

Sanitarium Lectures. Aug. 19, 1892.

D R E A M S .

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Good Morning, Ladies and Gentlemen! I believe I promised to talk to you a little while to-day about dreams. It is astonishing how little we know of the most simple and common phenomena of life. We do not even know what sleep is. Some one calls it "a twinkling of oblivion". It is not always so, although sound, healthy sleep might perhaps properly be called a twinkling of oblivion. We fall asleep, and when we awaken, there seems to have been no loss of time; we go on thinking right where we left off some hours before. I remember of an experience of this kind; that used to happen to me quite often. I would write until midnight, and then fall asleep with my pen in the middle of a word, and on the instant of awaking, would finish my sentence. I would write until I would fall asleep again, sleep an hour or two, and it would seem only a twinkling when I would awake and finish the word or the sentence which had been left unfinished and broken.

Such sleep is healthy, dreamless sleep, and there seems to be no lapse of time. But the fact that we do not remember our dreams, is no evidence of the absence of dreaming or of the action of the mind during sleep, for it often happens that acts are done in sleep, of which we have no memory when awake. Somnambulists sometimes make quite extensive excursions during their sleep, but have no recollection of it when they awaken.

Really, what is it to dream? If I remember rightly, Shakespeare calls dreams the children of an idle brain. Churchill says they are "children of the night, and are due to indigestion". Montaigne says that "dreams are the best interpreters of our inclinations," and I think there is much in that. Dryden says they are only "interludes . . . when the monarch reason wakes." Now there is a truth involved in all this, which we find verified by a careful physiological study of dreams. ~~(Pardon me, while I go out and see if I can't stop that noise.)~~

Before we can understand what dreams are, we must understand our mental states while awake, and what it is that causes a person to dream, ~~(and I am sure I wasn't dreaming when I heard the noise out there.)~~ But really we are all dreaming, and we are dreaming all the time, and the difference between the dreams of our sleeping and those of our waking hours is really not very great. Of what are our thoughts made up? Why do we think? Really thought is to a large extent a reflex action arising from external surroundings. ^X We can imagine a child born without the senses ^{of} sight, hearing, etc. Would it be possible for that ^{person} individual to have any thought? ~~Just consider that a moment.~~ If we stop to think of it, we find that the substance of thought is really composed of the material which we gather in from the outside world. If a person is born without the sense of sight, he can have no appreciation of color or distance; he couldn't have any possible conception of such a thing. He could get some idea

of shape through his sense of touch, but it would be very imperfect indeed. A person born without the sense of hearing could have no appreciation of musical sounds, or of any kind of sounds. It is odd to hear people who were born blind, undertake to describe color. It is equally impossible for a person who was born without the sense of hearing, to describe a sound. They do sometimes try to describe sounds, for they have some sense or appreciation of sound or of a noise, from the vibration which they feel, but the description of a sound which they give, is very odd indeed, and very foreign to the thing itself. The same is true of the sense of touch. What could a person think about, then, who had no sense of sight, hearing, or any of the senses or sub-senses? ~~Of what could such a person think?~~ ^{He} They could have no conceptions of anything with which we are familiar in this world, --and of course we know but little of things outside of this world. He would have no means of access to the great field of knowledge, so he would really have nothing to think about. X

Now, How do we think? Let us take a very simple case, for example. Here is an object some little distance away; I see it with my eyes, but how do I see the object? I do not come in contact with it. It is simply the result of the rays of light coming to my eyes and irritating the optic nerve in my brain. ~~(explaining by diagram.)~~ Here you see is a picture ^{of the brain} which represents the effect of the rays of light upon the eye. Through this nerve, certain cells in the brain are excited, and by that means

the distant object is appreciated by the eye. When I see the object, I find, perhaps, that it is a desirable object, and there is a vibration set up in my brain which produces the impulse or desire to acquire that object; other impulses are set in motion and other cells excited, and an impulse is sent down to the muscles of my legs to go there; and other impulses are sent out from the brain, and other muscles in my arm are influenced to reach out and take the object. All these impulses have come from the little vibrations which have entered my brain through my eyes. Perhaps it is a luscious pear, and I wish to eat it; the salivary glands, and the nerves of taste are excited, ~~the sense of taste is excited,~~ and a desire created for this, and more of the same sort; so I am led in this way to make a journey after other pears, or other luscious fruits for which an appetite has been created. Now I may afterwards have many pleasant recollections of the feast that I made upon this delightful delicacy, and, if the fruit was pears, I dream of pears. Why do I dream of pears? - Simply because of the impression which was received through my eyes, and ~~which was~~ lodged in the brain. ^X There is said to be, in the brain, a sort of nervous phosphorescence. ~~You know,~~ If you go out into the woods some dark night, and you will see a mass of decaying wood, -- an old stump or a rotting log which seems to glow with fire. ~~Some of you have seen this.~~ You will sometimes see upon the seashore, a decomposing fish, or a mass of decomposing fish, and in the night, it is all aglow with a phosphorescent

flame. This is a peculiar property which certain bodies have. They have the faculty of storing up the sunlight which they receive in the daytime, ~~so that the sunlight is lodged in these substances in the daytime~~ and when night comes, and there is no longer any light to eclipse it, they give it off. Of course they give it off in the daytime, but it cannot be seen, because it is overpowered by the greater light of the sun. The fire-fly has the ability to produce these vibrations and this phosphorescent light. Millions of microscopic creatures have this same ability, ~~and they may be seen dashing up against the side of a vessel at sea; they seem to be all on fire~~ ^{and they} Now the brain sometimes possesses a sort of phosphorescence of the same character, so that when an impression is received by the brain through the sense of sight, hearing, touch, or any other sense, it is retained in the brain; it is stored up there in a similar way in which the decomposing fish, the rotting log, or the oyster-shell stores up these impressions from the sun, and afterwards, by means of this phosphorescence ~~these impressions are given~~ ^{them} off again, and just as this phosphorescent body gives off the light in the night, so these impressions which are stored up in the brain, which is the basis of memory, are thrown off in the night in the form of dreams. That is the reason we remember things; it is because of this phosphorescent quality in the brain, so that we can recollect what took place years ago.

