Food versus bacilli in consumption : (Opus 286) An open letter / from Ephraim Cutter ... to his son, John Ashburton Cutter, with an answer.

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FOOD VERSUS BACILLI IN CONSUMPTION

(OPUS 286.)

AN OPEN LETTER

—FROM—

EPHRAIM CUTTER, M. D., LL. D.,

Corresponding Member Société Belge de Microscopie; Associate Member Philosophical Society of Great Britain; Honorary Fellow Society of Science, Letters and Art (London); Principal Medical Department of Instruction, American Institute of Micrology; Member Committee for the Revision of the United States Pharmacopœia, 1860; Life Member New York Institution for the Deaf and Dumb; Member American Medical Association, American Society of Microscopists, etc., etc.

TO HIS SON,

JOHN ASHBURTON CUTTER, M. D., B. Sc.,

WITH ANSWER.

[*Reprint from Virginia Medical Monthly, December, 1888.*]

"A capacity to do good not only gives a title to it, but makes the doing of it duty."—DUKE OF BRANDENBURG, 1691.

NEW YORK:
THE ARISTON, BROADWAY AND 55TH STREET.
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Food versus Bacilli in Consumption.

"I have long ago ceased to regard all the bacilli, micrococci, and bacteria, etc., as ultimate forms of animal or vegetable life. I look upon them as simply the embryos of mature forms, which are capable of propagating themselves in this embryonal state. I have observed these forms in many diseased conditions; many of them in one disease are nothing but the vinegar yeast developing, away from the air, in the blood, where the full development of the plant is not apt to be found." * * * "The very name *specific* should be blotted from medical science, and left entirely to the quack, who knows nothing else. There is really no such thing in medicine. All we can do in any disease is to aid nature, and to follow her as closely as possible in her curative processes; and this we can only do wisely and well by understanding fully the true cause and pathology of every disease we treat."—(*Salisbury—McNaughton Prize Essay on Malaria.*)

You ask me to give you clearly how far bacteriology comes short, compared with the actual state of practical clinical knowledge as realized by Dr. Salisbury, myself and others? I will do so as well as I can in the paternal relation, one which is not ordinarily used to inculcate falsehoods, untruths or things of no value.

I start out with the general proposition that your business as a physician is, to cure and prevent disease. When patients come to you, you are to cure when you can; when you cannot, you are to relieve and prevent disease if you can. Your duty is to use legitimately all the means within your reach to produce these ends. Let us look at our subject in this light.

Taking consumption to mean consumption of the lungs

or bowels, sometimes called tuberculosis of those parts, let us see what bacteriology has done, and then look at the food side of the question.

I. *Bacteriology* is a science in medicine, introduced by Dr. Koch, since 1880. It shows:—(1) The cause of consumption to be bacilli, which may be cultivated by inoculation in animals and produce consumption in them. This has been doubted, but I am willing to concede it.

(2.) Dr. Koch has been endorsed, titled and set up by the German Government in a laboratory, and has published his researches in a most magnificent manner.

(3.) Chairs of bacteriology and laboratories have been set up in medical colleges in many places and countries. All these go to show that bacteriology is the most popular and well received thing in the etiology of consumption, and of course superior to every other.

Indeed, the First International Tuberculosis Congress of nearly five-hundred medical men has lately been convened at Paris, which taught, if the report I saw was correct,—(a.) Boil your milk and have your meat well cooked. (b.) Consumption is contagious from man to animals, with a decree to make cattle liable to seizure by meat inspectors. (c.) It comes in milk also, by inhalation, and the inoculation of saliva of patients. (d.) Preventive inoculation is useless. (e.) What we need is some agent that will kill the bacillus. (f.) We do not say the disease is incurable. (g.) The malady is in the blood. This is the height and depth of bacteriology. It shows the cause, gives no directions for treatment, but shows no cures while admitting their possibility.

II. Let us now look and see what has been done for twenty-five years on the *food side of consumption*, premising that the injunction to cook the meat and milk thoroughly, the admitting the curability of phthisis and its being a blood disease, make my task easier, for it concedes what I want you to know and practice, and what has been known and practiced here for more than twenty-five years.

You know my motto for 1879, beautifully engrossed and intended as an heirloom. It reads, "In my opinion, should

the experience of Dr. J. H. Salisbury and myself for the past 21 years be realized by all regular physicians in these United States, at least 13,000 lives would be annually saved by the detection and treatment of the pretubercular state alone." Let this make *item number one.* This motto is backed by an unpublished volume entitled, "A New Physical Sign of the Pretubercular Stage of Consumption. By E. Cutter, M. D. *Esse quam videre.* Illustrated by sixty-nine original microphotographs taken with objectives ranging from the 1-4th to the 1-75th inch, 1877, pp. 211."

