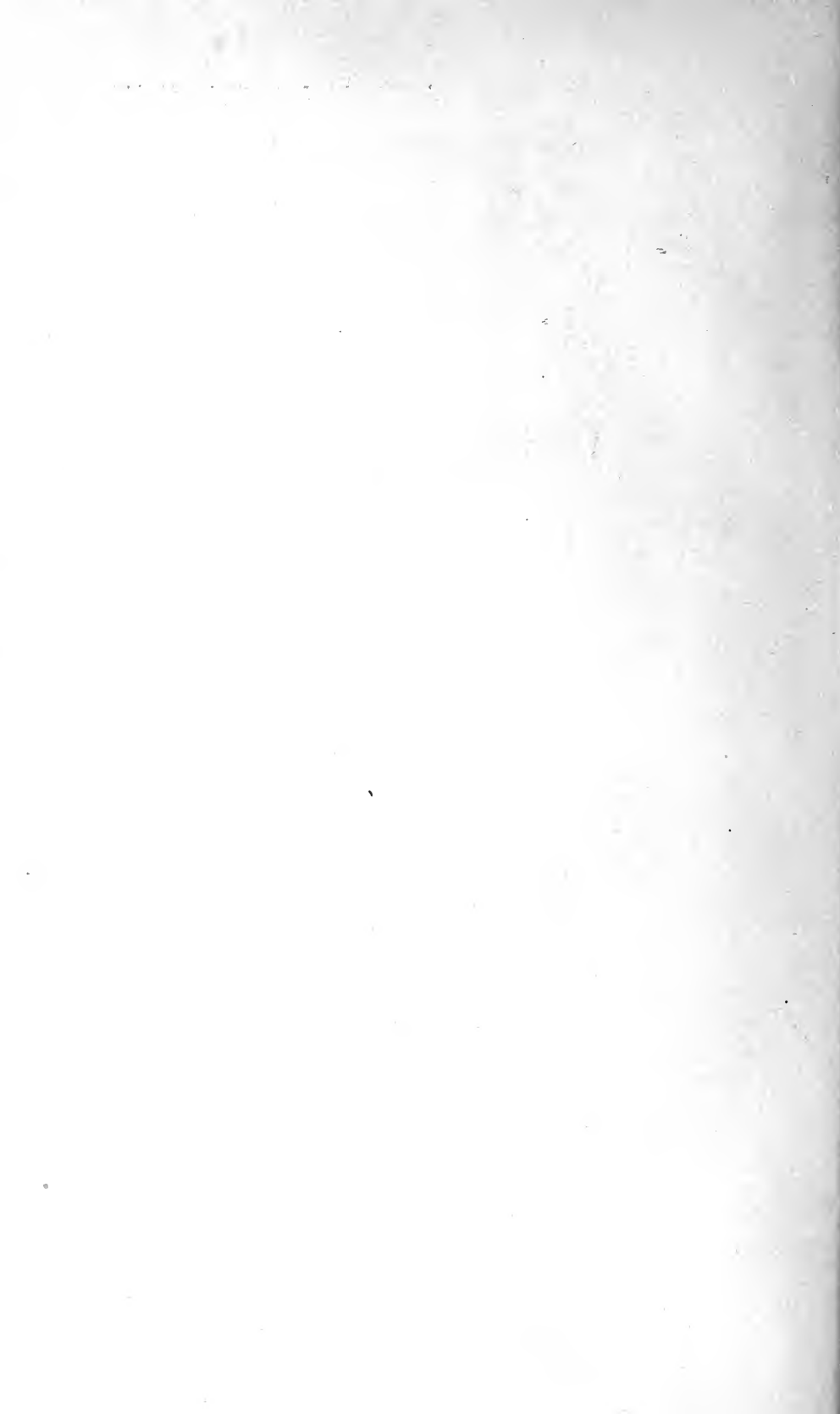
74. **BACILLUS ECLAMPISIE**
(Afanassiew).
(IN WHOOPING COUGH.)
x 2500. Photomicrograph by Wm. Radam.



75. **BACILLUS DER WILDSEUCHE**
(Kitt).
(SEPTICÆMIA IN DEER.)
x 2500. Photomicrograph by Wm. Radam.



76. **MICROCOCCUS DE MASTITIS.**
(IN COWS.)
x 2500. Photomicrograph by Wm. Radam.



ting the microbe-killer before the public, were used. Thousands of letters came to me containing complaints. In almost every State in the Union I fought the imitators.

Probably the most persistent attack made against me and the microbe-killer was by a physician who was also a chemist. He caused to be published in a trade journal a series of articles calculated to injure me and prevent people from using my discovery. The attacks made against Harvey and Jenner years ago were no severer than the attacks made against me, except that no physical violence was attempted. In the articles published I was branded as a pretender, a charlatan, and an ignorant florist who never had studied even the rudiments of medical science. The microbe-killer was characterized as a cheap compound possessing no curative powers. An analysis of the microbe-killer was also published, which, however, was not claimed to be absolutely correct, but nearly so.

The attack was promptly answered by me through the newspapers with incontrovertible arguments, and the physician who had instituted the attack was given an opportunity to retract his statements. This he wilfully neglected to do, and I began a suit for libel in the New York Supreme Court. There were delays and adjournments, and when the case at last came up for trial the struggle to overthrow me was fierce. It was shown that I was not a physician and did not pretend to diagnose disease. My only claim was then, as it always had been, that I had discovered the cause of all diseases and the cure of all diseases.

Undoubtedly the reason why the attack which brought about the above case was instituted was on account of the reliance placed in the chemical analysis which the physician had made and published. He did not claim that it was absolutely correct, but his claim was that it was so nearly correct that the variations could cause no difference in the action of the microbe-killer. Now, I have nothing to say against chemistry or chemists, but

there are certain things which cannot be done by chemists. It is one thing to tell approximately what a substance contains, but it is altogether another thing to tell by a chemical analysis how the substance can be made. A chemist, for instance, can analyze wood, but he cannot make wood. Now, the analysis made in the above suit may have given something of an idea of the microbe-killer, yet the microbe-killer could not be made according to that analysis, as was admitted during the trial. There is abundant reason for this. In the first place, the microbe-killer is not made of chemicals directly, but of certain substances so treated that only the gases remain, which, when purified, are mixed in such proportions that a certain result is achieved. What substances were employed or how they were treated to produce these gases, or what the gases actually are, could never be told by a chemical analysis. What they seem to be would be of little use in making the microbe-killer.

The curative and antiseptic powers of the microbe-killer are the result of the method by which the gases are made and of the proportions and according to the conditions with which and under which they are mingled or mixed. It is well known that certain substances or gases in themselves possess no power, but, when mixed in certain proportions with other gases or substances, develop a wonderful power. Sulphur, saltpetre, and charcoal separately are powerless, but combined in a certain proportion they form gunpowder. So it is with all explosives and substances. It is simply the manner in which they are compounded and the proportions of each used that bring about a certain result. That the microbe-killer has a slight acid taste indicates nothing. So do oranges and apples and all fruits. The right substances, rightly treated, and the resultant gases mingled in correct proportions make the microbe-killer. This gas, then passed through water, is condensed by the water, so that several hundred volumes of gas are made to be held in solution by one volume of water.

When the question of the curative powers of the microbe-killer came up, as well as the question of its absolute harmlessness even when taken in large quantities, scores of witnesses came forward unsolicited to testify. The judge listened to the testimony of twenty witnesses and then declared it was unnecessary to admit more testimony upon those points. In his charge to the jury the judge referred to the microbe-killer as being harmless to the human system and possessing remarkable curative powers.

The jury promptly returned a verdict in my favor and the microbe-killer was vindicated. Thus was ended a persecution and prosecution that has never been equalled in this century.

The following extracts from the stenographer's minutes will show the character of the testimony given in court:

NEW YORK SUPREME COURT, CIRCUIT, }
 May, 1893, }
 Before Judge Andrews and a jury. }

William Radam, plaintiff, sues for libel.

Dr. R. G. E., et al., defendants.

William Radam, plaintiff, sues for libel Dr. R. G. E. and the publishers of a drug circular. This paper published a libellous article and a chemical analysis purporting to be the constituents of Radam's Microbe-Killer. The article was found libellous on its face and the judge instructed the jury to render a verdict against Dr. E. et al., and \$500 damages were given in Mr. Radam's favor. Most astonishing testimony was given by patients at this trial who had been cured by the M. K. of so-called incurable diseases, and judge and jury were convinced that the medicine made wonderful cures, which the following extracts from the minutes of the trial will show :

Henry I. Budd, being duly sworn, was examined by Mr. James (counsel for plaintiff), and testified as follows :

Q. Where do you reside? A. Mount Holly, N. J.

Q. What is your business? A. President of the Mount Holly & Bedford Railroad; corresponding secretary of the Burlington County Agricultural Society; secretary of the Burlington County Horticultural Society; president and general manager of the Mount Holly College property; and manager of several farms.

Q. Have you ever taken (William) Radam's Microbe-Killer as a remedy? A. Yes, sir.

Q. What were your symptoms and conditions before you began to take this remedy? A. Every indication of pulmonary disease.

Q. State what the indications were. A. Excessive coughing and expectoration and general debility of the system.

Q. Had you been treated by physicians? A. Yes, sir; * * * for a number of years.

Q. Had your symptoms and condition improved or grown worse? A. Generally grown worse.

Q. What results did you experience from taking Radam's Microbe-Killer? A. Always beneficial.

Q. Tell me what quantity you have used yourself and in your family. A. About twenty-five jugs of it.

Q. How is your condition now? A. My condition is 100 per cent better. It is a common remark upon the street that I have been saved. Everybody supposed I was going to die of consumption.

Cross-examined by Mr. Sweezey (counsel for defendants):

Q. Do you know anything about microbes? A. I do not.

James O. Corliss, being duly sworn, was examined by Mr. James, and testified as follows:

Q. Where do you reside? A. Sanderson, Salem County, N. J.

Q. What is your business or profession? A. A minister of the gospel.

Q. Did you ever use the remedy known as William Radam's Microbe-Killer? A. I have.

Q. At that time what were your symptoms and condition? A. Shall I state them in full?

Q. Yes; state them in full. (He tells a long story, of which the following is extracted.) A. I caught a severe cold, which produced catarrh, droppings of large chunks of matter into the throat, and blowing out of the nostrils large chunks. My voice became so that I could not sing; I could breathe only with difficulty. * * * I had been treated by a physician in Trenton and two others in Salem for a long while. Under all that treatment I had very little relief.

Q. Can you state to the jury about what quantity of it you used? A. The best I can remember, about fifteen jugs.

Q. How does your condition since you have used the microbe-killer compare with what it was before you began its use? A. My health has been very good since the use of it.

Q. Have you experienced any injurious effects from its use? A. None whatever.

Mary Campbell, being duly sworn, was examined by Mr. James, and testified as follows:

Q. Where do you reside? A. At No. 144 West Forty-third street, this city.

Q. Did you ever use William Radam's Microbe-Killer? A. I have.

Q. What were your symptoms and condition at the time you began its use? Tell the jury. A. I was suffering from indigestion, inability to eat, pains in my limbs, and difficulty of breathing.

Q. Had you been under the care of physicians? A. I had for at least two years.

Q. What did your physicians call your disease?
Objected to.

Q. Won't you describe to the jury your condition and symptoms after you had used the microbe-killer? A. After using it three weeks I began to feel better, my digestion was improved, I could eat anything. The symptoms all left me. I eat, drink, and sleep as well as

other people do of my age. I attribute it all to the use of Radam's Microbe-Killer.

Q. What quantity have you used? A. About twenty-five jugs.

No cross-examination.

Charles H. Roberts, being duly sworn, and examined by Mr. James, testified :

Q. Where do you reside? A. No. 274 West 119th street, city.

Q. Have you ever used Radam's Microbe-Killer? A. I have.

Q. What were your symptoms and condition at the time you began to use it? A. The symptoms were sourness of the stomach, bloated feeling, dizziness before the eyes, a stopping-up feeling in the chest, and continual dropping from the back of the nose into the throat.

Q. How long have you been afflicted? A. Ever since I can remember—about twenty years.

Q. Had you been treated by physicians? A. I had.

Q. And did you improve or get worse? A. I did not improve.

Q. Now, won't you tell the jury what your condition and symptoms were after using the microbe-killer? A. My symptoms were 100 per cent better. The sourness of the stomach left me, the catarrh left me. I am ever so much better.