Then in sleep, we have an exhibition of this organic phosphorescence, and it is simply a recalling of things in the night, which

happened during the day. One could never dream of something of which he had received no impression from the outside world,--he could never weave into the fabric of a dream something which he had never received through his senses from without. It would be impossible. X Dreaming is something which pertains to the brain, to the great center of the nervous system. In dreaming, the brain and the spinal chord are occupied; this is the part of the system where the nervous impressions are stored up, and, as I say, we cannot weave into the fabric of a dream, anything which has not been brought in by our senses from the outside world. X It is true, a dream may be something which has never happened to us; ~~they~~ ^{dreams} are not the complete reflections of our daily life, like the reflections of a mirror, but they are the impressions of what we are acquainted with, in a grotesque form. But they are only composed of the material which we have gathered in when we were awake. They may be very slight in character, so that we may have only a very faint recollection of it, or they may be very powerful, owing to very powerful impressions which have been received into our minds during the day. Hannibal had formed an intention to rob the temple of Juno of a golden pillar; he had drilled into the pillar and found that it was solid gold, and he resolved to carry it away and appropriate it to his own use. You remember that Hannibal was not only a very brave and skillful general, but that he was also given to pilfering, and he had resolved to take that pillar away. But, in the night, in a dream, he thought Juno appeared to him in a most terrible shape, and warned him that if he took

that pillar away, she would follow him to his latest day, and would surely make reprisals upon him, upon which he not only repented of his determination, but took the dust which resulted from his drilling into the pillar and made it into a ring and put it into the top of the pillar, where an antiquary might perhaps find it at this day. X Now I don't suppose that June made a visit to Hannibal under these circumstances, although he thought she did. It is probable that it was simply the result of the smiting of his conscience which had assumed dominance in the night to such a degree as to make the impression upon him which he did not overcome when he was awake.

These dreams of our sleeping hours are very often ascribed by superstitious people to some malign influence, some ghostly visitation, or something of that kind, and I know a great many people who are suffering very much in consequence of attaching too much importance to their dreams. X

~~But we must learn a little more about the real significance~~
of ~~these~~ ^{Dreams} dreams. They mean simply a morbid activity of the brain. How does this occur? I think there are at least two distinct origins of dreams. Dreams may be said to be a sort of vibration. If a skilled player sits down at this piano and plays for a time, when the player leaves the piano, if you put your ear close down to the instrument, you can hear it still playing on; and by and by, after you cannot hear any sound, if you attach a microphone to the piano, you can still hear the piano playing on; it is still dreaming the same tune that has just been played on it. It is ex-

actly so with the brain: the daily activities of our lives bring into play this wonderful instrument, the brain. An object that we see, strikes a certain key; something that we hear, think, or smell, sets other keys in motion, and then these keys constantly play the tune of our life; and when we dream, it is simply the echoes of this tune that has been played upon the brain by our outward surroundings, more or less modified by the instrument which is played upon. A violin, for instance, makes a different sound from a piano, a base-viol, a guitar, or a drum.

Perhaps this thought is not quite clear to you. Now suppose we have here a violin, a guitar, or a big base viol, a piano, or any stringed instrument. If there happens to be a sound struck, in the vicinity of this piano here, if you will listen closely, you will find that there is a sympathetic sound in the silent instrument. Perhaps some of these young ladies who are accustomed to playing on pianos, will remember, when practicing in their mother's parlor, there suddenly appeared a vibration of a window-pane, and the louder that key was sounded, the louder the window-pane would rattle. ~~Some of you have been over the old Suspension Bridge at Niagara Falls, and have noticed the sign over the bridge forbidding marching across the bridge; no company of soldiers can march across this bridge keeping step. Why? - For fear it might set up a sympathetic vibration in the great strings which constituted the bridge. Most of you have perhaps seen a dog trotting across a bridge, and you have noticed how the perfect ^hrythm of his movement makes the whole bridge ^{vibrate.} ~~rattle and shake.~~ A man walk-
~~ing across the bridge would have no such effect~~~~

ing across the bridge would have no such effect. ~~as would the even~~
~~trotting of a dog not weighing one-fourth as much making the whole~~
bridge shake and tremble. This is because of the rhythm of the
dog's movement. I remember ~~of~~ reading of a bar tender in Germany,
who had a very sonorous voice. He had ascertained the effect of
his voice upon his beer glasses and goblets, and made a wager
that he could break one of them with his voice. He selected a
goblet, and knowing the exact key to strike, he sounded a sonorous
note, and continued to do so, until the glass was shattered to
fragments. A man who was a violinist made a wager that he could
fiddle down a certain bridge. ^{which was being built} He couldn't get any ^{one} to accept the
wager, because it was so foolish, as they thought. He sat down
upon the bridge and struck first one key and then another, and
pretty soon he struck the sympathetic tone of the bridge, and the
the bridge began to tremble, and as he continued to draw his bow
across the strings and to sound this sympathetic note, the bridge
trembled more and more, until the shaking became so violent that
the workmen became frightened and gave the musician a good round
sum to stop his fiddling.

The source of dreaming, then, is the occurrence of these sym-
pathetic vibrations in the brain; there is a movement set up there
by some external influence, not absolutely identical with it, but
which is sympathetic, ^{and} ~~there is a movement started there, -- some~~
~~little vibration which has been produced by some other cause, at~~
~~some other time,~~ constituting perhaps a single factor in a whole
train of incidents. It was one chord in a tune which external sur-

roundings and environments had played upon us at some previous time. ¶ Now that sympathetic note is started during sleep; something happens, and the whole thing is gone over again in sleep; the organic phosphorescence, as we may call it, brings back the whole experience. Perhaps, ^{while at sea} in some terrific thunderstorm an impression was made upon us, and that impression was very strong; we thought we were going to die, and we began to think of all the bad things we had ever done, and of many things that had been left undone, and so there was a great impression made upon us. Now, during the night, when ^{we are} asleep, ^{and} ~~we may~~ in this state of equilibrium in which we are susceptible to such an influence, a door may slam, which sounds to us like a clap of thunder, and this sets up ~~the~~ vibration in our brains of ~~the~~ ^{an} impression created in that terrible storm at sea; that sound is one chord in that tune which was played in our brains during the thunderstorm, and so when the chord is struck, the whole tune comes back again, and we have a dream by which we go through the same experience, ~~and we~~ ~~wake up in the morning thankful that it is not true.~~ ¶ How many times we ^{are} have awakened in that way; ^{we} ~~you~~ have been going through some experience which has been stored away in our minds, -- some thrilling experience, or ^{we have} ~~reading~~ some ~~similar~~ experience in a book or listened to some graphic account, which we have made so much a part of ourselves that it has been stored up in the brain as a part of our own experience; and something has occurred during sleep which has set in motion the sympathetic chord of these impressions, or this tune, and the whole experience is gone over

again in sleep, and we awaken glad that it is not true.

