

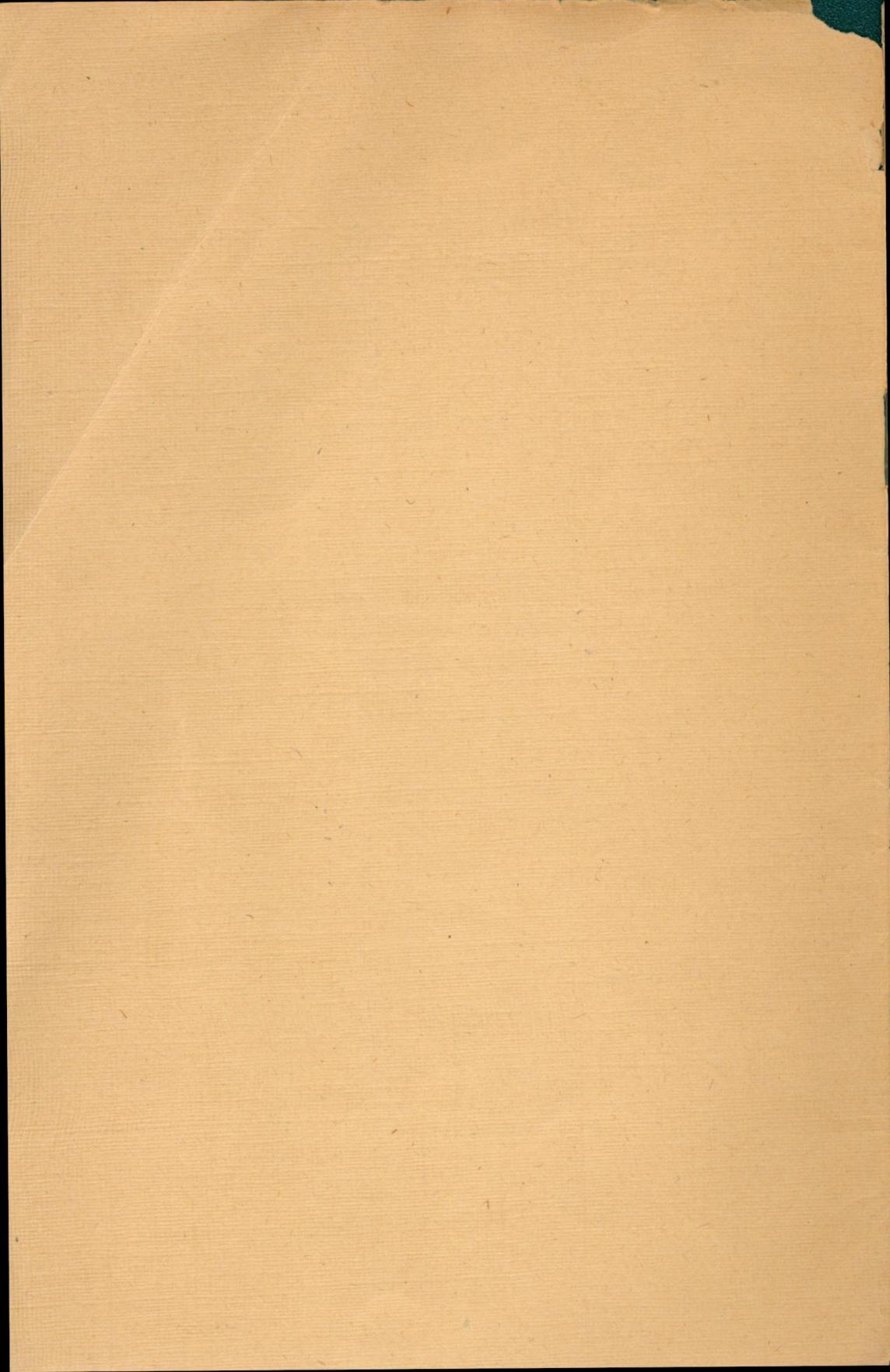
SOME NEGLECTED ESSENTIALS IN  
THE FIGHT AGAINST CONSUMPTION

By EMILE BERLINER

Read Before the Committee on Consumption  
of the Associated Charities of  
Washington, D. C.