Q. About what quantity of it have you used altogether? A. As near as I can judge, about thirty gallon jugs.

By defendants' counsel :

Q. You kept no account of it? A. I did not keep particular account.

Dyne Rolerson Granberg, being duly sworn, was examined by Mr. James, and testified as follows :

Q. Where do you live? A. No. 499 Atlantic avenue, Brooklyn.

Q. What is your business? A. A tailor.

Q. Have you ever used William Radam's Microbe Killer? A. Yes, sir.

Q. What were your symptoms at the time you began its use? A. I was coughing and could not lie down in bed since November, 1887; could not attend work for eleven months. I felt pain in chest, back, and shoulder; could not breathe.

Q. Now, won't you tell the jury what your symptoms and condition were after you had taken it? A. When I was on my second jug I commenced to walk again, afterward gained flesh and strength, and to-day I am just as strong as before.

Q. How many jugs have you taken altogether since you began using it? A. I am on the fifty-seventh jug to-day.

Q. Any bad effects from it? A. No, sir.

Q. Have you taken any other medicine since you began taking the Radam Microbe-Killer? A. No, sir.

No cross-examination.

John W. Wheelock, being duly sworn, testified:

Q. Where do you reside? A. Brooklyn, No. 146 South Elliott place.

Q. What is your age? A. Sixty-seven.

Q. Have you ever taken William Radam's Microbe-Killer? A. I have.

Q. What were your condition and symptoms before you took this remedy? A. I had wind on my stomach, sour feelings in my mouth. I could not sleep, had to sit up in bed to breathe freely; also catarrh.

Q. Won't you tell me for how long a time this condition of symptoms had continued? A. More or less ever since twenty years.

Q. Had you been treated by different physicians? A. Yes.

Q. Were you improving or getting worse? A. I was not getting any better.

Q. How long did you use the Radam Microbe-Killer? A. About two years.

Q. Won't you tell to the jury what your condition and symptoms were under the use of the microbe-killer

and after using it? A. It relieved my stomach and catarrh. I gained from 145 to 162 pounds.

Q. How many jugs of this altogether have you used?

A. I have taken fully thirty. My family have taken two.

By Mr. Sweezy :

Q. Use it still? A. Every day.

Q. What are you using it for now? A. To keep my spirits and health up. It is good for a healthy man, in my opinion.

Isaac W. Barnum, being duly sworn, testified :

Q. Where do you reside? A. No. 253 Halsey street, Brooklyn.

Q. What is your business? A. Have retired; was formerly in the sewing machine business.

Q. Have you ever used William Radam's Microbe-Killer? A. I have.

Q. What were your condition and symptoms when you began its use? A. Had catarrh, stomach trouble, indigestion, a stiff finger joint that was very sensitive to the touch. I tried everything and had good physicians, without getting relief; also had rheumatism in my knees.

Q. What became of that after you had taken the microbe-killer? A. I have not had it since; all is gone.

Q. What quantity have you used of it already? A. Myself and wife—my wife also had the eczema very bad—

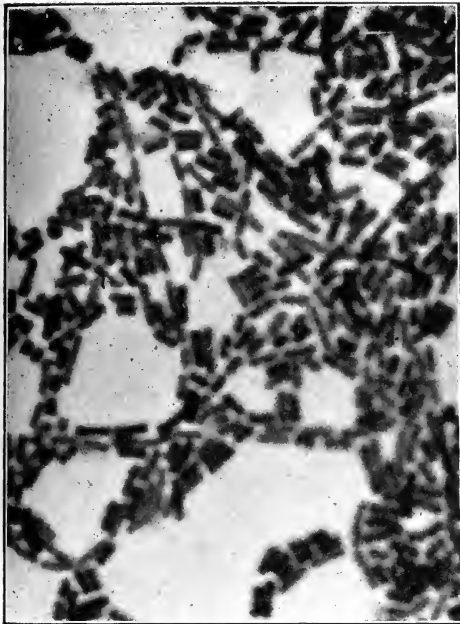
Objected to.

Q. Tell how her limb was. A. Her limb was frightful to look at. It was so that the eczema exuded from the sore on it. She was cured of it entirely. She has none of it since.

Q. For how long a time? A. She took it for about one year. We have used between us over twenty jugs. I have not taken any for six months; had no occasion to take it. I call myself a pretty healthy man.

Q. What is your age? A. Sixty-eight.

Cross-examined by defendants' counsel :



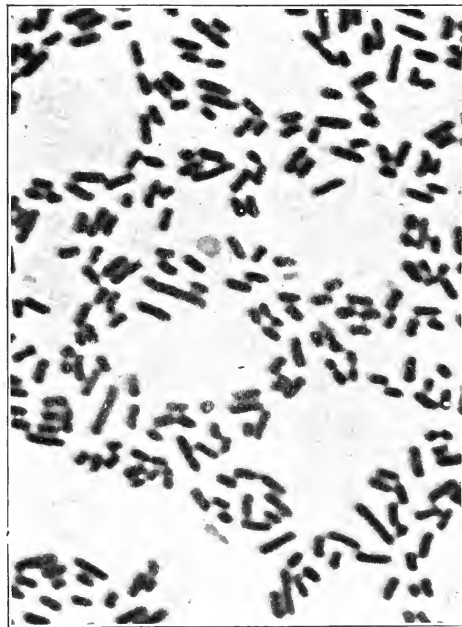
77. **PROTEUS ZENKERI.**
(PUTREFACTION.)
x 1500. Photomicrograph by Wm. Radam.



78. **SPIRILLUM CONCENTRICUM.**
(IN PUTREFYING BLOOD—SHOWING FLAGELLA.)
x 2500. Photomicrograph by Wm. Radam.



79. **BACILLUS CUNICULICIDA**
HAVANIENSIS.
(FOUND IN YELLOW-FEVER CADAVERS.)
x 2500. Photomicrograph by Wm. Radam.



80. **BACILLUS CAVICIDA** (Brieger's).
(FROM HUMAN FÆCES.)
x 2500. Photomicrograph by Wm. Radam.



Q. People sometimes recover from indigestion without taking any medicine? A. I think we all take too much medicine.

Q. You say you got the liking for it and felt exhilarated? A. I think it is a good tonic. I think it purifies the blood. I regard it as a good medicine, a good remedy.

Richard Hartley, being duly sworn, was examined by Mr. James, and testified as follows :

Q. Where do you reside? A. No. 223 West 104th street, New York City.

Q. What is your profession or occupation? A. Minister of the gospel.

Q. Of what denomination? A. Baptist Church.

Q. Where are you officiating? A. In the Baptist church corner of 104th street and the Boulevard.

Q. Have you ever used William Radam's Microbe-Killer? A. I have.

Q. What were your symptoms and condition at the time you began to use this remedy? A. I used it for a very severe chronic case of catarrh of twenty years' standing. Also bronchial trouble; contraction of severe cold would affect the throat seriously.

Q. Had you been doctoring with physicians for these ailments? A. Yes, sir; for fifteen years. Their treatment had no effect.

Q. About how many jars have you used altogether? A. About sixteen altogether.

Q. What are your symptoms now? A. Very much better. Almost entirely relieved.

Q. Have you ever experienced any injurious effects from its use? A. Never.

Cross-examined by defendants' counsel :

Q. How many pints are in a quart? A. Two.

Q. How many quarts in a gallon? A. Four.

Q. How many wineglassfuls would you have in a gallon jug? A. I never stopped to calculate it.

George W. N. Yost, being duly sworn, was examined by Mr. James, and testified as follows :

Q. Where do you reside? A. In this city, No. 309 West Fifty-fourth street.

Q. What is your business? A. I am an inventor and manufacturer of writing machines.

Q. Are you the inventor of the Yost typewriting machine? A. I am at least one of them.

Q. Have you ever used William Radam's Microbe-Killer? A. I have.

Q. What were your symptoms and condition of your health at the time? A. I had dyspepsia very bad. I had the most terrific headaches, lasting from one to three days, and then I had a good deal of catarrh trouble.

Q. How long have you been suffering from those difficulties? A. About ten or twelve years.

Q. Had different physicians? A. I had.

Q. Did you get any better under medical treatment? A. Well, at times I think my stomach trouble, headache, and catarrh increased.

Q. How long did you use Radam's Microbe-Killer? A. Almost continually for a year and a half.

Q. Now, won't you describe to the jury your symptoms, condition, and progress under this treatment? A. Well, I can only say generally that the longer I used it the better my health was, until a few months ago I got feeling so well that I did not use it at all.

Q. About how many jars or jugs of this microbe-killer have you used altogether? A. Somewhere between twenty-five and thirty-five; I cannot tell exactly, for the reason that other members of the family kept using it occasionally.

Q. Have you ever experienced any injurious effects from it? A. Certainly not.

Cross-examined by defendants' counsel:

Q. Was not the cause of your sickness from overwork? A. Hardly; because I had been sick for a good many years before that.

Q. Do you regard yourself at the present time as completely cured and as sound and well? A. I do.

Q. Are you a physician? A. No, sir.

Q. At whose request did you come here to testify?

A. A court officer subpoenaed me.

Paul Stout, being duly sworn, was examined by Mr. James, and testified as follows:

Q. Where do you reside? A. Brooklyn.

Q. What is your business? A. Collector and real estate agent.

Q. What is your age? A. Seventy-five last March.

Q. Have you ever taken Radam's Microbe-Killer?

A. Yes, sir.

Q. What was your health and condition when you began its use? A. Catarrh of the head and stomach and other stomach difficulties.

Q. Of how long standing? A. Several years.

Q. Had been under medical treatment? A. Yes, sir.

Q. Did your condition under medical treatment improve? A. It did not last long.

Q. How long did you take Radam's Microbe-Killer continually? A. About two years.

Q. Now, won't you tell the jury what were your symptoms and condition before taking the microbe killer and after its use? A. The catarrh got down my throat at nights that so I could hardly breathe. After using the microbe killer it helped me, and I kept on using it in order to get cured of it. I have not been bothered any more with it. I could not eat rice pudding or pastry food. Now I can eat anything.

Q. About what quantity have you taken altogether?

A. About fifteen jugs.

Q. Have you ever experienced any injurious effects from it? A. Not at all. I should say one thing. I have a daughter that had sick headache for eighteen years. She had three doctors and paid out \$200. It never helped her. She took the microbe-killer and has not had a headache in three years.

Cross-examined by defendants' counsel:

Q. Have you ever taken any patent medicine before?

A. Yes, I think I did take some.

Q. You have taken a good many patent medicines ?

A. No, I did not take a good many.

Q. You are quite a hand at taking medicine, are you not ? A. No, I ain't.

Q. Why did you take the microbe-killer ? A. I took it because I wanted to get rid of this catarrh.

George K. L. Klee, being duly sworn, was examined by Mr. James, and testified as follows :

Q. Where do you live ? A. New York City.

Q. About what is your age ? A. Between sixty-six and sixty-seven.

Q. Did you ever take Radam's Microbe-Killer ? A. I did.

Q. Tell the jury your condition of health when you began taking it. A. My condition of health was very bad when I took it. I was not able to go half a block, and I was not able to lie down at all. I was full of phlegm and felt stopped up. I had several doctors, but they did me no good. I had pneumonia before, and a touch of asthma. The doctor said I could not live and no medicine would cure me. By the first gallon of microbe-killer I had relief, as I took four I could go about, and after using it a year I was relieved of all my trouble, and have since gained twenty-five pounds in weight.

A. You are first-rate now, are you not ? A. Yes, sir, free of everything.

Q. Breathe easy, sleep well, eat well ? A. I bet you.

Q. How many gallons did you use altogether ? A. About thirty gallons. I used twenty ; my family uses it too.

Q. Have you ever felt any bad effects from it. A. No, sir.

Cross-examined by defendants' counsel :

Q. Do you say at the time you were sick the doctor told you you must not continue in your business ?

A. Yes.

Q. The doctor thought rest would have some effect ?

A. The doctors think a good deal.

Q. You followed the doctor's advice to stop, did you not ? A. I followed, only I took the microbe-killer.

Annie Miller, being duly sworn, testified :

Q. Where do you live? A. Brooklyn, No. 80 Wiloughby street.

Q. Have you ever taken Radam's Microbe-Killer? A. I have.

Q. Won't you tell the jury what your condition of health was and your symptoms at the time you began to use this remedy? A. Well, it was a catarrhal condition, weak and miserable, suffering continually, and no remedy could break it up. I had catarrhal cold in throat and head.