Item 2. In 1858, one thousand swine were fed by Dr. Salisbury on sour swill for three months; one-quarter of them died, and 104 were autopsied and found to be consumptive. (See A No. 1 Bibliog.)

Item 3. By the side of these, about one thousand other swine were kept on sound sweet corn for the same time; none died. Had consumption been contagious they should have caught it.

Item 4. Consumption has been cured, is being cured, and will be cured by proper feeding on the plans laid down in "The Relation of Alimentation and Disease," by J. H. Salisbury, M. D., LL. D. New York: (J. H. Vail & Co. 1888). You remember your brother Ben's case, how, in 1876, he was in the pretubercular state, how I kept him from going to Germany for his musical education for one year till he was cured, how he went, afterwards got sick again, and was said by his German physician to be in consumption, how I wrote him to live as he did before, how your mother being sick almost to death (see Diet in Cancer, Case IX *Albany Medical Annals*, July and August, 1887) and worrying about him, I had him come home to have his blood examined, to see how it really was; how that he got well and remains so now. You know Mr. Luther Whiting Mason, sick in the same way in 1877, how he was cured, went to Japan and introduced Western Music in the public schools, backed by the Cabinet of the Imperial Government. This great result is due to his cure. Besides these cases, you know of more in my practice of a worse character. Add to these the hundreds that Dr. Salisbury has cured. There is evidence

enough to show that this terrible disease is being cured, was being cured twenty-five years ago, and will be cured in time to come (see No. 13 B in *Bibliography*, appended) whether acknowledged or not. I hope you will not take the position of Dr. ——, who, after I had tried to have an understanding on this subject, said, "I don't care if you do cure a case of consumption, I will not believe it." The Tuberculosis Congress does not say this. Nor will you, I hope, follow the example of an official of a medical society I once belonged to. I said to him, "If you will be kind enough to take a dispensary case, bring him in before the society, examine him before the members and pronounce him to be a case of consumption, *I will try to cure him.*" *He did so*, and the official said it was a *cure* after I had got through with him, but that the case was *not consumption.*

Item 5. The plans in question tell how to diagnosticate a case of consumption by the blood morphologies when the ordinary physical signs of auscultation and percussion do not. It settles the question at once. This will be of great value to you, I know from my own experience. Bacteriology does not do this. This new physical sign of the pretubercular state is invaluable in army, navy and other health examinations, specially in life insurance examinations. (See Nos. 1—A; 1, 21—B *Bibliography.*)

Item 6. The plans in question show how to run a case intelligently, to know when a case is cured, to know exactly what food can be allowed by its action on the blood, to show lapses in diet, to keep patients from deceiving, and convincing them that there is no use in trying to deceive as to food. Bacteriology does not do this.

Item 7. The plans in question intimate that nature is the great healer: (1st.) By giving healthy normal food, and (2d). By removing food causes. This was found out by feeding singly on all common articles of food, seeing what diseases they cause in their way, and showing that almost without exception, beef properly prepared can be a healthful food indefinitely. (See A—1 *Bibl.*) (3d.) Medicines do not cure. They oil the machine and are useful as lubricants, so to speak. You may have a locomotive in order

and fired up, but it must be oiled ere it can work. Bacteriology holds out a hope of a cure by killing the bacilli by some agent, but does not state what agent. I would rather you would cure than have a hope to cure to practice medicine with. By the way, I mean curable, like typhoid fever, for example. The plans never claim to cure all the cases. If patients follow directions strictly, and do not work, nor worry, nor play too hard, you may reasonably expect to cure two-thirds, provided they take time enough; say from two to three years. Three-fourths of the swine that had consumption did not die of it, but nature eliminated the disease. Perhaps they might have died in time, but they were slaughtered for food. Thorough cooking kills the possibility of communicating the disease. This was known years before the Congress of Tuberculosis promulgated it. I am glad that it was promulgated. It makes things much easier for me.

Item 8. What is consumption as defined by the plans? Partial paralysis and interstitial death caused by the mycoderma aceti and other acid yeasts, growing in the blood, making thrombi which become emboli in the lungs and in turn the nidus of tubercle. This yeast comes from fermenting food in the small intestines, and hence becomes absorbed into the vascular system. Experiments with all our common foods show that nearly all, save beef, will, when exclusively fed on for forty to fifty days, ferment and infest the blood with the vinegar, lactic acid or other yeasts and cause tuberculosis. So long as food causes consumption it is in vain to expect to cure a case unless proper food is eaten.