MARCH 5, 1907

PUBLISHED BY THE SOCIETY FOR PREVENTION OF SICKNESS  
1458 COLUMBIA ROAD, WASHINGTON, D. C.



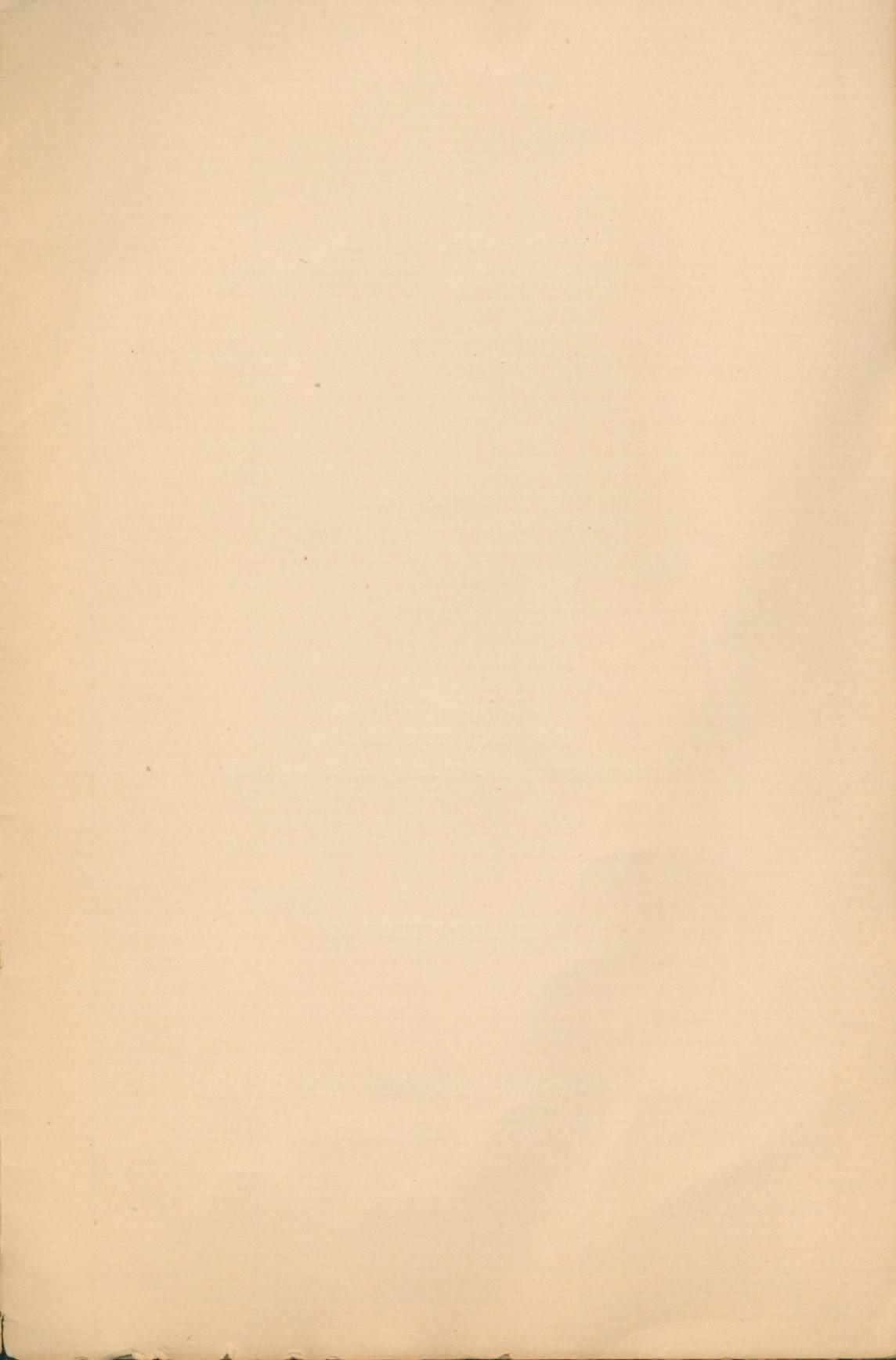
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It is well known among Sanitarians that the human body when in normal state of health offers a strong physiological resistance to any disease bacteria which may enter its vitals or its blood-cells. This natural resistance against the growth and propagation of disease-producing bacteria has its principal weapons in the powerful antiseptic gastric juice, in the natural antiseptic property of blood serum and similar fluids of the body, and in the white corpuscles of blood called phagocytes, the latter actually devouring or absorbing bacteria getting into the blood. Some bacteria enter the circulatory system by open wounds, some by inflamed mucous membranes, some through the lungs, and the larger part through the food we eat and the fluids we drink. It is entirely thinkable that any species of bacteria may get into our bodies by several of the channels mentioned, but no matter which way they may enter, they will have to fight for their existence either with the gastric juice and serum fluids, or with the ferocious white corpuscles of the blood, the leucocytes and other phagocytes so-called.