Q. Did you ever consult doctors? A. I did.

Q. And did they do any good? A. No, sir.

Q. Tell the jury your condition and symptoms while using this remedy. A. At first I did not feel well; I felt worse. I had a pain in my stomach and pain in my back, and very weak; but in a short time those symptoms disappeared and I began to get flesh, felt stronger, had a better color, and was, indeed, a new person, to the astonishment of all my friends.

Q. What quantity have you used altogether? A. From thirty to thirty-five gallons.

Q. Have you ever experienced any bad or injurious effects from it? A. I have not.

Rudolph F. Voelkel, being duly sworn, testified :

Q. Where do you live? A. At No. 403 West Forty-ninth street now.

Q. What is your business? A. A theatrical manager and advance agent.

Q. Have you ever taken Radam's Microbe-Killer? A. I have.

Q. Now, won't you tell the jury what your condition and symptoms were before using Radam's Microbe-Killer? A. I had twenty-three ulcers on this leg and they were very painful.

Q. Were you treated by physicians? A. By several physicians.

Q. Where? A. At Charleston, New Orleans, St. Louis, and Potosi.

Q. Did your condition improve or get worse? A. It got worse.

Q. What did you do then? A. I was induced by a man to try the microbe-killer, and I used it according to direction.

Q. In about what quantity per day? A. I just poured it on my leg, and drank it, too; and it cured my leg.

Q. Been well ever since? A. Very well indeed.

Q. How many jugs did you use? A. About twelve jugs; four internally and eight externally.

Cross-examined by defendants' counsel:

Q. Do you know how you contracted the disease? A. By a kick from a horse on my shin.

Q. Have you been treated by any physician since? A. No.

Q. You were cured? A. Yes.

Fred Lindholm, being duly sworn, was examined by Mr. James, and testified:

Q. Where do you reside? A. No. 438 West Thirty-second street.

Q. Have you ever used Radam's Microbe-Killer? A. Yes, I used it over a year.

Q. What were your condition and symptoms at the time you began to use it? A. I had consumption.

Objected to.

Q. Tell how you felt. A. Three years ago I commenced to cough and spit blood. Then I went to Dr. G., and he examined me twice and said my left lung was affected, and he gave me what he called a pulmonary tonic. I kept on with him for about six months, and was getting worse all the time. I could not walk two stairs up. Then my cousin recommended me to take the microbe-killer. I took it; it cured me, and I have not been sick since.

Q. How much did you take during the year? A. Twenty-four jugs.

Q. Did you have two children who were sick? A. Yes.

Q. How old are they? A. One is three years and six months, the other two years and six months.

Q. How sick were they? A. One was sick for three weeks; we thought she was going to die.

Q. Did the children take the microbe-killer? A. Yes, and it cured them.

Cross-examined by defendants' counsel :

Q. They had a severe attack of measles, did they not?

A. One was stopped and the other commenced.

Q. They were both pretty sick? A. Yes.

Emma Woodward, being duly sworn, was examined by Mr. James, and testified as follows :

Q. Where do you live? A. No. 215 East Fourteenth street.

Q. Have you ever used Radam's Microbe-Killer? A. I have.

Q. What was your condition of health and symptoms before you began its use? A. I was a complete invalid, unable to rise from my bed without help or to walk across the room without help. I was suffering from a complication of trouble during the years before. The first was a severe attack of inflammatory rheumatism twelve years, which left me in a very weak condition. The slightest chill or cold I would have a serious attack of inflammatory rheumatism, which would lay me up in bed for several weeks or months. While in this weak condition I had pneumonia and the grip, that made me partially blind. I had not been able to help myself without an attendant for about nine months.

Q. During these years of suffering had you had medical treatment? A. Yes, from a great many physicians.

Q. Tell the jury about the change of your condition under the use of Radam's Microbe-Killer. A. The first symptom of relief I found I was able to eat. I had not been able to digest food or care for any food for years. I had an appetite and could eat my meals without any injurious feeling in my stomach. Three months after taking it I had no more trouble with rheumatism. I recovered my eyesight after nine months and could go about without wearing glasses. I have been improving

and still improve. I am getting more strength and able to attend to my duties.

Q. Have you used any other remedy during this time than the microbe-killer? A. No, sir.

Q. Have you experienced any injurious effect from it? A. Not to my knowledge.

Q. How many gallons have you used altogether since you commenced on the 22d of September, 1890? A. I have an account of one hundred and sixty-two jugs, but I have taken somewhere between one hundred and sixty-two jugs and two hundred jugs.

Q. Then you have taken it to saturation? A. I have, inwardly and outwardly. I have bathed with it and drank it freely. I have used half a gallon in one night's time.

Cross-examined by defendants' counsel :

Q. Internally and externally you used it? A. Yes, sir.

Q. Has the greater part of the contents of these jugs been used internally? A. Yes, sir. I have used forty-two jugs of the strongest grade, No. 3, internally.

Mary Ewers, being duly sworn, was examined by Mr. James, and testified as follows :

Q. Where do you live? A. No. 242 Wyckoff street, Brooklyn.

Q. Have you ever taken Wm. Radam's Microbe-Killer? A. Yes, sir; I have.

Q. What was your condition? A. I had a cancer.

Objected to by defendants' counsel.

Q. Was it an external cancer?

Objected again.

Q. Tell the jury what it was you had, without giving a name to it; just what was the appearance as it looked to you. You saw something on your right breast, did you not? A. Yes, sir.

Q. What was it you saw; how did it look? A. It was a hard lump; it was a cancer.

Objected to.

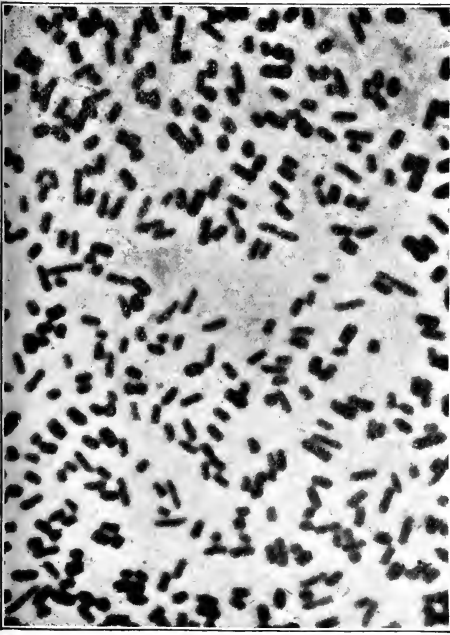
Q. Just describe it. Tell what its appearance was,



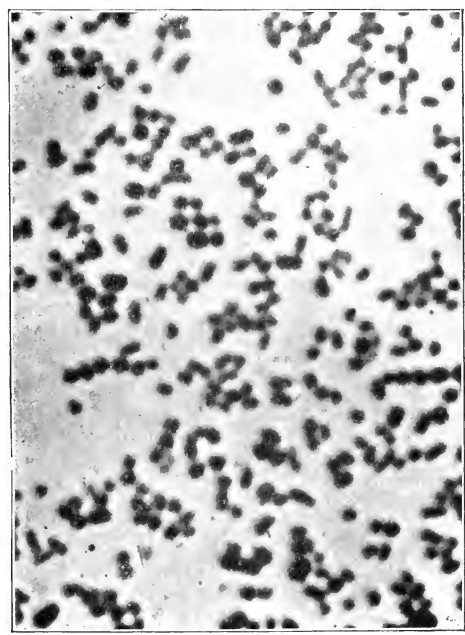
81. **BACILLUS MALLEI.**
 (ROTZBACILLUS—GLANDERS.)
 x 2500. Photomicrograph by Wm. Radam.



82. **BACILLUS DES RAUSCHBRANDES.**
 (RINDERSEUCHE—CATTLE DISEASE.)
 (SHOWING SPORES.)
 x 2500. Photomicrograph by Wm. Radam.



83. **BACILLUS OF TEXAS FEVER**
 (Billings).
 (RINDERSEUCHE—CATTLE PLAGUE.)
 x 2500. Photomicrograph by Wm. Radam.



84. **BACILLUS D. DEUTSCHEN**
SCHWEINESEUCHE.
 (SWINE PLAGUE.)
 x 2500. Photomicrograph by Wm. Radam.



whether it looked inflamed. A. It was a large lump, hardening every day, and grew blue.

Q. How did it feel? A. It felt painful—stitching pains.

Q. How long had you been suffering from it? A. I had not been suffering from that very long, but the other side was taken off by a doctor.

Q. Do you mean he made an operation on it? A. He applied plasters, and took away the breast and cancer.

Q. And that part got well? A. It had not got well. It had not healed when I felt trouble in the other breast, and I called upon the doctor and he said he was sorry.

Q. Were you suffering in any way except from these difficulties? A. Asthma.

Q. Then you took Radam's Microbe-Killer? A. Yes, sir.

Q. What did you observe, after you took the medicine, with regard to any change in your condition? A. My health got better, my appetite came back, my strength got better, asthma left me, the cancer got smaller and smaller and then disappeared, and now I do my work again.

Q. About what quantity of it have you used altogether? A. About sixteen jugs.

Q. Did you ever experience any bad effects from it? A. No bad effects.

Cross-examined by defendants' counsel :

Q. Who was the physician who treated you? A. Dr. C.

Q. In Brooklyn? A. Yes.

Q. And you consider yourself as a person in robust health? A. Well, I am not strong. I keep the microbe-killer in the house and use it as a family medicine.

Charles Henry Reese, being duly sworn, was examined and testified:

Q. Where do you live? At No. 10 Downing street, this city.

Q. Have you ever used Radam's Microbe-Killer? A. Yes, sir.

Q. What was your condition before you began its use?
A. I had been suffering from chronic catarrh a number of years. I had doctored and changed doctors in this city, but none did me any good; in fact my case grew worse all the time, until I read in the paper about Radam's Microbe-Killer, and decided to try it. The very first jug I bought did me more good than all the doctors I went to, and I kept on using it continually, according to how I felt.

Q. What has become of your catarrh? A. Well, I am not troubled to any extent now, and I am by far a thousand per cent better than I was; there is a complete change in my health.

Q. About what quantity have you taken altogether?
A. I cannot definitely say, though the Microbe-Killer Company's books might show it. I have certainly taken about one hundred and twenty-five gallons of it.

Q. And you have taken it to saturation, have you not?
A. I have taken just three-quarters of it inwardly, while one-quarter I have snuffed up my nose and gargled my throat with it.

Q. Have you experienced any injurious effects from it? A. No, sir.

Q. Were you a singer at any time? A. I was, and had considerable singing to do.

Q. Did this catarrh affect your voice? A. It did. That was the main reason why I wanted to take the microbe-killer.

Q. Have you got so that you can sing again? A. Yes, sir.

Cross-examined by defendants' counsel:

Q. You say you are a singer. Do you sing in church anywhere? A. No, sir.

Q. Do you ever sing in church? A. I have, with a quartet.

Gustave Becker, being duly sworn, was examined and testified as follows:

Q. Where do you live? A. 1348 Lexington avenue.

Q. What is your business? A. Music teacher.

Q. Did you ever use William Radam's Microbe-Killer?

A. Yes, sir.

Q. Tell the jury what your condition was before you began to use it. A. I was suffering very much from catarrh, general nervousness, dyspepsia, a sour stomach. Could not sleep. Had also the grip; it attacked my lungs. Had gastric fever, could not digest any food, not even oatmeal gruel, and the doctors were afraid I would not pull through. Then I began using the microbe-killer. I began to increase in weight, and felt stronger in a short time after using it. The discharges from my nose and from my throat began to lessen, my voice became clearer, I thought singing also. The pains in the chest disappeared, and now I eat anything. Whenever I feel bad I use the microbe-killer. It is a good tonic.