Dreams come in this way, ~~as I have said~~, by impressions made upon us by these external surroundings and circumstances. By this means, then, we might almost make dreams to order.

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The ^{great} ~~most important~~ of all the practical lessons to be drawn from this subject, is the influence of dreams upon our daily lives. How many times some of you have awakened in the morning feeling as thoroughly exhausted as if you had done a hard day's work, ~~but you don't know why~~. Very likely you had a dream in the night in which you thought you were working hard. You woke up in the morning and forgot your dream, ~~in the night~~ but the influence of ^{it} ~~the dream~~ remained with you. Sometimes you have had a different experience, in which you have awakened in the morning after dreaming in the night, and the dreams have been of an unpleasant nature. Perhaps you dreamed of a struggle with a burglar, or ~~you dreamed~~ that your house was on fire, or that it was being broken into by a burglar, or of having a struggle with wild animals, or a struggle to escape from a burning building, and awoke in the morning excited and trembling, ~~with the influence of a dream of that kind~~. Such an experience ~~as that~~, is almost as bad as a real experience; the nervous system has been excited and exhausted and the nervous energy expended, ~~just~~ as much as though the thing had really happened, ~~or almost as much~~. So dreams of that kind must be gotten rid of, if possible; we must find out the cause of them and get rid of the cause. Dreams in which the circumstances and

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We never go entirely to sleep. The sense of sight ^{apparently} ~~apparent-~~ly sleeps, ^{while} ~~but~~ some of the other senses ^{sleep} ~~do not~~ -- the sense of hearing, for instance. An eminent English physiologist at one time had a very curious dream; he dreamed that a man came to his house to see him; he ~~thought he~~ saw the man standing outside of the house; he saw him through the window; saw him come up to the front door, and he saw him make the motion of ringing the bell, but he didn't hear the bell ring, and the servant didn't appear, so he got up and rang ^{for the servant} ~~the bell himself (the bell by which he called the servant)~~, and while he was ringing the bell, he could see the clapper move back and forth, but he couldn't hear the bell ring. Now in that case, the visual center of the brain was wide awake, although his eye-lids were closed so that he didn't see. Now a dream has a peculiar character, because some of the faculties are paralyzed by sleep, while others are wide awake and active. Of course the paralyzed faculties do not form any part of the dream; for instance, in this case, the dreamer could see the clapper move, but he could hear no sound.

~~We sometimes have very curious dreams, suggested by our peculiar external surroundings.~~ I knew of a case in which a man had a very curious dream, and one which followed him up night after night; he had the same dream repeated over and over. It was

a dream of a struggle with birds of prey; that a whole lot of vultures and eagles came about him to devour him, and he was having a terrible struggle with them, and he was fearfully oppressed with the odor of carrion. These birds of prey of course and there was an unpleasant odor in the room also. have a very unpleasant odor about them, - Night after night the same dream came. By and by, on investigating the cause of the odor, it was found that his pillow was full of decomposing feathers. The pillow was exchanged for a healthy one, and the dream ceased. ~~This is a sample of what might occur to most of you, under similar circumstances.~~

The sense of sight is generally asleep, while the sense of hearing is awake. You can awaken a sleeper by calling him, but you can't awaken him by opening his eyes. It might be that a very strong light, -- a light capable of producing pain, when brought in contact with the eyes of a sleeper, might awaken him. The cry of "fire" would awaken him, but if you should hold before his eyes a picture of his house on fire, ~~and~~ it wouldn't awaken him; he wouldn't be awakened by that kind of stimulus, because the visual center is generally asleep, but the auditory center is awake. This center is a sort of watch-dog for the centers which are asleep. If there is any serious danger, a person may usually be awakened by calling, but it sometimes happens that the hearing center goes completely to sleep, and then the person cannot be very easily awakened by calling. But you can always awaken a person by shaking him; or he can be awakened by a slight titillation of the palms of the hands or the soles of the feet, or by touching

the nose with a feather, even there seems to be sufficient influence in these impressions, that if any of them fails to awaken him it is woven into the fabric of a dream. You remember Shakespeare says something about fancy tickling a person's nose; but if it is not a tickling of the nose, it is a tickling of some of the senses, which produces a certain kind of dreams which is very pleasing. Pressure upon the body will produce a dream of struggle, or of combat. By any physical disturbance, a dream to order, almost, can be produced, because the ordinary sense of pain does not seem to go to sleep. The olfactory sense is often wide awake, as in the case of the man who had the dream of the struggle with the birds of prey. So, as I have said, we can manufacture dreams.

But there is another class of dreams which are purely subjective. Paul Richter, I think it was, had a remarkable dream; ~~you may have had something like it~~; I had one similar to it when I was about 16 years old. At that time, I was studying astronomy in a high school, and I was very much interested in it, so much so that I spent my nights on the top of the house studying the stars and trying to get acquainted with them, and finally I had a dream which continually followed me up. The dream was a dream of the revolution of the planets; at first, I thought I was revolving ^{with} around the earth; then the earth was revolving around the moon, ^{the earth & the moon} and ~~that~~ ^{they} were then revolving around the sun, ^{sun & earth} and then the sun was revolving around some other center, and then this whole ^{group} ~~thing~~ ^{thing} extending and revolving around another center, the centrifugal force

being so great, at last, that I seemed to fly all to pieces, and when I ^{awoke} ~~waked~~ up, my head seemed almost bursting. Then I would fall asleep again, have the same dream and awake with the same sensation, and this continued until I ~~could~~ hardly dare go to sleep. Paul Richter fell asleep and dreamed that an angel came and touched him and removed his fleshly body, so that nothing was left but what could be wafted through space, and he was thus permitted to explore the universe, and he rose into the heavens higher and higher until the sensation of the immensity of space was so great that he wanted to hide himself from infinity; he was so oppressed with the infinitude of the universe that he felt it insupportable. That was a subjective dream; it didn't come at all from the promptings of outside surroundings, but it was a dream which came from the organic phosphorescence stored up in the brain alone,--a dream which grew out of the memories of the brain. We sometimes have dreams of that sort. Dreams of this kind are very likely to assume a very sublime character. Dreams of this sort are sometimes recorded. People sometimes spend a good deal of time and ingenuity in trying to find something that will match those dreams; they imagine that they have a forecast of their future made to them through dreams of this character.