A person possesses the natural power of resistance whose stomach and whose blood are in normally healthy condition and to the extent that this condition is impaired he will be liable to get sick by pathogenic bacteria. His resistance may be broken down by *continued* eating of poor food, by *continued* drinking of bad water, or by *continued* breathing of bad air. Finally has experience shown that worry or overstudy of any kind breaks down a person's natural resistance to disease germs, and the well known fact that we lose our appetite for food when worried seems to indicate that the general nervous stimu-

lation which we call appetite is reduced in activity by over excitement of the thinking centers. Whether the phagocytes themselves are affected in their activity by worry is a question which, while at present hard to prove, is a legitimate field for speculation. Modern Sanitary Science recognizes the psychological influence as a most potent one both for the furthering and for the lessening of disease, but just how this factor acts is as yet a closed book to inquiry and investigation.

Finally, there ensues a mysterious chemical condition of the blood which produces immunity against a disease after it has once been fought and conquered in the human body. This mysterious condition is due to a chemical reaction which, in the opinion of the most learned bacteriologists, emanates from a residual anti-toxin or bacterial anti-poison which prevents fresh bacteria of the same kind entering the blood, from thriving and propagating. Particularly is this the case with diptheria, tetanus and toxins belonging to the same class.

It is on this principle that the modern science of anti-toxins is based, according to which the pure anti-toxin produced outside our own persons by any bacterial growth, when injected into the human body, renders it immune against the disease which this bacteria would produce, but such anti-toxin treatment must be applied either before such a disease may occur, or in the early stages of its pathological course.

Science has been able to artificially produce the anti-toxins for a number of diseases but the majority of them are still beyond the control of the bacteriologist; among such belongs tuberculosis in its various forms, and particularly that of the lungs, known as consumption.

Hence it is that the fight against consumption confines itself for the present to two fields, first, the fortifying of the body, thereby rendering it more resistant to all diseases,

and, second, the preventing of the tubercle bacillus from entering the human system.

The building up or fortifying of the human body for the purpose of rendering it more resistant to disease germs consists, generally speaking, in living a wholesome and active life, in much outdoor exercise, in eating approximately pure food, drinking filtered or boiled water, or such from reliable springs, having approximately pure air in your houses, avoiding excesses, cultivating a placid disposition, and becoming an advocate of what is termed "the simple life." Another important item of healthy living is cleanliness, but this may in one particular instance have just the reverse from wholesome effect, and I may, while this is under discussion, go into details regarding it.

Our American civilization is blessed with the finest and most widely distributed mania for bathing facilities. No other country has the hot water on tap and porcelain-lined bath-tubs in every household as the United States, and our plumbing is the envy of every European traveller of culture who studies conditions of this country.