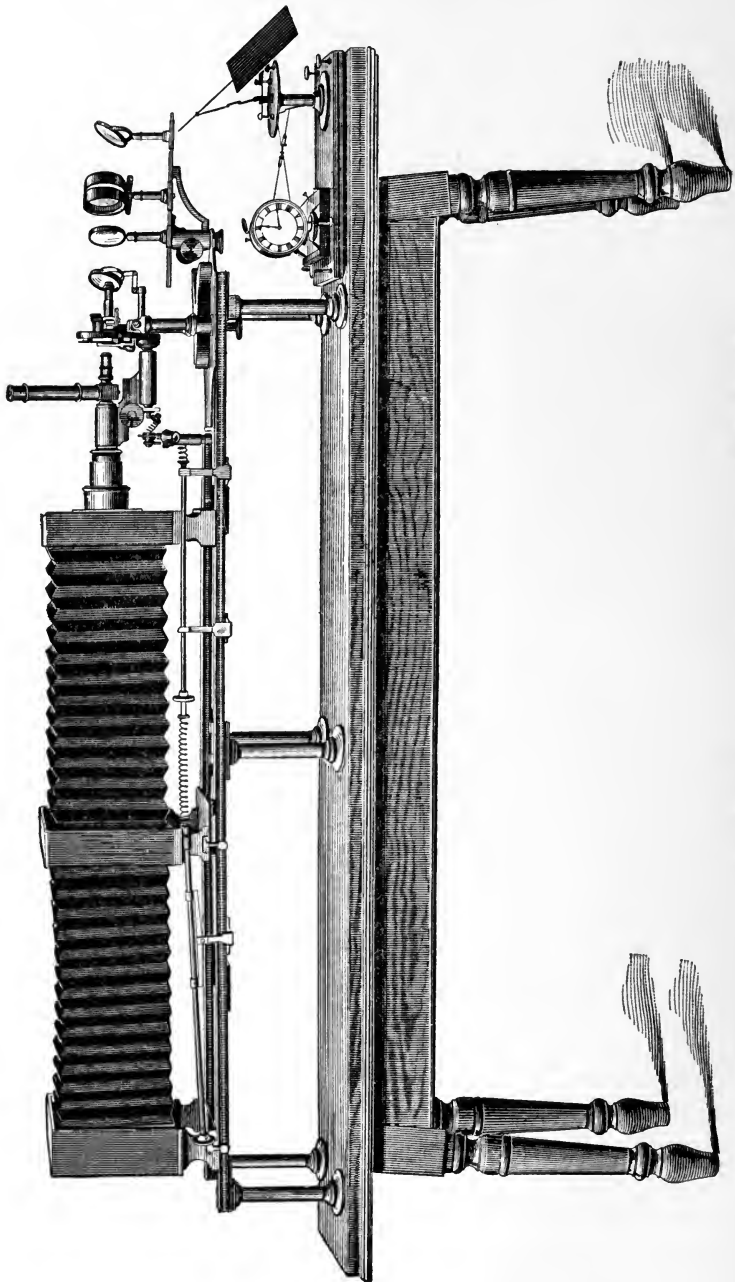
Q. And you got rid of these difficulties? A. Yes, sir.

Q. What quantity have you used? A. About thirty jugs.

Q. Have you ever experienced any bad effects from it? A. No, sir.

No cross-examination.

Twenty-four more witnesses were ready to show their wonderful and satisfactory cures, but the Court was satisfied with those previously examined. It proved that Radam's Microbe-Killer cures every disease, regardless of symptoms or name, as patients were cured without diagnosing—in fact, without seeing them at all. My claim that fermentation and microbes are the cause of every disease is proven by the above indisputable testimony, most complimentary to my discovery and to my most indefatigable microscopic researches.



PHOTOMICROGRAPH APPARATUS USED BY WM. RADAM.

CHAPTER XVII.

A NEWSPAPER'S INVESTIGATION OF THE MICROBE-KILLER.

SINCE my discovery has been given to the world the newspapers have published many articles concerning it. As a microbe scientist my opinions were often sought by newspaper reporters, especially when contagious diseases were prevalent. Undoubtedly the most thorough and complete article concerning the microbe-killer was published by the New York *Daily Press* on April 8th, 1894. One of that enterprising paper's skilled reporters was detailed to make an exhaustive investigation of the microbe-killer, with instructions to spare no pains or expense in the completion of his task. The reporter conversed with many people who had taken the microbe-killer, and then he passed a week in my laboratory examining microbes under powerful microscopes and experimenting upon them with the microbe-killer. Not until long afterward did I learn that during his week in my laboratory, notwithstanding the fact that he was in perfect health, the reporter had actually drunk a gallon of the microbe-killer in order to ascertain for his newspaper whether the gas-impregnated water produced injurious effects.

The result of the reporter's investigations was published in a page article illustrated with pictures of twenty different microbes he had seen. The illustrations are necessarily omitted here, but the article is given entire :

What to do for Microbes—A Texas Florist Discovered what Scientists Could Not—Disease is Fermentation—Microbes the Cause, and to Cure all Diseases you . Must Kill the Germs—Radam Rivals Pasteur—An Antiseptic Gas Harmless to Life, but Death to Microbes, discovered amid Flowers—The Gas Saved the Life of the Inventor—Now it is Saving the Lives of Thousands.

A singularity of many great inventions and discoveries is that they were brought about by men who were least suspected of being able to solve the problems involved. Where a thorough understanding of mechanics was necessary, often the man unfamiliar with mechanical principles stepped in and did what others could not. Where a carefully grounded knowledge of science was deemed indispensable, the man who knew nothing about science became the enlightener of the scientific world. Instead of the professor it has generally been the student under him who has originated new combinations and applied new principles. The inventor of the steamboat was neither a sailor nor a mechanic. A priest discovered smokeless gunpowder. An apprentice first made dynamite. Edison had as competitors men who knew a thousand times more about electricity than he did, and yet he accomplished scores of things they could not.

There is an easy solution to this apparent mystery regarding the origin of inventions and discoveries. In every branch of industry there is a deep rut. Once a man falls into that rut he seldom gets out. The tendency is always to do things as others did them. Had Edison attended college, and had he been taught electricity by a college professor, he would undoubtedly today be caring for some small electric lighting plant, while the phonograph, the duplex telegraph, the stock ticker, and the kinetograph would still be visions and impossibilities. A prominent manufacturer of New

York City said recently that during the forty years he had been in business 275 inventions had been made in his factories. Of that number only six had been made by men who were thoroughly acquainted with the business. The others were brought about by young men working upon small salaries and by apprentices. The man with the thorough knowledge of the work had gone on doing it as his teachers had done. The apprentice, the young man who knew nothing compared with others, searched for an easier and better way, and thus reached success. Until then he was called a "greenhorn." From that moment, in the estimation of others and in history, he became a master.

There have been fewer strides taken in the field of medicine, probably, than in any other branch of science. The man who dared to disclose a new theory was cowed into silence by other physicians. Years ago, when Harvey dared to announce that the blood circulated through the whole body, he was set upon by a mob. Like Galileo, he remained firm. "It does circulate, for all that," was what he said to those who cursed him.

Why did the physicians of Harvey's time denounce him for proving that the blood circulated through the whole body? Simply because that discovery showed that they were ignoramuses and had never known how to care for life. If Harvey had discovered a new use for pilocarpine, or a new anæsthetic, or even an antidote for some poison, instead of being persecuted he would have been congratulated by the medical profession of his day. They could stand a slight advancement, but to have it proven to them that they had, through gross ignorance, treated their patients in such a manner that life was impossible, was too much.

What Harvey did in his time has since been outdone by another man. He dared go further than physicians and medical scientists dreamed of going. Alone he dared advance a new theory, a new system, and fight the abuse and oppression which met him from those who ought to have been the ones to welcome it most.

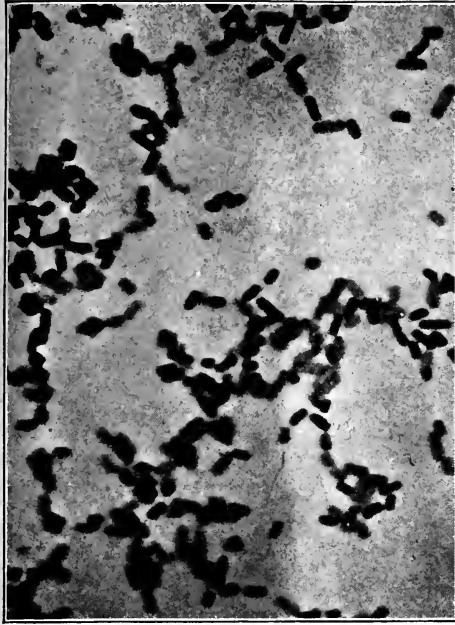
Seven years ago he began the warfare with ideas and principles which electrified the whole world. He could not then argue like his opponents, but he accomplished results which proved what arguments could never prove. For seven years these results have been accumulating, until to-day there are one million people who believe in him, trust in him, and bless him for his discovery. This man is William Radam, the inventor and discoverer of Radam's Microbe-Killer.

It is easy enough to laugh at a new discovery. At first men laughed at the telegraph, the cable, and the telephone, and called them pretty toys. They don't laugh any more. It is easy enough to laugh at a man who says he can cure all diseases with a single medicine, but what are you going to do when he proves his assertion?

The intelligent man, when confronted with something new, listens carefully to both sides, hears all the arguments, and then comes to a decision. The foolish person does not. Any person who will read this article carefully will learn several things he had never imagined possible, and if he is fair in his judgment he will say that the name of William Radam ought to be in every book of history and upon the lips of every schoolboy.

There is a pretty romance of facts concerning this wonderful discovery, unequalled in fiction. Twenty-five years ago William Radam, a young man, then twenty-five years old, landed in New York. He was a German and had been in the employ of Emperor William in the Imperial Gardens in Bellevue. There he had learned how to care for flowers and trees. He never expected to enter any other business, because among flowers and trees he was happy—they were his children. From New York Mr. Radam went South, and with his imperial recommendations secured a position as gardener at the St. Charles Hotel, New Orleans. Here he remained two years. During that time he contracted malarial fever and was compelled to give up his position.

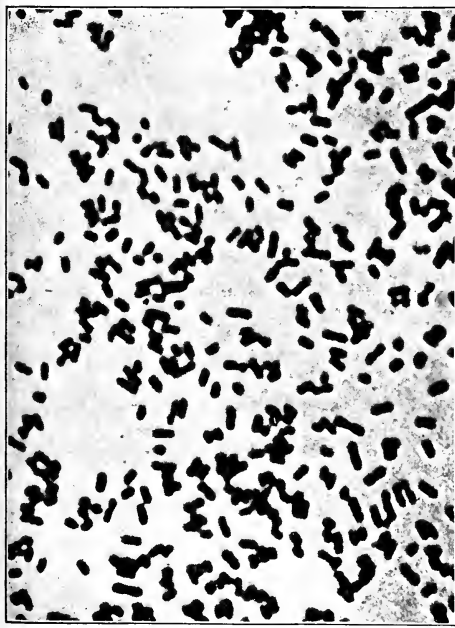
Texas was then described as a good section for an invalid. Thither Mr. Radam went, and in Austin, Tex.,