But there are some dreams, which are most important of all, I think, and which are produced in a very interesting way. You know we have two nervous systems; we have a nervous system by which we think, by which we are able to reason; and we have a nervous system by which we feel, the nerves of animal life, the center of which is the brain--the cerebellum and the spinal chord.

We have a cavity for the cerebrum for the brain, and then we have another cavity for the cerebellum from which nerves extend down the spinal chord, which are called the spinal ganglia, which is really an extension of the brain (Diagram). This is a representation of the spinal chord, which is a part of the brain.

In this spinal chord and the brain we have a great thinking organ; we have a large and a little brain, and then, as I have said, we have an extension of the brain in the spinal chord. (Diagram). ~~Here is the large brain; here is the little brain, and here is the spinal chord.~~ Now the large brain thinks, the little brain thinks, and the spinal chord thinks. There are different grades of thinking. The highest grade of thinking is done with the large brain, ~~which is here in front; the large brain is occupied with intellectual operations.~~ Just back of this ^{part of the} brain is the part that transmits impulses to the muscles . . . Then the back part of the brain has charge of the sensations of touch, sight and hearing. Then here is the lower part of the brain which does another kind of thinking; it has relation to the balancing of the movements of the body, making the two sides of the body work together. Then all along down the spinal chord--along the upper part of the spinal chord, there is an interesting kind of thinking done, which has reference to the heart; there is a little center which watch over the blood, and when the blood gets too thick with carbonic acid gas, then this little center sends word to the muscles which have charge of the lungs, to contract the

lungs and bring in more air, and to expand the lungs and force in the air out again, pumping the air in and out, and regulate the movements of the heart, so that it will go faster if it is going too slow, and if it is going too fast, will cause it to slow down a little. So, there is a center that watches the nose; if there is anything in the nose which does not belong there, this center sends word to the sneezing muscles to drive it out. So there is a center that ^{has} charge of the throat, and if there is anything in the throat, the center in that part of the body sends out an impulse to the muscles which drive it out by coughing. Then there is a vomiting center, and a hunger center, -and there is also a heat center ~~also~~. There is an immense amount of thinking done in our bodies. Every movement we make is directed by thinking which is done in the spinal chord. As we move our feet along, some of these nerve cells think, while the brain proper does not think. We can walk along with our minds preoccupied with something else, but these nerves think independently, so that we may turn corners and wander off and get lost, without knowing that we have been making any movements, we are so absorbed in some other thought; but these centers think and in obedience to them, the muscles put first one foot forward and the other, one center thinking "Now it's my turn, and then that leg goes forward, and then another center thinks, "Now it's my turn", and then ^{puts} the other leg ~~goes~~ forward.

This system is shut up in the bony part of the skull, and in the spinal column. But there is another system which is called the organic system. The head-quarters of this system is not in

the skull, but acts in connection with the viscera, the large internal organs. (Diagram.) ~~It is found down in this region here;~~

The great center is the solar plexus; this is the great abdominal brain, the great sympathetic or organic brain, with its several subsidiary centers. Here are the lumbar ganglia farther down, and the lumbar aortic centers still farther down. And we have other centers outside of the skull, which have charge of the liver, stomach, kidneys, and the viscera in general. The work of these organs is controlled by the sympathetic brain, or group of brains, as we might say.

Now it is the cerebellum and spinal chord that go to sleep. The sympathetic nerves never go to sleep entirely. Their action is slowed down somewhat, but their action never ceases. It is necessary for the heart to keep on beating. The brain centers do not keep the heart going. It is the sympathetic centers which keep the heart going; it receives impulses from the sympathetic centers telling it to contract. It is through impulses received through this mechanism that the heart is kept going,, but it is regulated by the brain. So it is with the liver; the liver makes bile thro' the influence of the sympathetic system, having nerves which connect with it. The same is true of the stomach; the stomach dilates under the influence of the sympathetic system. When the brain is wide awake, the sympathetic system is more active, and the activity of the one stimulates the other. When we go to sleep, the action of the abdominal brain is slowed down somewhat, but not entirely quiet; so, if there happens to be an undue degree of excitability

in the abdominal brain, the reactions will be increased, so that the cerebral brain will be kept awake by the activity and the irritability of the abdominal brain. There are telegraphic despatches going on from the cerebrum down to the solar plexus, as to whether there is a happy state of things in the stomach or not. If all is not right there, there is a message sent, blaming the brain, so to speak, for having allowed the hands to bring to the mouth things that ought not to be brought there, and for putting into the mouth something for the teeth to chew, which ought not to be chewed, and the stomach sends up these constant protests, the result of which is, that the brain is kept in a state of perturbation. So we have dreams "born of indigestion" as the poet ~~says~~ says . We have dreams which come from a torpid liver, ^{and} dreams which come from an irritated state of the intestines. . These dreams are the result of disturbances or impulses arising in the abdominal brain.

Now dreams of this kind have a peculiar character; they are almost always depressing dreams. They sometimes come to a person in ^a curious way. A man will have a dream in which he will have an impression that there has some awful thing been done, -- that he has committed some terrible crime, or that there is some awful thing going to happen to him. It is not quite clearly defined, you know; he cannot quite grasp it, and so there is a mystery about it, and the suspense is simply awful; it is a great deal worse than the reality would be, and he cannot throw off that im-

pression which has been made upon his mind, some terrible incubus or impression of impending difficulty, and so he lives under a continual cloud which follows him all day long, and he cannot get away from it. Sometimes these dreams will assume the form of a suspicion; this is very likely to be the case, when they are prompted by an irritated state of the organic brain. A dream of this kind will sometimes assume a suspicion of one's best friend, and it haunts him all day. But my time is passing. I might entertain you for a long time by telling you wonderful dreams which originated in some of these various ways, and in some very curious ways.