Now, for some physiological reason a hot or very warm bath renders the skin of many people sensitive to cold, and there are at least two methods for producing a proper reaction in the skin tissue counteracting this sensibility, one of which is the rubbing of alcohol over the whole body, and the other the applying of a cool or preferably a cold shower or sponge bath after the bath in hot water.

A sensitive person not appreciating the danger of so-called catching cold after a warm bath without the cold water reaction will, therefore, when he bathes, weaken his resistance to disease, either directly, or through a so-called cold affecting his mucous membranes, particularly those of the nose and throat, which then may become inflamed and in that condition are a receptive soil for the fastening and propagation of disease germs.

## HOUSE DUST

I now call attention to a pamphlet entitled "*The Cause and Prevention of Consumption*", issued by the Illinois State Board of Health in 1905 (fifth revised Edition).

It is full of information on this subject, and like other efforts in the cause of humanity, gives much wholesome advice to the layman, emphasizing in this instance the slogan, "No spit, no consumption," I shall not dwell on this specific theory to-day because it is too well known that the destroying or getting out of the way of the sputum of consumptive patients is one the factors in the prevention of this disease.

In the same pamphlet, however, occur passages which I desire to dwell on more particularly, because to my mind they are not sufficiently emphasized, appear only as side issues, and touch upon vital matters only in that they refer to sickrooms or schoolrooms merely.

On page 12 of the pamphlet occurs the paragraph :

"*Consumption is a House Disease.* It is a disease produced by residence in houses. The germs which cause it thrive in the living quarters of man, where sunlight and fresh air are often excluded. It is in the house that consumption is contracted and in the house that the disease develops. It is in the house that the disease remains to attack new inmates, weeks or months after the death or departure of the patient by whom the germs were implanted."

On page 8 :

"Unclean, dusty floors harbor disease germs and are very common carriers for contagion."

On same page:

"The floors of *schoolrooms* should be wet before sweeping, with sawdust saturated with Standard Disinfectant No. 3, which is inexpensive."

Referring to *sickroom* hygiene on page 14 :

“The floor, wood-work and furniture of the room should be wiped with damp cloth and not dusted.”

In other words, and here I wish to make my particular stand, *it is recognized that consumption is a house disease, and that it is largely by house dust that the germs are carried into the lungs or onto the mucous membranes.*

I now, at the imminent risk of hurting the sensibilities of the fair sex, make the assertion that if more than one in a thousand housewives knew how a room should be swept, or dusting be done, there would probably be much less consumption and certainly a great reduction in so-called colds—meaning the inflammatory condition of the nasal passages and the throat which so often form the beginning of more serious ailments, including consumption.

Let me describe the manner in which the average housewife orders sweeping to be done, particularly in winter time.

The window is raised from below ; those who will improve on this, lower the upper sash as well, but do not remove the curtains or lambrequins. Then, by means of a hard broom, the dust is whirled into clouds from the carpet, rugs, or the floor. What is the result ? The cold air from without blows into the lower opening (cold air always enters a room from the bottom and warm air escapes at the top), and drives the dust clouds through the room and the house, settling it not only on hangings and furniture but in noses, throats and lungs of the inmates of the building.

Thereafter a brush or a feather duster is applied to the picture frames, hangings and furniture, repeating the dust clouds in a lesser degree, and the same thing occurs when the dust is wiped off with a dry cloth.

Let me advise you that never should a hard broom be used in a house except on concrete or tiles and then only after sprinkling with water or with damp sawdust. And never should the lower window be opened during sweeping or dusting unless a strong breeze from an opposite window or door can be relied upon.

This is undoubtedly rank heresy, and I expect the usual argument that since so many people have grown old in dusty houses the way sweeping and dusting has been done for ages must be all right. It is the same kind of reasoning which the Sanitary Engineer has to meet in the case of well-water, raw milk, tobacco, whiskey, and so forth. People will refer to those individuals possessing an exceptional fine vitality who in defiance to every rule of hygiene may swallow harmful bacteria with impunity and who grow old with the use of strong drink and black cigars.