85. BACILLUS OF TETANUS (Kitasato).
 (STARKRAMPF—LOCK-JAW.)
 x 2500. Photomicrograph by Wm. Radam.



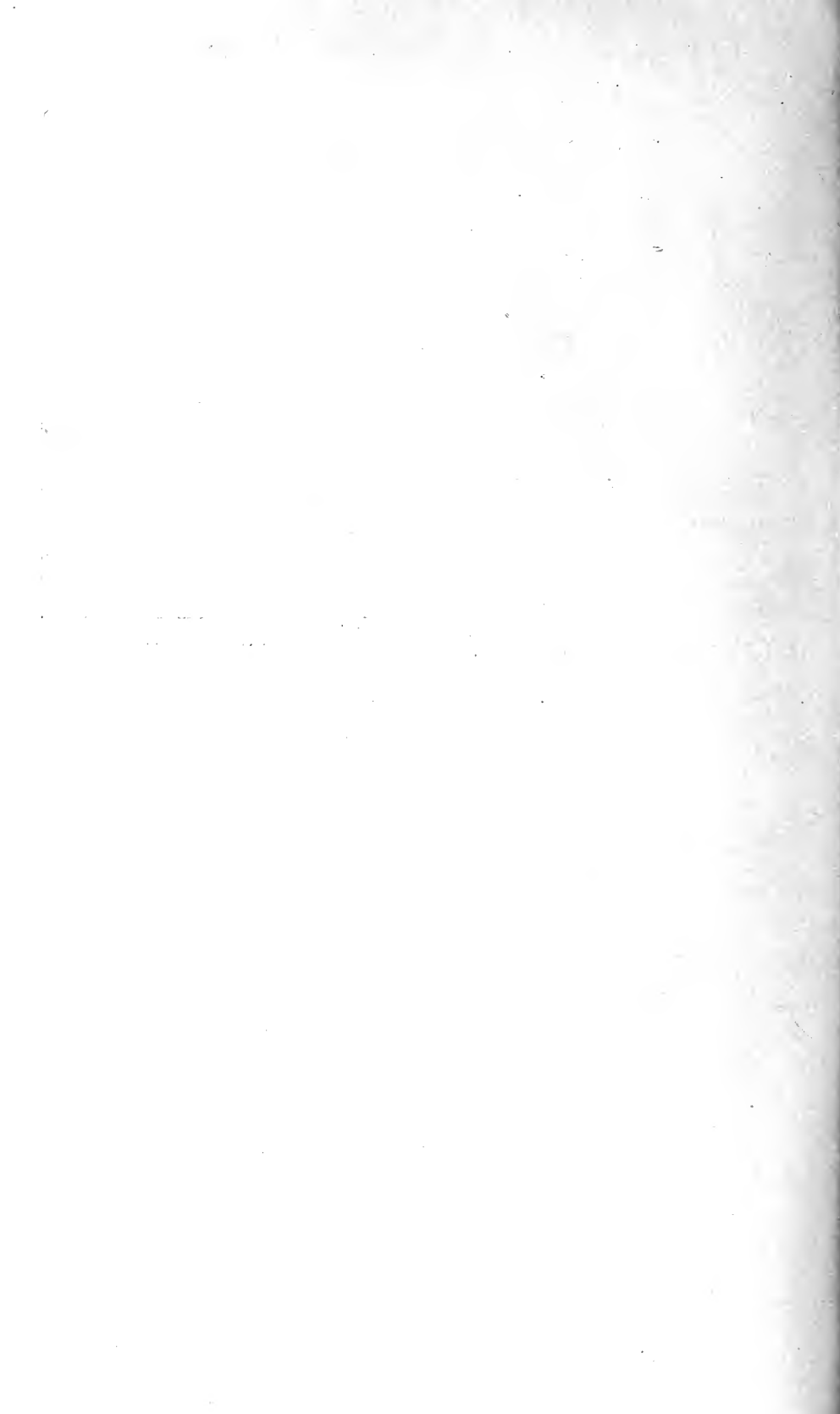
86. BACILLUS ERYSIPELATUS PORCI.
 (HOG ERYSIPELAS.)
 x 2500. Photomicrograph by Wm. Radam.



87. BACILLUS TYPHI MURIUM.
 (MICE DISEASE.)
 x 2500. Photomicrograph by Wm. Radam.



88. BACILLUS CAPSULATUS (Pfeiffer).
 (IN GUINEA-PIGS.)
 x 2500. Photomicrograph by Wm. Radam.



he purchased a tract of land and began the culture of flowers and trees. In a business way he was successful. The trees he planted and cultivated were shipped to California, Arizona, Lower California, Mexico, and other Western States and Territories, where they stand as monuments of his industry. The tract of land he originally bought was irrigated and became like a garden. By this time Mr. Radam was wealthy. He was one of the leading florists and nurserymen of the great West, and his name was known throughout the East, where he was recognized for his skill in buying seeds and plants for his nursery. But a shadow rested upon Mr. Radam. He could see his bank deposits increasing daily, but he could also feel his health leaving, his muscles weakening. To the original attack of malaria had been added rheumatism, then catarrh, and finally the dreaded consumption. For seventeen years he had employed physicians. Perhaps they slightly retarded his diseases, perhaps they accelerated them. At any rate, Mr. Radam found himself seven years ago on the threshold of death. With feeble steps he could still wander among the flowers he loved, but he knew that he could only live a short time. Yet in this condition he was on the verge of a great discovery.

In his long career as a florist Mr. Radam's great success had been brought about by his ability in preserving his plants from disease. When a plant or stalk began to look sickly he looked for some cause and always found it. His discoveries in this line were worth recording in science.

There are many fungi or plant microbes in the greenhouse. Every gardener knows that. Some kinds are so numerous that they can be seen in little bunches upon the sides of plants or upon the ground around them. There is a sickness of the rose called the black rust, the symptoms of which are black spots on the leaves, and these spots grow larger and larger until the whole leaf turns black. This is the second stage. The third stage soon follows, in which the leaves turn yellow and finally drop off.

This rust is contagious, and the spores or seeds from the fungus infect all other roses in the vicinity, just the same as persons with the cholera or small pox infect others by proximity. The fungus of the cutting bench resembles in appearance a spider web, and, if left undisturbed, grows and covers about one square foot of surface in six days, and every cutting which stands within reach of it is affected and dies. Another thing Mr. Radam discovered about plants which was of use to him afterward was that the plants were affected by changes of weather. In warm, damp weather his little seedlings were in more danger than on bright, sunny days. After some changes of weather, especially after sunshine followed by rain, he noticed that on the leaves of plants, which were healthy-looking before, tiny little spots grew, and, when the wind blew, covered the whole surface with a kind of rusty-looking smoke. On other plants a different species could be seen, showing that different plants were affected by different diseases.

Mr. Radam early decided that the fungi on plants were nothing more than microbes, and the reason for different plants being differently affected was that they were affected by different kinds of microbes. There was nothing new in this theory, although Mr. Radam discovered it himself and did not read it in text books on botany.

He tried to save his plants by cutting off the fungi, but soon found out that this treatment had no permanent effect. The fungi grew out again, generally in the same place, but often in many other places. This led him to the additional discovery that the little fungi or microbes were actually in the sap of the plants, and that unless the sap was purified the condition would remain the same. He tried many ways of treating the roots of his affected plants. Occasionally he was successful, as some species of microbes yielded to his application of antiseptics to the roots. But his efforts, on the whole, were a failure, and he found that the safest

way was to remove the infected plants, so as to save the healthy plants.

It took Mr. Radam only another step to discover that, in reality, the various kinds of microbes had a similar effect upon plants—that is, they attacked the plant and caused fermentation. The rust on the rose leaves, he found, was nothing but fermentation, the result of the action of microbes. The rotting away of the wood of plants was fermentation. He applied the theory to other things with equal success.

Mr. Radam also noticed that plants inherit the seeds of the microbes. On many occasions he preserved the seeds of a yellow-looking arbor vitæ that was sickly, and sowed them. The result was a growth of sickly-looking yellow plants, which either soon died or never amounted to anything. The blight of the pear tree he transferred by budding to healthy trees. In a short time those trees were affected by the blight. The bacteria which he transferred from a yellow-looking tree to a healthy one inoculated it so that it soon became yellow. These discoveries were of inestimable value to him afterward.

Early in his career as a gardener Mr. Radam sought means to kill the microbes or bacteria which affected his plants. Thousands of experiments were made. He tried various alkalies and acids, tobacco smoke, and borax. None of them worked successfully. If he succeeded in arresting the progress of disease in his plants he had to apply something so strong that the plants died from the effects of the remedy.

As the years rolled on he continued his investigations. One day there came to him a happy thought. He had already discovered that all the diseases of plants were caused by microbes, or bacteria. Their action produced fermentation. Without fermentation there could be no disease. As the coral reef is the tomb of myriads of tiny insects, so he found that in fermentation, which they caused, the microbes lived, propagated, and died. Fermentation was their result. If he could at once ar-

rest fermentation, it would signify that the microbes had all been killed. Upon these lines Mr. Radam pursued his investigations. To arrest fermentation he found antiseptics were necessary. He tried all the known antiseptics and they failed, for if they killed the microbes and thus arrested fermentation they also killed the plants. Tobacco smoke, he found, was of use only temporarily. He burned other substances in the greenhouse and watched the results. Some results benefited the plants, and others did not. One day Mr. Radam noticed that during certain of these experiments he felt in better health. In fact he found himself a sort of barometer to tell the condition of his affected plants. If he felt in good spirits after an experiment with certain gases, he noticed that his plants looked better. He attributed this at first to his mental pre-occupation. One day, after settling with his physicians and being told that he had better put his business affairs in shape, so others could carry on his business in case of his death, Mr. Radam walked through his greenhouses and gazed sorrowfully at the plants he must soon leave forever. He came to some diseased plants and paused. Suddenly the thought struck him that what was true with plants might be true with man—that diseases in man were caused by microbes, as diseases were caused in plants. From that moment he was a changed man. He said to himself that if he could find some antiseptic that would destroy the microbes in his system he might get well. This was the way he reasoned : If there were microbes in his system which caused his diseases, then there must be fermentation. It took but a moment to convince him that what his lungs threw off was nothing but fermentation. Then, if he could but arrest this fermentation, it would signify that he had killed the microbes which caused the fermentation.

But the question to consider was how he could do this without killing himself as well. Alcohol, he knew, was a powerful antiseptic, but if he took enough to kill the microbes and arrest fermentation he would have to literally soak himself in alcohol. Then, again, if he used

carbolic acid weak enough to be taken with impunity, it would have no effect upon the microbes. If he could only get an antiseptic gas, he said to himself, which was powerful enough to kill the microbes and still not powerful enough to injure him, then he might yet recover.

Up to this time Mr. Radam had never read a medical book, and he knew nothing about chemicals except those he had used in his greenhouse experiments. Seven years ago a few of the bolder physicians had declared that certain diseases were caused by microbes, but the public did not believe them, and as a matter of fact those physicians were not certain of their claims themselves. But Mr. Radam had never heard of their discoveries or pretended discoveries. He had worked the theory out himself, reasoning that if Nature had affected plants with microbes, why should she not also affect human beings with microbes?

To the drug stores Mr. Radam went and bought all the antiseptics he could. He was not a medical man, but he knew that it was unsafe to play foolishly with chemicals. In other words, he did not dare experiment upon himself.

One day Mr. Radam felt convinced that if the medicine his doctors were prescribing for him did not stop fermentation outside of the human body, it was not possible for it to stop the fermentation inside.

Consequently he placed some fermentation which his own lungs had thrown off in his doctor's medicine and corked it up. In a few days the fermentation increased, which conclusively proved that the microbes not only lived but propagated in the medicine which was expected to cure his disease. From that day he has not used a drop of medicine outside of his microbe-killer.

With the antiseptics he purchased Mr. Radam experimented upon raw meat. None of them came up to the requirements he exacted. If they preserved the meat they injured it. Substances which would not injure the meat were too weak to prevent decay. Then Mr. Radam began compounding these antiseptics with other drugs. His experiments were not successful. He continued,

however, until he had experimented with all the drugs obtainable in the drug stores of his city. Still he was unsuccessful. It was then that Mr. Radam resorted to gases. None of the known gases produced the desired results. For days and nights Mr. Radam worked. His friends thought he was wasting his time, but, as they knew he had only a short time to live, they humored him. Like Ponce de Leon in his search for the spring of life, Mr. Radam was seeking something which would give him life. It was always before his eyes, but like the will-o'-the-wisp it eluded his grasp and mocked him. Day after day the desired something seemed within his reach. He closed his fingers upon it, but it was not there. With his bits of fresh meat and his gases he worked day after day, then went to bed only to dream he had found what he was looking for.

One day Mr. Radam mixed a combination of gases, some obtained by chemical extraction and others obtained by burning certain drugs, and placed the result in a glass can with a piece of fresh meat. The next morning the meat looked fresher than did the results of his other experiments. This encouraged him and he left it several days. Soon the meat began to ferment, but Mr. Radam knew he was on the right track. If he could only make the gas stronger, then he would have accomplished the results desired, and the fresh meat would keep forever. Under pressure he passed a quantity of this gas through water. He found that the water absorbed eight hundred times its own volume of the gas. That is, one cubic inch of water would absorb eight hundred cubic inches of gas. This gave him just eight hundred times as powerful an agent with which to conduct his experiments. Into a bottle containing some of this impregnated gas Mr. Radam placed a piece of fresh meat. After leaving it there three weeks he took it out. Every cell in the meat was as perfect as when he had placed it in the impregnated gas. He ate the meat and felt no evil effects. Then he began taking internally some of the impregnated water. Within a few days he

felt better. The lungs began throwing off large quantities of fermentation, the rheumatism was less severe, and in fact Mr. Radam felt better than he had in years. He continued taking the gas-water, as he called it, and within four months the discharges from his lungs had ceased and he had gained ten pounds in weight, to say nothing of the improvement in his general condition.