We must try to draw some practical deductions from all this.— But there is one word which I must say in reference to the peculiar dreams which some persons have, or the peculiar tendencies which some persons have to dream. The disposition of some people to dream is so great, that at the very moment when sleep approaches, they begin to dream. They have waking dreams, and when they sleep, the waking dream and the sleeping dream are so intimately connected and intermingled, that the person cannot tell where the waking ends, and where the dreaming begins, and so they cannot imagine that they have slept at all. A gentleman told me of a case yesterday of a lady who wished to come here for treatment, who had not slept for three months. I have seen such cases. A lady told me recently that she didn't sleep all night, the previous night. "How do you know you didn't sleep during the whole night?" "Why, I heard the Tabernacle bell strike every hour." But I told

her that that was no proof that she didn't sleep; she heard the bell strike in her sleep. People get into a sort of waking dream, as we may call it, and from a state of wakefulness pass into a state of sleep, and the dream goes right on, and the waking dream and the sleeping dream are sometimes so mixed together that we cannot separate them. I have had that experience many a time, and I presume you have; while you have been thinking deeply about something, you will fall asleep, and the same subject will go right along, although it will assume a little different form on passing into the state of sleep. It may assume a very agreeable form; by and by something will awaken you for a moment, and remember the dream, and want to dream the rest of it, and resolutely close your eyes ^{and it awakes} ^{by something like it} dream again. So a person can have a waking dream or a sleeping dream, just as he likes. ~~I have had that experience many times, so I know it is a real one.~~

This shows the intimate relation between a waking dream and a sleeping dream. I am not now talking of real day-dreams, but I am speaking of our daily experience in respect to our mental activities, which is in a certain sense a dream. Now, as I have said, with many persons, these waking dreams and sleeping dreams become so intimately intermingled that they think they don't sleep when they do sleep, and we have to look out for such cases. Such persons many times do not lose flesh, and are able to do their usual duties, and this is almost positive proof that they do really sleep, although they think they don't sleep. A gentleman

told me a little time ago that he hadn't closed his eyes for six weeks, and that he couldn't sleep. I told him he didn't deserve to sleep, if he wouldn't take the trouble to close his eyes. He hastened to explain, that he had closed his eyes, but that he hadn't slept, but I discovered, upon further conversation, that he had slept,--he had passed from a state of wakefulness into sleep without knowing it. But this is not a very profound sleep; it is a very light sort of sleep.

~~Now another practical deduction that we may draw from this fact is, that we must not be too certain that we do not sleep. I remember of waking a watchman up at one time, and on awaking, he assured me that he hadn't been asleep at all; it seemed to him that he had but just sat down. He had just sat down upon his bench, and as he was very tired, he fell asleep without knowing it. (It wasn't a watchman; it was a night-boy. We had such a boy as that, and we exchanged him for a boy who didn't have that kind of dreams.)~~

~~Another practical deduction which we may draw from dreams, is with reference to our diet. From what has been stated, we can readily see why it is well not to eat just before going to bed. People sometimes say, "Why I went to sleep quicker, and slept better when I had eaten just before going to bed." Very likely you went to sleep quicker after eating, but you didn't sleep better than you would if you had not eaten; sleep is not so sound when thus interrupted by keeping the abdominal brain awake with food, by irritations taking place in the stomach and ganglia. When the~~

abdominal ganglia is kept awake , the brain is also kept awake; the quiet of the brain is disturbed by these constant reports and impulses which are being constantly sent up from the abdominal brain to the intellectual brain, and for this reason we sleep better if we do not eat just before going to bed.

and work of the day are carried into the night in dreams, are very significant. They are significant of an excessive amount of work. When the laborer dreams of his work; when the scholar dreams of mathematical problems, the clergyman of his sermons, or the lawyer dreams of his cases, when the doctor finds that he cannot shake off from his mind during sleep the burden of sick stomachs, livers, and nerves, that man should take a very significant warning, of over-work; he must have a little relief; he must ~~let up a little~~ ^{diminish} of the pressure of his business.

~~There is another way in which dreams have an important~~ moral ^{which dreams have} relation to our daily lives, ~~and this~~ I think, is, the most important of all. The Bible says, ^{that} "By beholding, we become changed". ~~There isn't a bit of doubt about that.~~ The man who associates with a low order of human beings, ^{and a lower} ~~and~~ associates with them on another level than he should occupy, ~~I mean--~~ I do not mean that he should not associate with them as a missionary for the purpose of helping them and reforming them; but ^{as} a workman for example, who associates with profane, blasphemous, or obscene persons, ~~he~~ finds himself becoming changed into one of the same order of beings, unless he is constantly trying to make them better. The natural tendency is, to change the individual. Now this change involves something more than simply our mental and moral state temporarily; it involves the actual structure of the brain, ^{so} that while we are becoming changed, and forming a habit which is the result of the same thing repeated again and again, ~~and again, and this affects~~ the brain-structure which is involved in the execution of the act, and

which has become changed and modified, so that the act can be done with greater facility than before. And the results of these habits of the body are hereditary. A habit which has been formed, can be transmitted by heredity. A man had a habit, ever since he was a boy, of sleeping with his left hand under his head, and his little child had the same habit, and he continued this habit through his lifetime. Habits of speech, thought, etc., may also be transmitted by heredity. They can not only be acquired, but they can be also transmitted by heredity, for, as I have stated, these habits involve a ~~structural~~ ^{in the structure} change of the brain. Now the man who associates, habitually, with evil companions, we will say during his sleep,—the man whose dreams bring him many evil associates,—~~during his sleep,—~~that man will be changed more or less; a man whose dreams are in the direction of conflict, trouble, and distress, ^{that} man's life is influenced by the things that are thrown into ~~their~~ ^{his sleep} stomachs, which is the cause of this trouble, care, and worry. I have found people who have had a dream of some terrible experience; I remember one man who dreamed that he was led into crimes. The feeling haunted him so that he was continually looking over his shoulder to see if the sheriff wasn't coming to arrest him; and the only way he could overcome the impression caused by this dream, was by sitting down and reasoning with himself, and resolutely saying, "Now I have not committed such a crime," and by a process of reasoning, he convinced himself that he had not committed the crime. The impression was so strong in his mind as to give him the sense of guilt, and he had to sit down, and by a

process of reasoning, he convinced himself that he wasn't there, -- he had to prove an alibi, in order to convince himself that he was not a criminal. The impression followed him up month after month before he could get his nerves into an equilibrium again. Now such dreams as that have a profound influence upon our daily lives. Our dreams are the echo of our daily lives, and our daily lives are the echo of our dreams which echo back again whenever our daily lives come into our sleep, inducing dreams.