But the fact remains that a hundred years ago the annual mortality, for instance in London, was 50 per 1,000, while to-day it is 16 or less, and that many epidemics which formerly devastated whole continents have as such not reoccurred in recent times, all of which is due to studies and advances in Sanitary science, including bacteriology.

Since then house dust is recognized as an important disseminator of bacteria, it is rather strange that a pamphlet on consumption issued by wide-awake State authorities should pay so very little attention to the prevention of this most obvious cause of such a prevalent disease.

It can be explained on the well-known assumption that it is one accomplishment to know many facts and all details of a question and another to properly generalize on them.

What, then, should be done regarding house-dust?

Have no tacked down carpets, and if here and there they are desired for meeting special contingencies, do not sweep them except with a carpet sweeper.

Have bare floors and rugs, even if cheap ones. Sweep the floors with a soft broom, the rugs with a carpet sweeper, and shake the rugs out once a week in your yard when a hard broom may be applied as a finish.

For wiping furniture and frames, use a damp cloth, changing the surface often, and have an ample number of such cloths for changing and rinsing out. These rules for sweeping have been observed for years in our own household and it is and has been of the rarest occurrence that among the ten or twelve persons living in our house, children included, there happened a so-called cold or catarrhal affection.

But the ground will be taken that if we can destroy or prevent the tuberculosis bacillus, then the above described precautions would be unnecessary. Supposing it should be possible to destroy and completely exterminate from the face of the earth the bacillus of consumption, does anybody believe that we might then with impunity disregard well-known hygienic rules and experiences, including the prevention of house dust? Would not a person whose resistance to disease was for any cause undermined contract some other and may be less benevolent disease than consumption?

#### BAD MILK

I next beg to digress in my paper by citing prominent authorities regarding the influence of *bad milk* on the prevalence of consumption.

In the German Weekly "Die Woche," issue of January 4, 1904, written therefore after the promulgation of Koch's theory which had been widely attacked, Privy Councillor Prof. Von Behring, a noted specialist on consumption, writes:

"The longer I study the problem of a fight against tuberculosis, the more I am convinced that we have to begin

with the babies, and as my studies with children show that cows milk is the principal source of tuberculosis infection."

\* \* \* \* \*

Also :

"But to the infection in children, I attribute the development of tuberculosis which leads to consumption of the lungs."

\* \* \* \* \*

And further :

"In my lecture of March 12, 1903, in Vienna, I have given extensive reasons showing why the foundation of tuberculosis diseases is as a rule established in early childhood and particularly through the entrance of bacilli of tuberculosis in the milk."

I also refer to a report on the Conference of the International Association against Tuberculosis :

THE HAGUE, September 6-8-'06.

*Schlossman of Dusseldorf* says on p. 94 :

"I am entirely convinced that tuberculosis is in the majority of cases a children's disease. The formation and the development of the first infection took place in early childhood, and from this ensues in later life a renewal of the pathologic processes which eventually lead to death."

Also :

"*Hamburger* and *Sluka* found that among children between the ages of 11 to 14 years who had died of diphtheria, scarlet fever and similar infectious diseases, 77 per cent. were found at the post-mortems to have been infected with tuberculosis."

Page 95 :

"If only a small portion of the big sums that are now spent in the fight against tuberculosis, would be applied to childhood it would lead to quite noteworthy results."

Page 80 :

"Tuberculosis in the adult is the last chord of the lullaby which was sung at the cradle of the infant."

A telegram from London to the *Evening Mail*, New York, on February 25, 1907, says :

“LONDON, February 15.

“Never has London been so deeply stirred by a question concerning the public health. On all sides sanitarians, health officers, medical men and the press are discussing the necessity for drastic measures to stay the tuberculosis plague.

They are agreeing that the chief source of this disease is the milk supply, and that the only feasible method of stopping the tremendous spread of the disease is by pasteurizing or sterilizing the milk supply.