To cut a long story short, within a year Mr. Radam had completely recovered his health and his weight had increased from one hundred and forty-four to two hundred and seven pounds. He was then partially bald. The thought came to him to apply the water-gas externally to his head. In a short time a slight fuzz began to cover his head, and within a year he had a moderately thick head of hair.

Mr. Radam had noticed that different plants had been differently affected by the substances he had tried upon them. Therefore he was not certain whether the means that had cured him would cure any one else or not. He had no intention of giving up the florist business to engage in selling medicines, and he looked upon his discovery only as what had been the means of restoring him to health. In spite of this, however, there grew upon him the desire to know what effect the medicine would have upon others. If he had made no mistake in his theory, all diseases were caused by microbes, and in order to prevent fermentation, which is really disease itself caused by microbes, an antiseptic was needed powerful enough to destroy the microbes without injuring the person taking the medicine. He could prevent fermentation, as already shown by his experiments with the pieces of fresh meat. By the use of his gas-impregnated water he had arrested fermentation in his own body and cured himself, when he had been told by his physicians that he had only a short time at the most to live. Would his discovery work as successfully with other people as it had with him? Would it kill the microbes which probably caused other diseases as well as the microbes which caused his particular diseases?

These questions bothered Mr. Radam. Day after day he longed to know how valuable and far-reaching was his new compound of concentrated gases.

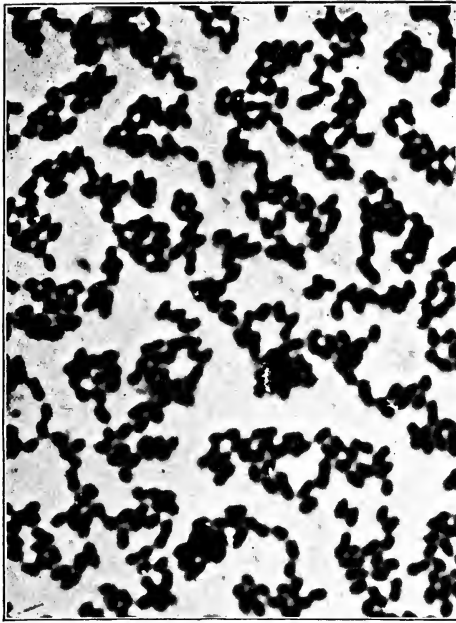
He determined to try the medicine, if possible, upon some person affected with disease. The laws of Texas were then, as they are now, very strict regarding the practice of medicine. If he gave the medicine to a sick person, and instead of recovering that person died, then he would be liable for murder. Again, if he prescribed the medicine for any one he would be attacked by the physicians, no matter whether it cured the patient or not. As he had absolutely nothing to gain except to satisfy his curiosity, Mr. Radam bided his time.

A short distance from where he lived a young man was dying with consumption. A few months previous three members of the same family had died of consumption, and the death of the young man in question was supposed to be a matter of only a few weeks.

This youngman visited Mr. Radam one day and asked him how he had been cured. Mr. Radam told him that was a secret of his own. "But," said he, "the medicine that cured me is in that little jug. It is pleasant to take, it is absolutely harmless, and I believe it will cure you of your consumption, and that it will also cure any disease that man is heir to. I can't give you any of the medicine, nor can I sell it to you. But I am going out of the room for a moment, and if you should steal that jug of gas-impregnated water I should never make any trouble about it. The law does not allow me to prescribe it nor induce people to take it, but if you should steal it and take it yourself according to directions, three or four wineglassfuls a day, then if you should be killed by it no one would be to blame but yourself."

Then Mr. Radam went out of the room. When he returned a few minutes later the young consumptive was gone and so was the jug.

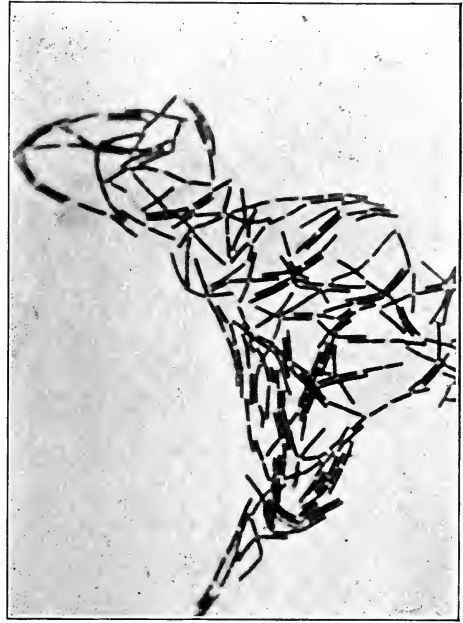
Within a week there was a decided improvement in the condition of the young man who had stolen the medi-



89. **BACILLUS DER MEUSE-EUCHE**
(Laser).

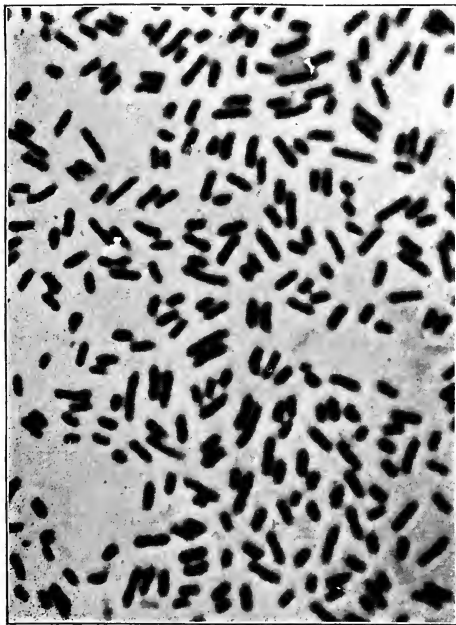
(MOUSE SEPTICÆMIA.)

x 2500. Photomicrograph by Wm. Radam.



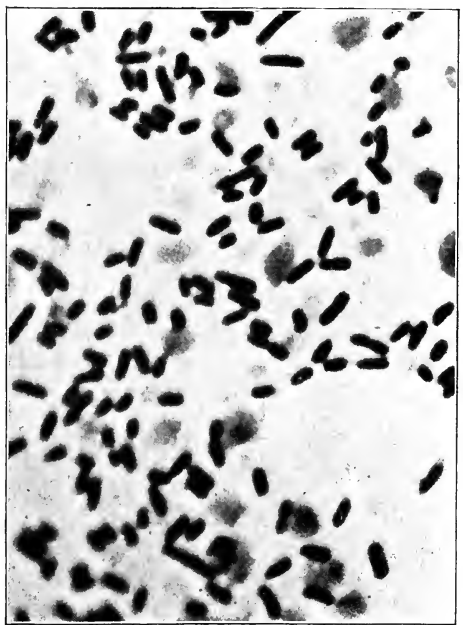
90. **BACILLUS SUBTILIS** (Ehrenberg).
(HAY BACILLUS.)

x 1000. Photomicrograph by Wm. Radam.



91. **BACILLUS OF GROUSE DISEASE**
(Klein).

x 2500. Photomicrograph by Wm. Radam.



92. **BACILLUS DER FRETTSCHEN-
SEUCHE** (Eberth).

(FERRET DISEASE.)

x 2500. Photomicrograph by Wm. Radam.



cine. His appetite was better and there was less fermentation in the lungs. In a few months he was practically well, and is alive and in good health to-day. His appreciation of the medicine was so great that he came to Mr. Radam and told him of a woman relative of his who was suffering from cancer of the breast. Again Mr. Radam told him he dare not prescribe the medicine, but he was perfectly willing to make up another jug of the gas and place it where it could be stolen. This was done and in a short time the young woman also recovered.

By this time the report had gone abroad that Mr. Radam had discovered a wonderful medicine which had performed wonderful cures. Sick people visited him by the dozens. Still Mr. Radam did not dare openly advocate the medicine. He talked candidly with the people who came to see him. All offers of compensation Mr. Radam refused, because, as he said, he was not in the medicine business, and through gratitude in recovering from his own diseases he could well afford to allow a good many jugs of his remedy to be given away.

Almost as much to his own surprise as to the surprise of others, the medicine seemed to cure every disease upon which it was tried. It proved then, what Mr. Radam has since proven to the scientific world, that all diseases are caused by microbes, and that the microbes produce fermentation and decay. To cure the disease it was only necessary to kill the microbes, stop fermentation, and the object was accomplished.

The demands for Mr. Radam's medicine were so great that he agreed to place it upon the market at a nominal price. He now feared no attacks from the physicians or persecution from the laws, as he had successfully demonstrated that his remedy was harmless as water, and furthermore that it had effected marvellous cures in many cases and had actually benefited every person who had tried it. On account of the manner in which he discovered it and the action of the medicine itself, he gave to it the name "Microbe-Killer."

The experiments which Mr. Radam had made with antiseptic gases and substances before he was successful had occupied a whole year. The results of the use of the "microbe-killer" had been published in the Austin daily newspapers, and as soon as the remedy was placed upon the market it had a large sale.

With the little nursery as a centre the merits of Radam's Microbe-Killer circulated day after day, performing apparent miracles in little hamlets, in mining camps, in villages and cities. Gradually it crept into the Eastern States, then to Canada and across the ocean. Mr. Radam was unable to manufacture the microbe-killer in quantities to meet the demand, and William Radam Microbe-Killer Companies were organized in different parts of the country. In nearly every State there was such a company manufacturing its own microbe-killer according to the formulas furnished by Mr. Radam. Gradually these companies have been consolidated, until to-day, in place of the great number of smaller companies, there is a large company in New York, a company in Chicago controlling the great mid-Western section, a company in San Francisco, a company in London, Canada; another in Melbourne, Australia; one in London, England, and another in Paris to control the whole territory of France.

Mr. Radam has advertised but little, nor have any of his companies, preferring to trust entirely to the cures effected by the microbe-killer. One million people have used the microbe-killer, and their testimonials by the thousands have poured into the offices of the various companies, showing that the cures effected by the microbe-killer have rivalled even the cures effected upon Mr. Radam himself and his neighbors who stole the medicine with his consent. Long ago Mr. Radam was persuaded to give up the active management of his nursery and greenhouse and devote his entire time to the microbe-killer.

A curious feature about the success of Radam's Microbe-Killer has been the attitude of the medical pro-

fession toward it and the theories advanced by Mr. Radam. At first they laughed at his discovery and joked about it. His theories, they said, were nonsense. Diseases were not caused by microbes, they declared, but were simply diseases.

It is singular to note how slow the medical profession was to adopt the microbe theory. Among the more ignorant practitioners to-day, among that class of physicians who have only recently accepted Harvey's theory of the circulation of the blood—physicians who are giving pills and nostrums the same as their fathers did—the microbe theory is still unbeliev'd. But among educated physicians there is not one who does not know that every disease is caused by a species of microbes, which vary with the character of the disease. More than any one else in the whole world has Mr. Radam brought about this change of opinion. By his discoveries with the microscope, about which more will be said later, he has actually proved that there is a separate and distinct microbe for every disease.

From their attitude of laughter, as the success of Mr. Radam's medicine and theories became more apparent, the medical profession turned to jealousy. Later certain quacks and impostors began imitating the microbe-killer.

From his laboratory Mr. Radam was compelled to go to the courts. Up to the present time he has had many cases in court, in all of which he has been successful.

Probably the most persistent attack was made upon the microbe-killer by a physician and chemist, who declared that the microbe-killer was a poisonous combination of acids, which had no effect but to injure the whole system. This attack was inaugurated in an open letter published in a trade-journal. It was followed up by similar attacks under the signature of "M.D." and other means of concealment. The writer claimed that his chemical formula would make the microbe-killer.

Mr. Radam immediately began a suit for damages after demanding a retraction of the statements and articles. The suit came to trial. The defence was :

That it was discovered by a nurseryman who knew nothing of medicine or medical science.

That it was downright humbuggery to speak of all diseases being caused by microbes, for the reason that any man can count the number due to such cause on his fingers and have digits to spare.

That surgeons only apply antiseptics to check the development of microbes, but that they cannot kill them; and

He asks the question whether such ignorance was excusable when it endangered the public health.

The defendant also submitted an analysis of the microbe-killer which he claimed to have made. In return Mr. Radam submitted his affidavits that he had never purchased or used an ounce of any kind of acid in the manufacture of his microbe-killer. He also proved conclusively that the combination of gases which he had used in making his microbe-killer, and the manner in which they were generated and mixed, absolutely precluded a chemical analysis.