For thirty-five years observers have noticed the bacillus of Koch living with the vinegar yeast. Botanists were divided in opinion whether they were inseparably a part of the life history of the mycoderma aceti, though nearly always found associated. Some botanists thought they were indispensable parts, and some thought not. *They are the babies of the vegetations and can be propagated as babies.*

Item 9. Bacteriology makes no account of the morphology of consumptive blood as Dr. Salisbury does. It may point out bacteria, but it does not point out the following:

1. *As to the red corpuscles.* (a.) Their huddling and grouping together like frightened sheep. (b.) Their sticky and rotten substance. (c.) Their unrounded out, unplastic outlines. (d.) Their loss of ruddy color. (e.) Impoverishment.

2. *As to white blood corpuscles.* (a.) Their enlargement, usually sometimes enormously distended by the mycoderma aceti. (b.) Their increase in number. (c.) Their variation in size.

3. *As to the serum.* (a.) Fibrin filaments enlarged, thickened, stronger, more numerous and visible than in health. (b.) Mycoderma aceti in single spores or aggregated into oblong, sometimes double ended masses, forming thrombi and capillary emboli, specially in the lungs, where when held, the mycoderma aceti grows, increases, and acts chemically and mechanically in the tissues forming as a result of the life, chemical and mechanical action, a nidus for what is called tubercle, producing local paralysis and interstitial death, to name no more.

You know how useful this blood morphology has been in my practice and yours in giving the patient something definite to go for—*i. e.*, the riddance of the yeast from the blood and the re-establishment of the normal blood morphology. You know how often after having got the blood normal, that in less than twenty-four hours it may be thrown back to the morphology of consumptive blood by the patient eating one teaspoonful of sugar or one mouthful of forbidden food. You know that foods for the consumptive are selected, not because they taste good, look good, and are recommended by loving friends, but according to how they bring back or not the morphology of consumptive blood. You know how patients are detected in lapses of diet by the blood morphology, *and yet all this is more than a quarter of a century old.*

Item 10. Bacteriology takes account of the sputum, but only to look for the bacillus. There is an advantage in looking for one thing; it gives a unity of aim, but it is recent. The plans here advocated have, for the past twenty-five years, included the entire morphology of the sputum

as known. (See *Morphology of the Sputum*, Numbers 1—A; 1—B, *Bibliography.*) I can name only a few here: Elastic lung fibres, inelastic lung fibres, lumen of blood-vessels, mycoderma aceti, saccharomyces cerevisiæ when there are lung cavities, blood, giant mucous corpuscles, gravel of the lungs in fibrous consumption, to name no more.

These have been for years used as practical physical signs of the progress of the disease, and as points *d'appui* for patients to work from. For example, they can work to get them out, and do get them out by the food plans named. When they reappear, it is sure proof, nine cases out of ten, that lapses in diet have occurred, as they are quite sure to go when the diet is maintained. These clinical tests are to me irrefutable. I am sure it is a nice way for the doctor to know just how the necrosis is going on, and how to stop it, as I have done, am doing, and expect to do as long as I practice medicine. I hope you will follow in this.

I am aware that some will say that this is contrary to the conventional experience of the profession, but I say it is none the less true. Being true, it is right; being right, I am in a majority, as to be right is to be in a majority. Remember, my son, again, that your business is to cure if you can, and not to cure when you can is criminal. Hence, bacteriology does not present now to you the salient features you need for your work.

Item 11. Bacteriology does not use the morphology of the urine as a test of the condition of patients in consumption; Salisbury does. He aims to get the urine like a healthy babe's, nursing a healthy mother's breast—*i. e.*, clear as champagne, 1010 to 1020 specific gravity, free from odor, no deposit on cooling. You and I have done this, too. Deviations from this standard show something wrong with the kidneys, liver, digestion or nervous system. Testing with nitric acid helps out in showing biliousness. (See A—1; B—1, *Bibl.*)

Item 12. Bacteriology makes little account of the morphology of the skin. Salisbury does, and traces the vegetations of the skin. In consumption, no patient is cured before they have long disappeared. See *Morphology of the Skin*, A—1; B—1, *Bibliography.*)

Item 13. Bacteriology does not tell how to feed in consumption; Salisbury does. (See A—1; B—3 and 13, *Bibl.*)

Item 14. Bacteriology points out no medicine, but is hard at work to find a bacillus or agent to kill the bacillus of Koch. The Salisbury plans point out the use of medicines as follows: (1) As oils to the machine. (2) Tonics to tone up the glands and system. (3) Digestives to help digest the food. (4) To meet complications, as hemoptysis, diarrhœa, etc. (5) To put the skin in good order. (6) Hot water as a medicine to promote downward peristalsis—wash out, thin the blood, etc. (See B—20, *Bibliog.*) (7) *Food as a Medicine.* See Numbers A—1; B—3 and 13, *Bibl*). (8) The having all medicines pure and up to standard, and testing all food preparations on one's own self before offering them to patients.