The report of the British royal commission on tuberculosis has left no room for doubt as to the urgency of the situation.

#### EMPHATIC IN THEIR CONCLUSIONS

The commissioners were all celebrated medical and veterinary investigators. They sum up their findings thus:

There can be no doubt that in a certain number of cases tuberculosis, occurring in the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis.

And there also can be no doubt that in the majority at least of those cases the bacillus is introduced through cows' milk. Cows' milk containing bovine tubercle bacilli is clearly a cause of tuberculosis and of fatal tuberculosis in man.

A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cows' milk containing the germs of consumption.

The presence of such germs in cows' milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used for food.

#### WARNING AGAINST RAW MILK

The commissioners arrive at this practical conclusion :

Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of such milk.

It is this situation, so clearly exposed by the royal com-

missioners, that has brought to public notice the peril of raw milk and has directed attention to the necessity of either pasteurizing or sterilizing the milk supply.”

Now, climatic conditions in Central European countries are different from ours. With us the air is so dry that the windows and doors of houses which fitted perfectly when newly made become loose and rattle after a short time on account of shrinking, *thereby causing much natural ventilation in our houses.*

In Germany and surrounding countries having a moist climate I have observed that these same windows *will remain close fitting.* As a consequence, unless special ventilating devices are provided, which is rarely the case, German rooms are stuffy and badly ventilated. The same holds good for the stables, which are usually in a most filthy condition and are never inspected, so that in winter time two most pernicious factors, bad house air and bad milk, work to undermine the health of the people and more than counteract the otherwise hardy qualities of the Germanic race by the developing of tuberculosis or other diseases.

#### PSYCHE

And then I beg permission to cast a glance aside to a further and in my opinion most powerful physiological and psychological cause which undermines health and indirectly helps the development of all kinds of diseases, notably consumption. I refer to that morbid and unnatural condition under our present social system which results in an abnormally developed and long continued psychic exaltation and discontent among the young and unmarried, and which is the probable reason why such a large percentage of the total mortality by consumption occurs between the ages of fifteen to thirty, at the age when normally health would be paramount, vitality the most virile, and resistance to disease germs the most vigorous.

Statistics issued by the Illinois State Board of Health, in black line columns, show that out of every 1,000 people in Illinois, who died of consumption in 1904, nearly 400 were between the ages of 15 to 30.

Also, of 11,206 persons who died in Illinois in the same year between the ages of twenty to thirty—3,958, or over 35 per cent., died of consumption.

And it is stated that the death rate from consumption in Illinois is not greater than in other states.

I appreciate that it is difficult ground to tread upon, but every physician knows of the undermining influence of of this cause and of the well known experience that after marriage a great many sickly, hysterical, aenemic and nervous young women, and many morbid young men, acquire rosy cheeks and placidly beaming countenances.

#### SUMMARY

I may then sum up and propose to add the following neglected essentials to rules already established in the fight against consumption:

First: Have no tacked down carpets, use no hard brooms inside the house and keep the lower sashes closed during sweeping, particularly in winter time.

Second: Teach people never to take a warm bath without a cooling or cold sponge or showerbath afterwards, or, in case of sensitiveness to shock, an alcohol rubbing.

Third: Provide clean milk and cream from sanitary stables and in case of the slightest doubt pasteurize or scald them.