So, one must study his dreams, and by these, ~~as Montaigne says~~ we may find an explanation of our real selves, because, in dreams, the will is held in abeyance to other influences. Now the will is trained, and educated, and prompted by conscience, but the emotions and other faculties of the brain are our natural inheritance. The will is a creature of education, but the impulses of the brain are the result of inheritance, and, in part, of our education also. Now we find out what our real selves are, and just what we have to contend with in subduing and controlling ourselves, by studying our dreams. When the various faculties run about as they like; when they play just they please; when they play without restraint; when the controlling influence is taken off, and we dream, it is useful to study our dreams. When we dream, we have a picture of our characters, and we should examine it, and we can see ourselves in this way, much more perfectly than by looking in a glass, because, when we look in the glass, we make up a face, so to speak, -- that is, we make up such a face as we would

like to see, so we mould our faces to suit ourselves, and we look as pretty as we can; but when we look into our dreams, we see the whole substratum of our characters, so it is worth while to study our dreams. We must use good sense and judgment in looking into our dreams, but we can find a great deal of our true characters there. We must not forget, as I have said, that our dreams are made by our daily lives. Recollect there are three kinds of dreams,--the objective dream, which comes from the outside world; ~~the~~ subjective dreams, which are born of the thoughts stored up in our brains, and still another kind of dream which we might call an organic dream which comes from the promptings of a disturbed stomach, or liver, etc. These dreams tell us much of ourselves,--subjective dreams, especially, tell us much of our real characters, and are a very interesting study.

015.1

Report of **Work Done** in the Sanitarium Laboratory of
Hygiene for the Year Beginning August 1892
and Ending August 1893.

During the year the work of the Laboratory has been principally devoted to an exhaustive study of the Chemistry of Stomach digestion. The method of investigation of investigation employed involved a quantitative estimate of the total amount of chlorine obtained after a test breakfast consisting of two ounces of bread and eight ounces of water, the amount of free chlorine, and the amount of combined chlorine. Second, a determination of the total acidity by the methods of acidimetry. Third, a determination of additional elements by the application of algebraic methods to the data obtained by analysis. The most important facts of the elements obtained in this way are first the coefficient of stomach work by which the digestive properties are ~~obtained~~ ascertained; whether, and to what degree, it is deteriorated by acid fermentation or by the formation of an excessive amount of neutral chloro-organic compounds. A careful determination of the results are made from the presence or absence and relative amount of lactic, non-fatty acid, bile, etc.; and of the various products of salivary and gastric digestion. The accompanying blank form is carefully filled out for each case of stomach fluid examined. By means of this method of investigation it is possible to obtain accurate precise and ~~exact~~ data by means of which the case may be classified for the purpose of scientific research and therapeutic management. It also becomes possible to represent graphically the abso-

lute and relative quality and quantity of the different kinds of work done by the stomach, whether normal or abnormal. We may state incidentally that the case used for illustration is one of a series of special investigations undertaken to show the effect of alcohol and other non-food substances upon stomach digestion. The following is a summary of the results obtained in the analyses of stomach fluids for clinical purposes.

Summary of Analyses of Stomach Fluids Made for Clinical Purposes.

Stomach Analyses.

Total number of specimens examined - - - - - 2000.
Total number of cases in which hyperpepsia was found -- - 877.
Total number of cases in which hypopepsia was found - - - - 853.
Total number of cases in which Simple dyspepsia was found- 235.
Total number of cases in which apepsia was found - - - - - 35.
Total number of cases in which acid fermentation was found -1022
Total number of cases in which free HCl was found - - - - - 320.
Total number of cases in which mucus in excess was found - 265.
Total number of cases in which blood was found - - - - - 20
Total number of cases in which bile was found - - - - - 50

Annual Report
of
Laboratory of Hygiene.

Battle Creek, Mich.

J. H. Kellogg^{M.D.} Superintendent.

Stomach Analysis.

Total number of specimens ex-
amined - ~~2000~~ - - - - - cases in white 2000.

Total number of [^] hyperpepsia was
found - - - - - 877

Total number of cases in which
hypopepsia was found - - - - - 853.

Total number of cases ^{in which} of simple
dyspepsia was found - - - - - 235.

Total number of cases in which
apepsia was found - - - - - 35.

Total number of cases in which
Acid fermentation was found - - - 1022.

Total number of cases in which
no free hydrochloric acid was found - - - 320.

Total number of cases in which mucus
 in excess was found - - - - - 265

Total number of cases in which
 blood was found - - - - - 20.

Total number of cases in which
 bile was found - - - - - 50

Bacteriological Examinations.

Suspected sputa analyzed.

Total number of specimens examined
 for tuberculosis bacilli - - - - - 151

Total number of specimens ex-
 amined in which tuberculosis bacilli
 were found - - - - - 93.

Total number cases in which
 tuberculosis bacilli were found - - - - - 53

Total number cases in which ex-
 aminations of sputa were made 105.

Water Analyzed.

Total number of waters examined
 bacteriologically - - - - - 10.

Total number examined Bacter-
 iologically and Chemically - - - - - 8.

Details of Results.

One of these waters

was condemned as dangerous. Rate injected hypodermically with 3 c.c. of the water died after a few days. Rate injected hypodermically with 3 c.c. of a 36 hour culture of bouillon died in less than 12 hours.

The other water used in the same way did not effect rate. Most of them were fairly good although chemical analysis showed one or two to contain large amounts of organic matter.

Examinations of Urine.

Total number of specimens in which complete qualitative and quantitative examinations were made - - - - - 3513.

Total number of cases in which urinalysis were made - - - - - 1826.

Total number of specimens in which Albumen was observed - - - - - 230.

Total number of cases in which albumen was observed - - - - - 41.

Total number of specimens in which sugar was observed - - - - - 92

Total number of cases in which sugar was observed - - - - - 9.

Total number of specimens in which
pus was observed 500.

Total number of cases in which pus
was observed 214.

Total number of specimens in which
blood was observed 67.

Total number of cases in which
blood was observed 35.

Total number of specimens in which
casts were observed 28.

Total number of cases in which
casts were observed 11

Total number of specimens in which
bile was observed 13

Total number of cases in which
bile was observed 12.

J. H. KELLOGG, M. D., SUPERINTENDENT.

L. MCCOY, Chaplain and Sec'y.
W. H. HALL, Steward.

G. H. MURPHY, Treasurer.
Mrs. L. M. HALL, Matron.



OFFICE OF THE
**Medical
and Surgical
Sanitarium**

MEDICAL STAFF.