From the hundreds of volunteer witnesses among the persons who had been cured by the use of the microbe-killer, the court received the evidence of twenty, as many as it deemed necessary.

These witnesses testified that they had been cured by the use of the microbe-killer. Some had taken only a few gallons, while others had taken one hundred or more gallons of the gas.

The long case at last came to a close. Judge Andrews, in his charge to the jury, told them that the plaintiff had been libelled and that the whole article was libellous on its face, and that the plaintiff had clearly proven, beyond all possibility of doubt, the microbe-killer was absolutely harmless and that it had effected wonderful cures. The jury immediately returned a verdict for Mr. Radam, and warfare was ended.

But Mr. Radam went further. He actually cured of consumption a man who had been declared in writing, by the physician against whom the suit was brought, as having consumption.

What more could be wanted to vindicate an inventor, a discoverer of new theories, than the result of the controversy? What seemed at first persecution proved to be a wonderful benefit.

The success with which the microbe-killer met caused imitators to become active. In his safe Mr. Radam has dozens of circulars from quacks who were selling and manufacturing imitation microbe-killers. Some even went so far as to use Mr. Radam's name and portrait as the name and portrait of the seller of the medicines alleged to be cures. Some even used jugs identical with those used by Mr. Radam for the convenient keeping of his microbe-killer. Mr. Radam has won many suits against these impostors, and has many suits still pending which he cannot fail to win.

Seven years ago Mr. Radam knew absolutely nothing about medicine except what he had learned by drawing similes between plant and animal life. By transferring his knowledge of plant life and plant disease to the human system he had accomplished in the simplest manner what regular physicians could never have accomplished. In reality he was the apprentice or the "greenhorn," referred to in the beginning of this article, who brought about what the master of the profession could not. What Edison did for the electrical world, Mr. Radam did for the medical world, with this difference: Edison's inventions were designed to benefit mankind, while Mr. Radam's discoveries were to save the lives of sick people.

In spite of the fact that Mr. Radam is not a physician, he knows more about diseases and microbes to-day than any other living man. To the objections and persecutions of medical men and alleged scientists who claimed that microbes were not the cause of disease, Mr. Radam simply said, as Harvey imitated Galileo, "All diseases are caused by microbes for all that."

Then Mr. Radam had no actual proof of his theories regarding microbes except his convictions and the cures brought about by his microbe-killer. To-day he is in a different position. During those seven years he has

been a close student, not of medical books, but of Nature. With the most powerful microscopes obtainable he secured microbes from nearly every disease known to medical science. He went further than this. In his own laboratory he constructed a wonderful instrument for photographing these microbes. It is too complicated to be described here, but the results it accomplishes will give an idea of what it will do. Upon a glass slide he can place a drop of blood. A few moments later he can show you a photograph five inches wide and seven inches long, showing the blood corpuscles looking nearly as large as silver dimes. But do not think that is the photograph of the whole drop of blood. The lens is so powerful that it only covers a hundredth part of the drop of blood. To photograph the whole drop of blood would produce one hundred similar pictures, or one continuous sheet of photographs containing one hundred separate photographs, each seven inches long and five inches wide.

Thousands and thousands of the microbe photographs Mr. Radam has made. He could secure no one competent to do the work, so he has done it all himself. In his laboratory he has many prints of microbes taken from every disease known to medical science. At the World's Fair last summer he had hundreds of photographs of these different kinds of microbes, ranging from the microbes which eat into the lungs and cause tuberculosis to the microbes which eat into the scalp, cause dandruff, and destroy the hair. Such is the manner in which Mr. Radam has proven what he once held only as a possible theory.

In his main office at No. 1288 Broadway, near Thirty-fourth street, Mr. Radam has a large collection of these pictures and the finest microbe laboratory in the world. There you can see in photographs all the microbes which destroy life. If you prefer to see them in reality instead of in photographs, there are revolving tables loaded with microscopes, under the lenses of which are living microbes. In different bottles he keeps the different mi-

crobes. Under the powerful lenses upon the slides the microbes will live only about one hour. Then fresh microbes are placed upon the slides and the performances begin again. You can see the little demons, millions in a single drop, swimming about, jostling each other, breaking into sections, and each piece almost instantly becoming as large as the original microbe, cavorting and turning about, now in one direction, now in another. That is the way the microbes act when in the system. In an almost incredibly short time one microbe becomes a mass of microbes, then millions.

There are scores of interesting experiments which Mr. Radam will show the visitor there—only too glad to show them. He will prick the end of your finger and extract a drop of blood, which he will place under one of the microscopes. Then you can see for yourself how your blood looks. You can see the microbes, if there are microbes there, and there is likely to be. In no laboratory in the world are such interesting experiments performed as there.

Physicians from all over the country come to New York to see and study the microphotographs in Mr. Radam's office. Not a day passes by that Mr. Radam does not have distinguished visitors—physicians, sanitary experts, business men, society women, and all classes of people—who want to learn more about microbes.

Few men could have accomplished physically what Mr. Radam has in seven years. He is a tireless worker. Scarcely a day passes that he does not work sixteen hours, either in experimenting with microbes or writing about them. He has written one large volume about microbes, which is regarded as a standard work, and he is now preparing a second volume upon the same subject, fully illustrated.

Personally Mr. Radam is a very pleasant man to meet. He is tall, rather stout, with a full face, a high forehead, and an intelligent look flashes in his eyes. When he talks about microbes his face lightens up and he becomes a brilliant conversationalist. A reporter of *The Press*

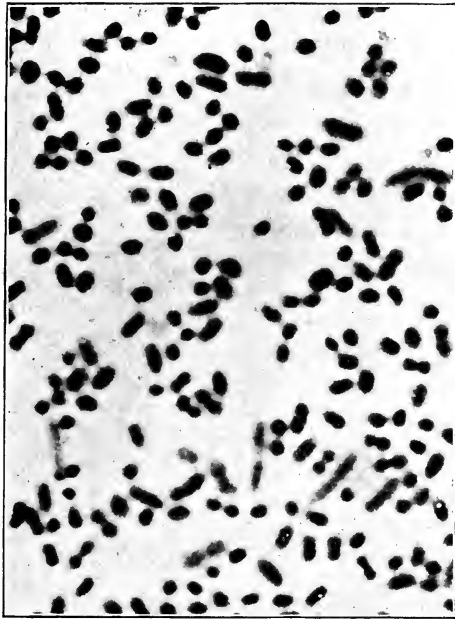
spent several hours with Mr. Radam one day last week, and was shown how microbes are photographed, and also shown the many experiments made before visitors at his offices, No. 1288 Broadway.

Here are some of the things Mr. Radam said to *The Press* reporter which will interest those who would know more about Mr. Radam and his wonderful microbe-killer :

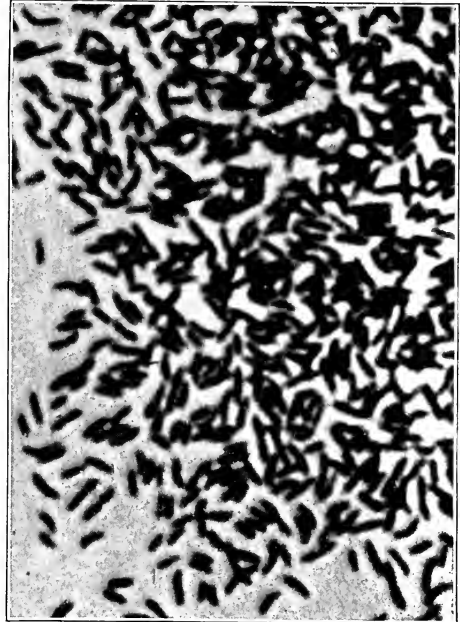
“Although it took a long time to make the discovery, I did after all, and I can readily see now why it was more natural for me to make so great a discovery than for medical scientists. I simply did one thing. All my knowledge of plants and flowers I transferred to the human system. The analogy was perfect. Whatever causes fermentation in a plant will cause fermentation in a human body. Long before I made the discovery I had found out that microbes caused fermentation in plants. As soon as I drew the analogy between plants and human life, I knew just as much about diseases in human beings as I knew about diseases in plants.

“The great quantity of medicine I took while under the doctors’ care I found afterward to be absolutely worthless. I was suffering from fermentation caused by microbes. Millions of microbes were swarming in my blood, propagating themselves into countless other millions, and all feeding upon my system. The medicine I took, instead of killing these microbes, actually helped to feed them. This I proved by a simple experiment after I had made my discovery. I had saved samples of all the medicines I had ever taken. Into quantities of these medicines I placed living microbes taken from my system. Instead of the medicine killing the microbes, as it ought to have done in order to cure my disease, the microbes actually propagated in the medicine.

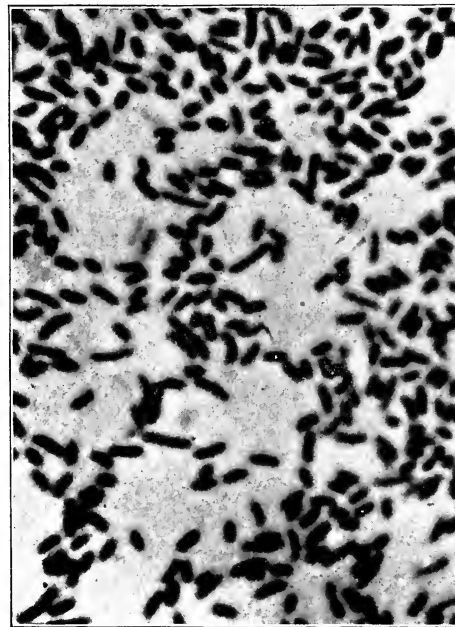
“When Professor Koch discovered his lymph the medical world said it was a great discovery, and was ready to accept his theories. I alone declared that it was founded upon a wrong basis. In all the New York papers I published exactly why it could not cure consumption or any other disease. People laughed at me,



93. **MICROCOCCUS PRODIGIOSUS.**
x 2500. Photomicrograph by Wm. Radam.



94. **VIBRIO AQUATILIS.**
(IN STAGNANT WATER.)
x 2500. Photomicrograph by Wm. Radam.



95. **VIBRIO SAPROPHILES (Weibel).**
(IN SEWER SLIME.)
x 2500. Photomicrograph by Wm. Radam.



96. **SPIRILLUM METSCHNIKOVII.**
(IN CHICKEN CHOLERA.)
x 2500. Photomicrograph by Wm. Radam.



but I knew what I was talking about. The results of later experiments showed this to be true.

"I don't care what people may say, there is not a single question about microbes or diseases that I cannot answer. This is simply because of the perfect similarity between plant and animal life, and my thorough acquaintance with plants which I transferred from plant life to animal life.

" 'Radam's Microbe-Killer' is not a medicine any more than Seltzer water is a medicine. Just as the latter is charged with carbonic acid gas, so the former is water charged with antiseptic gases. It is used as water, only in smaller quantities. Its antiseptic power stops fermentation. No microbe, not even the microbes of leprosy, can live in it. But the doses must be sufficient to permeate the entire body. Doctors give a spoonful at a time. The dose of the microbe-killer is a wineglass or more. Physicians' prescriptions are poisonous; this is not. Alcohol or whiskey is highly antiseptic, but when diluted with water it loses its antiseptic power. The same is true of drugs. Microbe-killer also loses its property when diluted, and then it becomes useless. It has no purgative effects, and no drugs may be mixed with it; but laxative pills, or any of the good antiseptic or purgative preparations in the drug stores, may be used for regulating the bowels. It should always be remembered that the value of any remedial agent depends on its antiseptic properties; a good supply of microbe-killer, with means to regulate the system, is therefore all that is necessary to guard against and cure disease.