Item 15. To study bacteriology, one needs a laboratory, much time, special care, and instruments to practice with. The Salisbury plans, you know, need but a few things, though they must be of the best quality; and the results are at once manifest. I have thought they were like agriculture, which furnishes a field large enough for the exercise of capacities of the grandest and noblest, when provided with all that could be suggested in the way of mechanical, chemical and financial contrivance. And, on the other hand, agriculture may be successfully handled by farmers poor in resource, invention and ability. Any one who will live on baked beans, oatmeal, or army biscuit, exclusively, for three months (See A—1, Bibl.), whether he can use the microscope or not, will have some decided opinions on the subject. Facts are more than opinions not based on facts.

Finally, my son, have pity on the sick and dying. Try to give honor to whom honor is due. Abate not one jot, but do not honor only people for doing things that are halfway procedures, when you know of, and can testify to procedures which cover the whole ground, and save lives which the others cannot save. Sincerely your father,

EPHRAIM CUTTER.

New York, The Ariston, Broadway and 55th street.
September 18, 1888.

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ANSWER, BY JOHN ASHBURTON CUTTER, M. D., B. S., ETC.

Your letter of encouragement, information and commendation came to hand at a time when needed, to-wit: An old case of consumption, formerly under your care, had just had a pull back characterized by hemoptysis, hectic fever, sweats, etc., but of this more further on. You certainly are opposed to the conventional ideas of the day as to phthisis,

but when I consider that you have been working in microscopy since 1850, and the practice of medicine since 1856; that you have positively cured cases of consumption, some of whom are alive to-day, after fifteen or twenty years' lapse since leaving your hands, and that these same food plans have helped me with cases, called by my honored and honorable teachers of the Faculty of my medical *Alma Mater*, incurable, I do not wonder that you are willing and anxious to inform me further as to food *vs.* bacilli in consumption. When I was a boy, preparing for college, you gave up a large country practice, moved to Cambridge, and entered into the work of microphotography with great zeal. There was no money in it—instead, money out. But, if it is any satisfaction to you, I will say, that in all my medical studies, I have not come across any thing as to the etiology, diagnosis, and a means of watching a case carefully in the treatment of phthisis, which has been of so much value to me as the results of your efforts in microphotography. The plates are unique, elegant, clear, and tell their own story. I can only hope that they may be published as fully as Dr. Koch's researches have been.

This is not saying that the plates in Dr. Salisbury's monumental work, "The Relation of Alimentation and Disease," are not of value. Instead, they are of the greatest benefit. The only difference between his original work and your corroborative is, that he, a superb artist, made representations of morphology by the hand, and yours were made with instruments.

Again, as to conventionality, my associates wonder that I do not stain bacilli, etc. You and Dr. Salisbury say that there is no time to be used in staining bacilli, but to look for the forms without using any reagents. In your clinical morphologies after Salisbury, I find in the partial syllabic list of the sputum, about 120 forms indicated; as some of the units of the number are only classifications of many forms, the total would run up in the hundreds, and I am compelled to take no time for staining, but see all I can, aided by a good Tolles' microscope.

I am confronted by some who say that you are a "Salis-

bury quack," because you prescribe beef and hot water; one young man admitted that Dr. Salisbury could cure chronic diseases, but the feeling seems to be, that it is a poor plan to use about the same diet for many diseases besides consumption. If these gentlemen would examine "The Relation of Alimentation and Disease," they would find that there can be used as great, if not greater, delicacy in the prescribing of foods as any therapeutist would want. I will not speak here of your own work in drugs and chemicals, but will only state that my personal intercourse with Dr. Salisbury has shown him to be a man of far-reaching knowledge in the use of drugs. This can be substantiated by the examination of Dr. Salisbury's work with menthol, years ago; his chemical analyses in the '40's and '50's, under New York State Government observation, and his medico-legal expert testimonies at about the same time.