J. H. KELLOGG, M. D. H. M. DUNLAP, M. D. RUTH O. BRYANT, M. D.
W. H. RILEY, M. D. A. J. HOENES, M. D. LILLIS A. WOOD, M. D.
KATE LINDSAY, M. D. ADDIE C. JOHNSON, M. D.

Battle Creek, Mich., Aug. 25, 1893.

*J. H. Kellogg, M. D.
Hospital.*

The following is the report of water brought for analysis by Dr. Wood. Water suspected as being the cause of Typhoid fever. Water from well and cistern. Rats injected hypodermically with ^{3cc. of} the water were not affected in the least. Microbes present in the cistern water from 30-40 per drop. In the well water from 9-15.

Chemical analysis of the well water only was made as it alone was used for drinking purposes. Was as follows.

Odorless and tasteless at 30-40°c.		
Hardness		13.31 before boiling
"	after boiling	11.8 per 100,000
Chlorides	1.2 per	100,000
Free NH ₃	.0408 "	100,000
Alb. NH ₃	.091 "	100,000

F. E. Brauchet.

Monthly Report
of
Sanitarium Laboratory of Hygiene.

Month ending *Sept. 15 1893.*

Stomach Analyses.

Total No. of specimens examined	-	-	-	-	-	-	-	-	-	215.
" " cases	"	"	"	"	"	"	"	"	"	206.
Total No. of cases in which Hyperpepsia was found	-	-	-	-	-	-	-	-	-	71.
" " " " Hypopepsia	"	"	"	"	"	"	"	"	"	103.
" " " " Simple Dyspepsia	"	"	"	"	"	"	"	"	"	34.
" " " " Apepsia	"	"	"	"	"	"	"	"	"	7.
" " " " acid fermentation	"	"	"	"	"	"	"	"	"	97.
" " " " Free HCl.	"	"	"	"	"	"	"	"	"	141.
" " " " Mucus in excess	"	"	"	"	"	"	"	"	"	110.
" " " " Blood	"	"	"	"	"	"	"	"	"	500.
" " " " Bile	"	"	"	"	"	"	"	"	"	5.

Examination of Urine.

Total No. of specimens in which complete qualitative and quantitative examinations were made	-	-	-	-	-	-	-	-	-	286.
Total No. of cases in which urinary analyses were made	-	-	-	-	-	-	-	-	-	226.
Total No. of specimens in which albumen was found	-	-	-	-	-	-	-	-	-	14.
" " cases	"	"	"	"	"	"	"	"	"	11.
Total No. of specimens in which sugar was found	-	-	-	-	-	-	-	-	-	500.
" " cases	"	"	"	"	"	"	"	"	"	500.
Total No. of specimens in which blood was found	-	-	-	-	-	-	-	-	-	10.
" " cases	"	"	"	"	"	"	"	"	"	8.
Total No. of specimens in which casts were found	-	-	-	-	-	-	-	-	-	0.
" " cases	"	"	"	"	"	"	"	"	"	0.
Total No. of specimens in which Bile was found	-	-	-	-	-	-	-	-	-	0.
" " cases	"	"	"	"	"	"	"	"	"	0.
Total No. of specimens in which Pus was found	-	-	-	-	-	-	-	-	-	85.
" " cases	"	"	"	"	"	"	"	"	"	56.

Suspected Sputa Examined.

Total No. of specimens examined for Tuberculosis Bacilli	-	-	-	-	-	-	-	-	-	21.
" " cases	"	"	"	"	"	"	"	"	"	18.
Total No. of specimens in which T. Bacilli were found	-	-	-	-	-	-	-	-	-	6.
" " cases	"	"	"	"	"	"	"	"	"	6.

Waters Analyzed.

Total No. of specimens examined bacteriologically	-	-	-	-	-	-	-	-	-	1.
" " " " " " " " and chemically	"	"	"	"	"	"	"	"	"	0.

Give details of important results.

Monthly Report
of
Sanitarium Laboratory of Hygiene.

-:-:-:-:-

Stomach Analyses.

Total No. of specimens examined	-	-	-	-	-	-
" " cases	"	"	"	"	"	"
Total No. of cases in which Hyperpepsia was found	-	-	-	-	-	-
" " " " Hypopepsia	"	"	"	"	"	"
" " " " Simple Dyspepsia	"	"	"	"	"	"
" " " " Apepsia	"	"	"	"	"	"
" " " " acid fermentation	"	"	"	"	"	"
" " " " Free HCl.	"	"	"	"	"	"
" " " " Mucus in excess	"	"	"	"	"	"
" " " " Blood	"	"	"	"	"	"
" " " " Bile	"	"	"	"	"	"

Examination of Urine.

Total No. of specimens in which complete qualitative and quantitative examinations were made	-	-	-	-
Total No. of cases in which urinary analyses were made	-	-	-	-
Total No. of specimens in which albumen was found	-	-	-	-
" " cases	"	"	"	"
Total No. of specimens in which sugar was found	-	-	-	-
" " cases	"	"	"	"
Total No. of specimens in which blood was found	-	-	-	-
" " cases	"	"	"	"
Total No. of specimens in which casts were found	-	-	-	-
" " cases	"	"	"	"
Total No. of specimens in which Bile was found	-	-	-	-
" " cases	"	"	"	"
Total No. of specimens in which Pus was found	-	-	-	-
" " cases	"	"	"	"

Suspected Sputa Examined.

Total No. of specimens examined for Tuberculosis Bacilli	-	-	-	-
" " cases	"	"	"	"
Total No. of specimens in which T. Bacilli were found	-	-	-	-
" " cases	"	"	"	"

Waters Analyzed.

Total No. of specimens examined bacteriologically	-	-	-
" " " " " " " " and chemically	-	-	-

Give details of important results.

Total free acid ~~140~~ 140

Total acidity 300

Total free HCl ⁴⁰ Diamethylamidoazobenzene

Calculated acidity 220
 200
 20

100 Saturated acids

200 220) 200

$$L + H = A'$$

$$TA - FA = L$$

T

7.0.2

13. Make an emulsion with pancreatic extract.
14. Show that it contains tannin by adding chloride of iron; make the solution strong; show that it is ink, and can be used in writing.
15. Exhibit caffeine crystals in small vial.

Monthly Report
of
Sanitarium Laboratory of Hygiene.

-:-:-:-:-

Stomach Analyses.