"There is no need to inquire whether the microbe-killer cures any particular disease. The question never should be asked. It cures all. It purifies the blood. A person may have a cancer, tumor, headache, or sore eyes, Bright's disease, consumption, sore throat, or any ailment. It matters not. We do not follow the doctors' methods of diagnosing and treating specifically. We cure all. We bring the blood into a pure and healthy condition, and with that all disease disappears. The

names of various ailments are of no consequence ; but they who want to know them must ask the doctors. We only distinguish between disease and health, and invariably effect a cure. When a plant is unhealthy there is fermentation about the roots ; when a man is unhealthy there is fermentation in the stomach. If the roots are destroyed the plant perishes, and when the human stomach is completely fermented the man dies. All remedies, to be effective, must enter the stomach, and not be inserted under the skin, as Dr. Koch's lymph is, for example. If, then, the remedy be antiseptic and harmless it will purify the stomach, free it from fermentation and gases caused by microbes, and cleanse the blood. Microbes take up oxygen and give out carbonic acid, hence the sourness, fever, and pain accompanying disease. Now, whatever goes into the stomach goes to every part of the body. To cure the kidneys only is not possible, because we cannot send the microbe-killer into them and not into any other part of the body. Wherever your pain is, the microbe-killer will find it and cure it."

A REPORT ON CERTAIN EXPERIMENTS

UNDERTAKEN TO ASCERTAIN THE GERMICIDAL AND DISINFECTING POWER

OF

RADAM'S MICROBE-KILLER,

BY

DR. A. B. GRIFFITHS, F.R.S. (Edin.), F.C.S.,

Member of the Chemical Societies of Paris and St. Petersburg ; Author of "A Manual of Bacteriology," "Researches on Micro-Organisms," "The Physiology of the Invertebrata," etc.

WE must include among disinfectants all those substances which destroy the life of microbes. The application of such substances to putrid mixtures results in the cessation of putrefaction, and the reason why such application remains efficacious is, either that the presence of the substances prevents the development of further spores into the mature state, or else that they kill off each microbe as it is developed. The precise modes of action of disinfectants must necessarily be various in character. Some owe their power to oxidation, others to a reducing action, while others again may render the medium, in which the microbes exist, unfit for their further sustenance, by entering into combination with the albuminous principles upon which they may have hitherto depended for food, thus converting them into substances which they cannot decompose. In this way they may be starved out of existence. Collectively, all substances which lead by their employment either to the effectual interference of microbial processes or to the death of the microbes which breed diseases, are disinfectants in the truest sense.

The object of the experiments recorded in this report was to ascertain the action of Radam's Microbe-Killer on certain pathogenic and non-pathogenic microbes, and on the poisonous ptomaines produced during the course of infectious diseases.

FIRST SERIES OF EXPERIMENTS.

Silk threads were impregnated with the microbes of *scarlet fever*, *tuberculosis*, *typhoid fever*, *Asiatic cholera*, *diphtheria*, *glanders*, and *influenza*, which were then immersed in Radam's Microbe-Killer. In each case *the microbes were completely destroyed* by its action. *The destruction of the microbes in each case was proved* by no growths making their appearance in various nourishing media, as well as by other well-known bacteriological methods.

SECOND SERIES OF EXPERIMENTS.

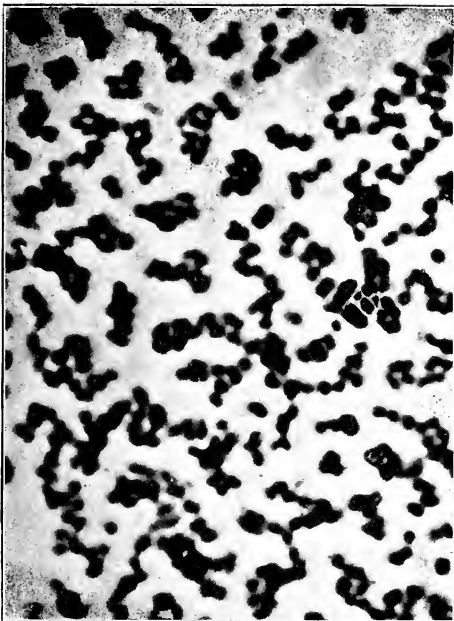
Radam's Microbe-Killer was added to a number of tubes containing pure cultivations of the seven microbes already mentioned in this report, with the result that *the microbes of scarlet fever, tuberculosis, typhoid fever, Asiatic cholera, diphtheria, glanders, and influenza were destroyed by its action.*

THIRD SERIES OF EXPERIMENTS.

The object of these experiments was to ascertain the germicidal power of Radam's Microbe-Killer when sprayed into ordinary dwelling-rooms. The number of microbes present in three gallons, or fifteen litres, of air was ascertained by Professor Hesse's method (see Dr. A. B. Griffiths' "Manual of Bacteriology," p. 265, Heine-mann). The figures in the following table represent the average number of microbes (colonies) in three gallons of air, before and after spraying with Radam's Microbe-Killer :

No.	Before Spraying.	After Spraying		
		10 Minutes.	20 Minutes.	30 Minutes.
I	328	112	36	0
II	305	99	28	0
III	261	73	15	0
IV	196	61	12	2
V	325	106	31	0

There is no doubt that Radam's Microbe-Killer is a



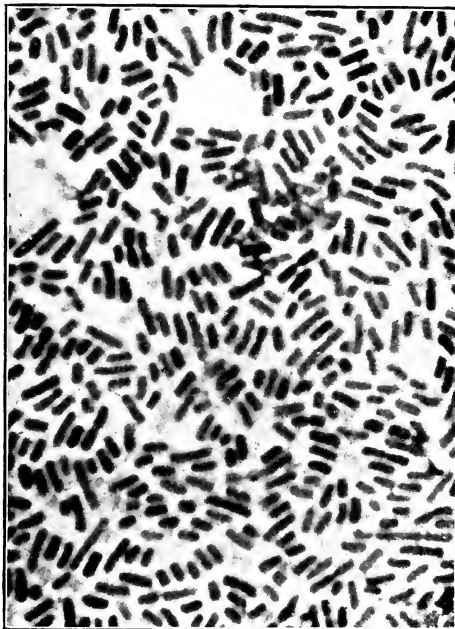
97. **BACILLUS ENTERITIDIS.**
(FROM INFECTED ANIMALS.)
x 2500. Photomicrograph by Wm. Radam.



98. **PROTEUS VULGARIS.**
(CHOLERA INFANTUM.)
x 2500. Photomicrograph by Wm. Radam.



99. **BACILLUS ALVEI.**
(IN FOUL BROOD OF BEES.)
x 2500. Photomicrograph by Wm. Radam.



100. **BACILLUS INDICUS RUBER.**
(IN STOMACH AND INTESTINE.)
x 2500. Photomicrograph by Wm. Radam.



powerful antiseptic, as it readily destroys microbes contained in the atmosphere. This antiseptic is fatal to the lowest forms of life; hence the reason that it arrests fermentation and putrefaction. Consequently, it may be used with advantage as an antiseptic dressing for foetid sores, abscesses, sinuses connected with diseased bones, etc., also for wounds.

FOURTH SERIES OF EXPERIMENTS.

The object of these experiments was to ascertain the action of Radam's Microbe-Killer on the microbes in certain waters. The number of microbes present in one cubic centimetre (cc.) of the sample of water was ascertained by Koch's or the plate-cultivation process. The figures in the following table represent the average number of microbes (colonies) in each cubic centimetre of the sample of water before and after adding Radam's Microbe-Killer :

Water from	Before.	After adding	
		1 cc. of Radam's Microbe-Killer.	3 cc. of Radam's Microbe-Killer.
River Thames	23,620	163	0
River Lea.....	9,865	91	0
Lambeth Company's Water	124	8	0

These as well as the preceding experiments prove the *high germicidal power* of Radam's Microbe-Killer.

FIFTH SERIES OF EXPERIMENTS.

It is essential in the treatment of infectious diseases that not only the pathogenic microbes should be destroyed, but also the poisonous substances (ptomaines, toxines, or animal alkaloids) which they indirectly produce. If any substance answers these conditions, we are justified in pronouncing it a germicide or disinfectant; and such a substance, according to its power, may be of the greatest value in the treatment and prevention of infectious diseases.

The fifth series of experiments were undertaken in order to ascertain the action of Radam's Microbe-Killer on the ptomaines which are produced in the system during certain infectious diseases. I have isolated the following poisonous ptomaines, among others, from urine in certain infectious diseases (see Dr. Griffiths' papers in the "Comptes Rendus de l'Académie des Sciences," Paris, tomes 113-117):

Scarlatinine ($C_5H_{12}NO_4$) is the ptomaine of scarlet fever. Radam's Microbe-Killer *destroyed the poisonous properties of this ptomaine.*

Diphtherine ($C_{14}H_{17}N_2O_6$) is the ptomaine of diphtheria and is produced in pure cultivations of *bacillus diphtheriæ*. Radam's Microbe-Killer *destroyed the poisonous properties of this ptomaine.*

Glanders—The ptomaine ($C_{16}H_{10}N_2O_6$) of glanders is *highly poisonous, but* Radam's Microbe-Killer rendered it inert.

Puerperaline ($C_{22}H_{16}NO_2$) is the ptomaine of puerperal fever. It is *highly poisonous* and produces the death of small animals within twelve hours. Radam's Microbe-Killer *rendered it inert.*

Erysipeline ($C_{11}H_{13}NO_3$) is the ptomaine of erysipelas. It produces *high fever and death* within eighteen hours. Radam's Microbe-Killer *rendered it inert.*

Influenza—The ptomaine ($C_6H_7NO_4$) of influenza was isolated from urine by Mr. R. S. Ladell and myself (see "Comptes Rendus de l'Académie des Sciences," Paris, tome 117; and "Chemical News," vol. 68, p. 294). *It was readily destroyed* by Radam's Microbe-Killer.

In the above cases *the poisonous properties of each ptomaine were completely destroyed* and rendered inert by the action of the fluid known as Radam's Microbe-Killer. After the action of the said fluid on the ptomaines, the characteristic tests failed to prove the presence of the smallest trace of each ptomaine. *There is no doubt that the said fluid neutralizes or destroys* some of the most deadly poisons produced during the course of infectious diseases. Hence the reason that *it*

ought to have a wide application in the treatment of infectious diseases, as it has the power of eliminating from the system the poisonous ptomaines. It may be stated, *en passant*, that many ptomaines (in the isolated condition) are more poisonous than the vegetable alkaloids—strychnine, aconitine, digitaline, etc.

SIXTH SERIES OF EXPERIMENTS.

The object of these experiments was to ascertain whether Radam's Microbe-Killer was poisonous when taken internally. The experiments were performed upon myself and others, with the result that I am justified in saying that the fluid in question is *non-poisonous*, and its therapeutic action is that of a tonic and an alterative. It was microscopically proved that *the activity of the leucocytes of the blood for destroying microbes was increased* after the action of Radam's Microbe-Killer. This is a valuable property, as the said fluid would help Nature in *warding off the attacks* of pathogenic microbes.

It may also be stated that Radam's Microbe-Killer *has no injurious action on the teeth*.

REMARKS.

From these results I am justified in stating:

1. That Radam's Microbe-Killer is a powerful germicide or disinfectant, as it *readily destroys* the most deadly microbes.

2. That Radam's Microbe-Killer destroys the microbes contained in air and water.

3. That Radam's Microbe-Killer possesses the *extremely valuable property* of rendering the poisonous ptomaines *perfectly harmless*.

4. That Radam's Microbe-Killer forms an excellent gargle or antiseptic throat wash for patients suffering from diphtheria, as it has the power of destroying the microbe of diphtheria.

5. That Radam's Microbe-Killer is *perfectly harmless*, and may be administered to children as well as adults.

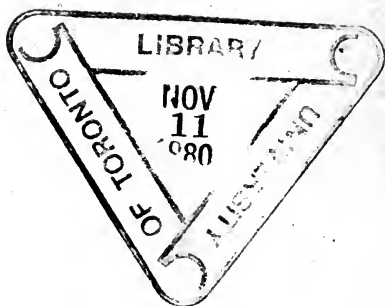
In conclusion, my investigations proved that Radam's Microbe-Killer is a valuable germicide and preventive, consequently *it should be used in every household.*

A. B. GRIFFITHS, F.R.S. (Edin.), F.C.S.

Microbes are the cause of all disease, and, as will be seen by the foregoing testimony of Dr. A. B. Griffiths, F.R.S. (Edin.), F.C.S., etc., etc., Wm. Radam's Microbe-Killer kills these microbes absolutely, and it also as absolutely neutralizes the poisonous ptomaines which they produce. It follows, therefore, as a necessary consequence, that Wm. Radam's Microbe-Killer is a complete, safe, and unfailing remedy, and it must and does cure all disease.

A fifty-page book will be mailed free on application, giving full directions for use and containing many testimonials received.





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Microbes and the microbe
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