Salisbury began the study of Germ Diseases in 1849; you commenced the use of the microscope in 1850. He has worked originally in consumption, rheumatism, fibræmia, thrombosis, embolism, anæmia, syphilis, eczema, scrofula, malaria, variola, vaccina, typhoid fever, scarlet fever, diphtheria, fatty degeneration, cholesteræmia, carbuncle, leucocythæmia, measles, chronic diarrhœa, etc., etc., and you have also worked tremendously in corroboration, and in other lines originally. That you gentlemen have got all the truth, you do not claim, but, instead, invite all to come in and solve the problems which have vexed and are vexing the medical profession. You have had little recognition, though Salisbury's and my *Alma Mater* honored itself and him by granting him a prize for his essay on "Malaria." Your simile as to agriculture comes forcibly to me, as you sent me to the Massachusetts Agricultural College to get the scientific training given there, instead of the more literary like which you received in the academics at Yale. *These morphologies can be used without great expense.* You carry in your Cutter clinical microscope a Tolles' ¼-inch objective, for which you paid nearly one hundred dollars. After much solicitation by you, Mr. Tolles made cheaper objectives, one of which (a one-fourth) I carry in my clinical

microscope, and which cost only fifteen dollars. Dr. Salisbury and you pronounce it a good objective, for it does the work needed satisfactorily. The same can be said of Tolles' one-inch objectives. It would, of course, be very nice if I had microscopes and objectives like your superb collection, but that collection was necessary for you to show to the medical world that you were thoroughly in earnest, and used the finest instruments of precision then and now in existence.

It is not out of the way to state that in your microphotography, you devised a clinical microscope, costing but a few dollars, with which you took microphotographs, with the finest objectives, except the 1-75th. Here is another debt of gratitude I now gladly pay in small part, by my very earnest thanks, for your invention of clinical microscopes, one of which I have used with ease, despatch and precision, in dispensary (See "Some Facts Regarding Medical Missions and the International Medical Missionary Society," J. A. Cutter, M. D., Albany Med. Annals, May, 1888,) and private practice, in *diagnosticating pre-tuberculosis, tuberculosis, rheumatism, fibrosis, malaria, syphilis, cholesteræmia, anæmia, etc., etc.* I usually take this microscope in my hand-bag with scarificator, but have fastened it in a package with scarificator, behind a saddle, with absolutely no harm to the instrument; it is only necessary to see that every part is screwed tight.

But the trouble seems to be with these so-called Salisbury plans, as to their general adoption, that: *First*, Medical men condemn them *in toto*, as a professor did, who said to me that there was no such thing as tuberculous blood. "Are you willing to put yourself on record as to that, sir? Have you studied the morphologies of the blood, sputum, feces, skin, urine, vomitus and foods for many years?" He replied that he hadn't, and hesitated after all as to putting himself on record as to his belief that there was no such thing as tuberculous blood. He then asked for proofs of these things. I called his attention to some of the work done and published, of which I find more in your bibliography, that there were the records of cases, and that I had shown him the

proofs, and if he could not disprove them and would not believe them, I could do no more.

The *second* cause of the non-acceptance generally of these plans is: Physicians take a case of consumption and endeavor to treat it without any knowledge whatsoever of these clinical morphologies. I know you say that the ignorant may prescribe hot water and beef and cure diseases; but they fail often, as they cannot meet complications which a knowledge of these morphologies allows one to do; neither can they really start the case intelligently as to the use of adjuvants, medicines—oils for the machine, as you call them. Moreover, no one will ever cure every case that comes along, as you say, and if they lose the first case the treatment is condemned. Again, to put a patient on rigid diet, with the baths, medicines, etc., used, needs a physician whose patience must be great and who can look ahead for future results, for the road is often dark, and the patient despairs; if the physician cannot give encouragment the case will die. Here is another precept that I must thank you for: "That people want a physician when they are sick, and that he is not to come to them and tell them to get ready to die because their appearance is bad, but instead to encourage them to get well." While doing all one can with medicine, it is my personal experience that the use of these so-called "Salisbury plans" is a very hard matter, and no physician can be too well trained for the practice of them.

As a young man with the world before me, I have given in this answer some of the reasons for my faith, and can truly say that this faith is not without works, and that I have achieved ends in the short time that I have practised medicine which my medical *alma mater* (an institution requiring three years of graded work for a diploma), never gave me the hope of reaching. I append a few case histories:

Case 1. In May, 1887, I was called from the Dispensary to see an old man living in one of the large tenement houses of New York. He was over sixty years of age, had been a longshoreman and was suffering from prostration, sweats and cough; slept but little. His blood showed the red cor-

puscles to be strongly massed together, fibrin filaments visible in abundance, and also vinegar yeast in masses. I do not remember all of the morphological features, but I made a diagnosis of tuberculosis and ordered the old man to eat all the animal food he could get, beef, tripe, etc. (cooked, of course), to drink hot water four times a day, to use ammonia sponge baths and, gave him a tonic of cinchona, nux vomica and some of the fluid extracts. I was in such a hurry that day that I did not examine his chest, but sent my assistant, Dr. H. A. Minassion, a graduate of an Armenian medical college, and also of Bellevue, to see him later, and he returned with the diagnosis of tuberculosis, and that the disease involved the upper part of the left lung. The old man stuck faithfully to what had been ordered, and greatly to Dr. Minassion's surprise, and somewhat to my own, as his surroundings were not of the best kind, he improved very much, and in August the lung lesion had nearly disappeared. In September I was called to see him, and found that he had been sick several days; had caught cold by sleeping next to an open window. A pneumonitis developed in the lower half of the left lung, and, despite all I could do, he died in a few days. He was a Catholic, or I should have made an autopsy to see how much of healed tissue there was in the upper part of the lung. (Dr. J. Solis Cohen once told me that he had seen one of Dr. Salisbury's cured cases, in whom there had been an immense amount of disease, and in whose lung were now cavities thoroughly cicatrized).

Case 2. Dr. ——— came to see you in April, 1887, about studying these clinical morphologies in the American Institute of Micrology, but for certain reasons he did not make arrangements to commence studying then, and I invited him to come and see actual morphological work on consumption, syphilis, rheumatism, etc., in dispensary practice. This he did to quite an extent, and in the fall wished me to take charge of a case in Massachusetts of consumption, which he considered was incurable, as there were cavities present, so diagnosticated by himself and an older physician. I was to take charge of the case till he bought a microscope. This I did, receiving almost daily specimens of urine, feces and sputum. The patient, a young man of good education, being a graduate of Amherst College, was married, somewhat short of funds, and had a great deal to worry him. He had not been told of his condition, but of which I speedily informed him. He went on to close diet, with tonics, ammonia baths and hot water, and soon was eating four pounds

of meat a day. In January, 1888, Dr. ——— took charge of him. The case had its ups and downs. In May or June Dr. ——— wrote me that he had not been doing so well, and that he thought he was going to die, as his surroundings were too much for him. "But if he dies, I am fully convinced that these plans have done him much good," he added. But he improved again, and the last I heard of him was that he had come to New York and called to see me, presenting the appearance of health. This case may die yet, as I am more convinced every day that patients should be under observation for at least two years, to get, as Salisbury says, confirmed healthy tendencies and nerve action, and remove bad psychical conditions, inherited and acquired.

Case 3. June 12, 1888, I examined a young lady of 25, whose mother and a brother had died of consumption. She had been sick in the spring of what was called apoplexy. The red blood corpuscles were pale in color, diminished in number and ropy and sticky, so that they huddled together in masses. White blood corpuscles contained yeast spores, and in the serum were seen the mycoderma aceti free and in collects, beautiful crystals of cystin and uric acid and free fat. Urine was bilious, contained no albumen or sugar, but some fatty epithelia were found with the microscope. She was so fleshy (weighing 248 pounds) that a satisfactory examination of the heart could not be made, but the diagnosis was pretuberculosis, latent rheumatism and obesity. She was put on the rigid plans of diet laid down in pages 122–126, "The Relation of Alimentation and Disease," [Salisbury] eating only the foods therein prescribed, using as medicines 1-20 gr. strychnia before meals, and five to ten gr. salicin after meals; biniodide of mercury, 1-16 of a gr. with hot water, ammonia baths, etc. There was great aversion to the hot water and meats, but the blood morphology became gradually that of health, except when she ate forbidden food, when the microscope would unerringly detect the lapse in diet by the presence of the acetic acid plants in blood. She has had many pull-backs due to overwork and exercise, bringing her to bed with cold hands, feet and legs, pulseless wrists, pain in heart, head full of blood and pupils contracted, necessitating leeching or cupping. Hoffman's anodyne with chloroform used. Malaria has also been diagnosticated by the presence of the gemiasma verdans in blood, and removed by alteratives, salicin and quinine, the latter used very cautiously. She has now lost nearly sixty pounds of

weight, and owns a heart, which beats with more ease and precision. Case in progress. The main point in this case is the detection and removal of the pretubercular blood morphology, both of which were done with ease and dispatch.