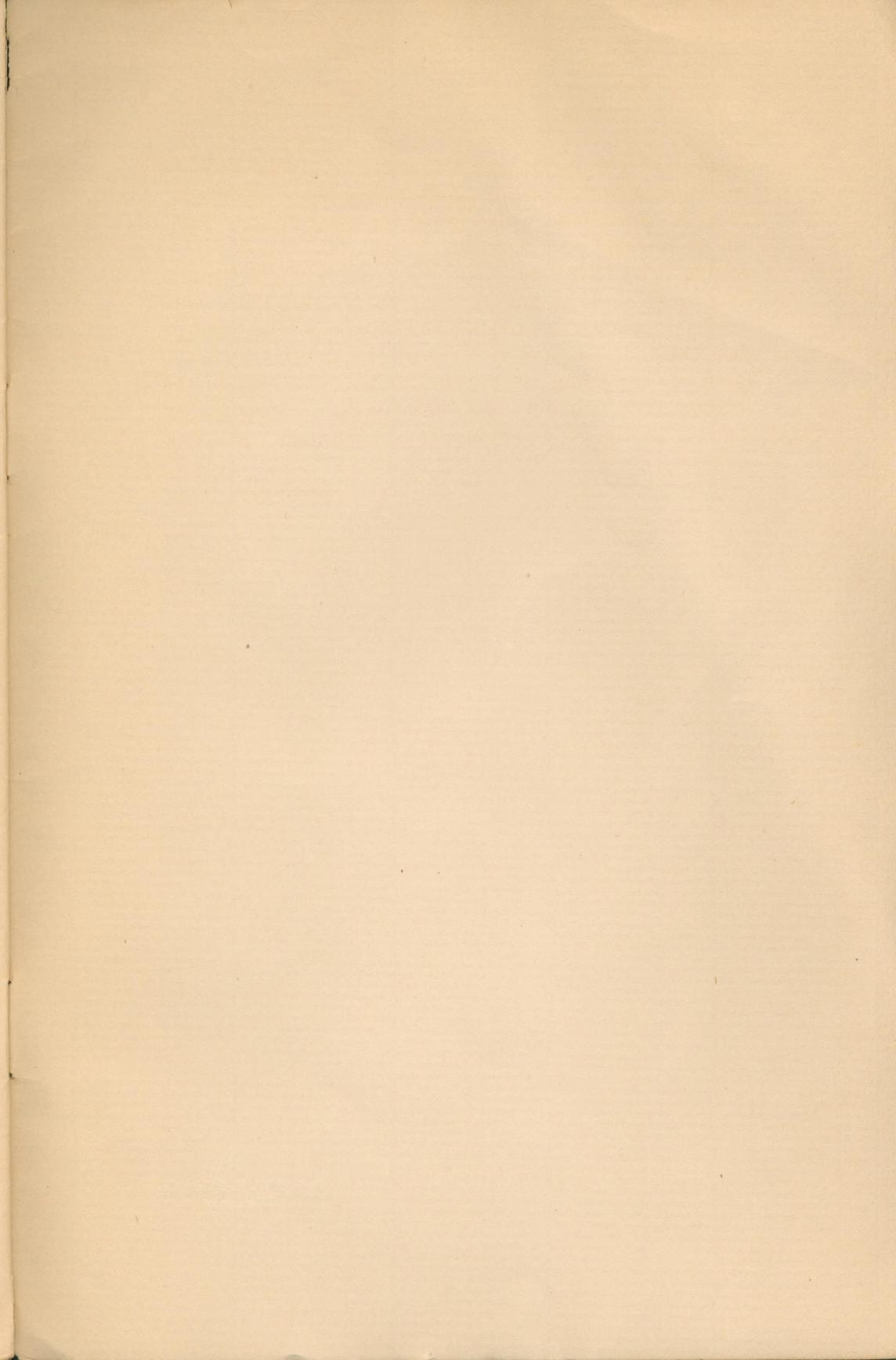
#### AGITATION IN THE SCHOOLS

Finally, let me suggest to those humanitarians who labor in the cause and prevention of consumption that no agitation is as efficient as that begun in the Public Schools. If modern text-books would be introduced in the upper

grades of our public schools dealing not only with the causes and prevention of consumption, but with prophylaxis in general, it would plant the seed of knowledge where it would bear the richest fruit.

But such a text book would only half fulfill its mission, or should entirely fail in it, if *undue prominence* were bestowed on the hunting and destroying of the tubercle bacillus *and too little* to the more important essentials, such as are enumerated here for the fortifying of the human body, thereby maintaining and increasing its natural power of resistance to *all* diseases, including consumption.

EMILE BERLINER.





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