Case 4. A beautiful young girl of 18, whom I first examined May 15, 1888, complained of great nervousness and of inability to do all she wanted to do. She said: "I feel now while sitting in this chair as if I could not walk across this room, I am so tired." Her parents were wealthy and she had all that life could give. Her red blood corpuscles were pale in color, much diminished in number and adhered together in masses. White blood corpuscles increased in number. Serum showed fibrin and yeast. Diagnosis by blood examination, anæmia and pretuberculosis, first stage. She had been eating ice for a year; craved it, and had been told by her family physician, when informed of her desire, to eat all she wanted. This gentleman, a medical professor, had never examined her urine, but instead had contented himself with giving her a tonic once in a while. Her urine had a specific gravity of 1032, and careful and repeated tests with freshly made Fehling's solution, brought invariably a deposit of sub-oxide of copper. No albumen; oxalate of lime, triple phosphates and granular salts present. May 28 she went on to the rigid plans as laid down in pages 127–132, "The Relation of Alimentation and Disease," [Salisbury] with the exception that she did not drink the beef tea. The regimen was hard, but in a few days, despite the drinks of hot water, the amount of urine passed was but three pints daily, and in one week's time the sugar disappeared. She was importunate for bread, and was allowed two mouthfuls at a meal. Diarrhœa came on, but was controlled by salicin. In four days the sugar returned. She was again put on rigid diet, *i. e.* no bread. Sugar again disappeared, and this time she kept longer on close diet. At the end of ten days she was allowed a little bread, and at the close of one month's treatment the sugar had not returned; the red blood corpuscles had increased in number, their color was brighter, the pretubercular elements had been starved out, and she felt that she needed no more treatment. Since the close of the treatment she has been in better health than for years, is no longer tired or nervous, craves no ice, and is thoroughly enjoying life. She may need further treatment, for I never believed that one month of dieting and medication would do what it did for her. But the facts are as stated, and are of great encouragement to me.

Case 5. In May, 1887, Mrs. ——— came to stay with us in New York to be under your care for one month for tuberculosis. Her father and a sister had died in 1872 and 1879, respectively, of fibrous consumption. You had cured her uncle of tuberculosis. She had been in poor health since 1879. Was married in 1881, and had borne two children. You found lung fibers in her sputum, an enlarged heart and tuberculous blood. Also an engorged, enlarged and misplaced womb, which was causing many reflex symptoms. The focus of disease (tuberculous) was through the middle, or just above the middle, of the left lung from before to behind. You treated her so that in one month's time the morphology of the blood became healthy; the cough ceased, the heart was beating normally, the uterine soreness and lesions had disappeared, and she went home a marvel to her friends and relatives, who had expected her to return from New York a corpse. You pressed on her the importance of remembering that she had done with her great resiliency what it usually took one year to do. In July you saw her at her home and fitted one of your stem pessaries to the womb, which she wore for four days, but by some exceedingly unfortunate accident the disc got out of place, and the pessary had to be removed. As she was nearly one thousand miles from you, she had to content herself with other measures you prescribed. During the latter part of the summer indifferent beef gave her diarrhœa, and unavoidable family trouble made such a strain on her life forces, that she began to run down, though closely watched by you, by the study of specimens sent by mail; and in November, 1887, she came back to New York with her lung in about the same condition as before. From a cold caught on sleeping car she had an attack of congestion of lungs. She stayed with with us into January, when she felt it necessary to go home, her lung now being again healed, though the uterine lesion was not in a condition to satisfy you. On reaching home that satanic spirit, which often infects servants, contaminated hers, and she was obliged to go into the kitchen and cook, with the result of another attack of congestion of lungs, followed by rheumatism. She became better, and one day while driving, her son, a boy of five, had to get out to pick up something lost in the road, and the horse becoming scared necessitated her pulling the boy into the carriage. In about two hours sharp pains came on in the womb, which were not relieved till she had used iodoform per vaginam and morphine by the mouth. All these things

you doubtless remember. *May 12th* I came to make her a visit, and found her blood somewhat ropy, with some yeast present. She was then cooking, as no servant could be obtained. Did not feel well. As I was very tired, I did not examine her then for uterine trouble, for which I was very sorry afterwards. For in a few days she tuned up with cerebro-spinal meningitis, characterized by chills in back, fever, dry skin, vomiting, rapid respiration, contracted pupils, headache and delirium. I tried the much-lauded morphine treatment, with the result that she got worse Arguing that there was pressure on the base of the brain, I put two leeches on the side of head, and she became quiet, the skin moist and cool, the vomiting ceased, the pupils relaxed, the respiration normal and a natural sleep followed. But it was necessary to follow this up with more leeches, forty grains of calomel and small doses of bi-sulphate of quinine. She progressed slowly and steadily. The womb was enlarged and displaced at times—forward, then backwards, and at other times prolapsed. This last state must have been from the wrench received when pulling the boy into the carriage. She turned completely against beef, and ate fish, oysters, game and eggs against my earnest protest, as the blood morphology would not remain healthy. At times the uterine trouble would improve; but in September, finding that the cough was increasing, lung-fiber was appearing in the sputum, and the lung was giving evidence of necrosis in the same place as before, I had one of your Cutter No. 2 batteries made, of 8 plates of carbon, 8x1½x¼ inches, and 8 plates of zinc, 8x1½x⅛ inches. These were put in one pile, the zincs connected together, and the carbons in the same way. The battery was finished September 15th. She had in the meanwhile been on closer diet, eating beef, with some bread, but not enough of the former. And the date just noted she had a hemoptysis at 7:30, A. M , of about four ounces. I was away at the time. Another hemorrhage followed in the afternoon, but soon after I had obtained medicines, and gave her bugle-weed and witch-hazel internally, using the persulphate of iron locally by spray. Hectic fever and sweats came on; large masses of lung-fiber were coughed up. She came down to close animal food diet; acid baths, with salicin, were used. There was crackling in the front of the left lung, and in the back could be heard the air bubbling amongst mucus in a cavity. But she has been making steady progress; the fevers and sweats ceased in five days. The lung has been, and is, healing. So to-

day, four weeks from the time of these hemoptyses, there is no crackling in front, and behind the lung can be heard but a little rasping. This is marvellous, but is true to life. The uterine lesions have steadily improved since I have used the galvanic current from the battery. The plates submerged to one-half their length in the electropoin fluid. Two tablespoons were used as electrodes—the zinc electrode against the vulva, the other above pubis. One to one and a half minutes of passage of current. In fact, I find that it is better for me to take an electrode in one hand, and place the other hand above pubis. This current is painless, but relieves soreness and is reducing engorgement.

When I consider that twice has her lung been healed, and is now for the third time going through the same process, I feel the truth of what Dr. Salisbury has said, and what you have written upon, "food is an agent of tremendous power."

If she will stick to the diet, I believe she will get entirely well, as now her surroundings are such that there is every opportunity for her to do nothing but eat, drink and lay down new tissues.

I remain, with great respect, your grateful son,

JOHN ASHBURTON CUTTER.

Lynwood Stock-Farm, Harrod's Creek, Ky., Oct. 13, 1888.

NOTE.—Case 5 did well for a time after the above answer was written, but malaria was so abundant in her neighborhood that it was deemed necessary to change her climate, and November 8 I brought her to New York, where she will stay for six months, or until she is in a condition that fully satisfies us. To-day she can walk longer distances than she has been able for eight months previously to accomplish, and little resembles the very sick woman she was in September.—J. A. CUTTER, The Ariston, &c., Dec. 1, 1888.

American Institute of Micrology.

MEDICAL DEPARTMENT OF INSTRUCTION.

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SYLLABUS.

LESSON 1.—Principles of Microscopical Investigation; Studies of the Hairs of Man and Plants.

LESSON 2.—Biology and Morphology of Algæ; Diatoms; Desmids; Zygnemaceæ.

LESSON 3.—Oedogoniums: Saprolegniæ; Oscillatoriaceæ.

LESSON 4.—Bacteriaceæ; Vibriones.

LESSON 5.—Protococcaceæ; Palmellaceæ.

LESSON 6.—Biology and Morphology of Fungi; Yeast; Vinegar Yeast.

LESSON 7.—Protoplasms; Amœbæ; Infusoria; Rhizopods; Asthmatos Ciliaris.

LESSON 8.—Morphology of Food and Cooking; Bread; Infants' Foods; Drinking Waters.

LESSON 9.—Morphology of Dirt.

LESSON 10.—Morphology of Air.

LESSON 11.—Morphology of Urine.

LESSON 12.—Morphology of Fæces.

LESSON 13.—Morphology of Sputa.

LESSON 14.—Clinical Morphology of the Skin.

LESSON 15.—Morphology of the Blood in Health.

LESSONS 16 and 17.—Morphology of the Blood in Consumption.

LESSON 18.—Morphology of the Blood in Syphilis.

LESSON 19.—Morphology of the Blood in Rheumatism.

LESSON 20.—Review.

Lessons One Hour Each. *Terms on Application.*

It is not intended for the physician to master these, but to obtain some practical ideas of them. Men may deal practically with potatoes, knowing nothing of their botany, and yet be good farmers. So may it be with the botany of disease. Medical practitioners can know enough to detect and destroy the parasites found in syphilis and consumption. Thus they will be qualified to express opinions as to the value of the microscope as a tool of precision in the diagnosis and treatment of these diseases.

TEXT-BOOKS: Micrographic Dictionary, *Griffith* and *Henfrey;* Primer of the Clinical Microscope, and the Clinical Morphologies of the Blood, Sputum, Urine, Fæces, Skin, Air, Food, including Potable Waters—*Cutter*

☞ *Address as Above.*