Total No. of specimens examined	-	-	-	-	-	-
" " cases " " " " " " " "	-	-	-	-	-	-
Total No. of cases in which Hyperpepsia was found	-	-	-	-	-	-
" " " " " Hypopepsia " "	-	-	-	-	-	-
" " " " " Simple Dyspepsia " "	-	-	-	-	-	-
" " " " " Apepsia " "	-	-	-	-	-	-
" " " " " acid fermentation "	-	-	-	-	-	-
" " " " " Free HCl. " "	-	-	-	-	-	-
" " " " " Mucus in excess "	-	-	-	-	-	-
" " " " " Blood " " "	-	-	-	-	-	-
" " " " " Bile " " "	-	-	-	-	-	-

Examination of Urine.

Total No. of specimens in which complete qualitative and quantitative examinations were made	-	-	-	-
Total No. of cases in which urinary analyses were made	-	-	-	-
Total No. of specimens in which albumen was found	-	-	-	-
" " cases " " " " " " " "	-	-	-	-
Total No. of specimens in which sugar was found	-	-	-	-
" " cases " " " " " " " "	-	-	-	-
Total No. of specimens in which blood was found	-	-	-	-
" " cases " " " " " " " "	-	-	-	-
Total No. of specimens in which casts were found	-	-	-	-
" " cases " " " " " " " "	-	-	-	-
Total No. of specimens in which Bile was found	-	-	-	-
" " cases " " " " " " " "	-	-	-	-
Total No. of specimens in which Pus was found	-	-	-	-
" " cases " " " " " " " "	-	-	-	-

Suspected Sputa Examined.

Total No. of specimens examined for Tuberculosis Bacilli	-	-	-	-
" " cases " " " " " " " "	-	-	-	-
Total No. of specimens in which T. Bacilli were found	-	-	-	-
" " cases " " " " " " " "	-	-	-	-

Waters Analyzed.

Total No. of specimens examined bacteriologically	-	-	-
" " " " " " " " and chemically	-	-	-

Give details of important results.

misc
SANITARIUM PARLOR LECTURES.

On Mexico. (Dec. 22/92.)

J. H. Kellogg, M.D.
---o0o---

Good morning, Ladies and Gentlemen: I am glad to see you all again. I am glad to get home again; I find there is "no place like home." I have never been away from ^{home} for any considerable length of time but what I was very glad to get back again. When I am away from home, I sometimes feel as though life was hardly worth living, it is so full of care, responsibilities and worry. I never go away from home but what I get homesick. I get so used to sick people that I feel as if I could hardly out of the atmosphere of the sick room. But I promised to tell you something about Mexico, and what I saw there.

The City of Mexico is a very interesting city. I am not going to tell you all that I saw while I was there, or all I thought, while there, but I found Mexico a very interesting country. I can hardly imagine how Americans, dwelling so long, know so little about it. I have travelled from the south of Italy to the north of Sweden, but have never found a country which begins to compare, in interest, with Mexico. It has been called the Egypt of America. It seems as old as anything you could imagine. I will take some ^{slides} ~~time~~ to show you some views which I took with a kodak while there, which interested me very much, and which I think will interest you.

My purpose in going to Mexico was to attend a meeting of the Public Medical Health Association, a few words in regard to which may interest you. This Association was organized about twenty

years ago for the purpose of increasing interest in public health. The Association now numbers several hundred members. I have myself been a member of it for the last dozen years or more. It has done much hard work in shaping public sentiment in favor of public sanitation, in securing legal enactments which secure for our country better protection to health. This was the first meeting of this Association which was ever held in Mexico. The Mexican government sent up to Kansas city at the last meeting held there, and it was decided at this meeting to hold the next meeting of the Association in the City of Mexico, and the government received us with open arms. I was surprised to find a ^{special} ~~special~~ of the government on hand to take charge of my baggage and that of the other physicians, so that we need not be intercepted by government officials who would make an examination in order to see if we were not smuggling. So it would have very easy for us to have smuggled things into the country,--but we didn't find it so easy to smuggle things out, for we found Uncle Sam's collector ready to see that we didn't carry anything out by stealth. But from the moment we crossed the border, all the members of the Public Health Association were treated in a most royal manner. We were feted and feasted almost constantly. It was almost impossible to communicate with the numerous friends who wanted to see us on every side.

The first thing in the morning about 8 o'clock in the morning the ^a committee was on hand to show the delegates over the city, and every moment that was not occupied in the meetings of the Association, we were seized upon by the committee whose business it

was to show the delegates the sights of the city and of the country.

The meetings of the Association this year were largely devoted to the consideration of the subject of the prevention of contagious diseases. And this was a very appropriate subject for Mexico, for this country is the home of deadly diseases. Yellow, and other fevers come to Mexico as well as to Havana. In Vera Cruz it is present all the time, and it extends from Vera Cruz to various other parts of Mexico,--to Cordova, Orizaba, Puebla, and sometimes even to Mexico itself. These diseases in Mexico are a constant menace to the United States, as it sometimes involves some portions of this country in a most terrible fate. You remember, some twelve or fifteen years ago we had a September which was very deadly in Florida. But the people who live in Mexico are not afraid of yellow fever. As I was obliged to take a little trip down to vera Cruz, I was obliged to pass through an infected district,--Cordova. The disease is still very deadly here,--especially among the foreign inhabitants. In talking with an intelligent Mexican with reference to the danger to this country from these diseases, and he rather allayed my fears; he said, "We would rather have yellow fever than to have typhoid fever,--we would rather have yellow fever twice than typhoid fever once." I asked him "Why." "Because," said he, "in yellow fever ^{one} knows in a couple of days whether he is going to live or die, but in typhoid fever it is a couple of weeks before one knows whether is going to live or not,--and by that time he is pretty likely to die." Yellow fever passes through a short pe-

riod, but typhoid fever usually requires fifteen or twenty days to run its course. Down in Mexico they don't seem to care so much about human life as they do in this country,--and perhaps that is one reason why this gentleman felt as he did--and yet, upon inquiry, I found that they did not fear yellow fever nearly as much as they do typhoid fever.. The state of things that I found there reminded me of that which exists in India. From the way in which a gentleman from Burmah represented it to me, it was very much there, as regards sanitary matters, as it is in Mexico. He asserted that when one of the pupils in a school was sick they thought he had the cholera,--and yet they were not frightened, and the school went right on. If such a thing had happened here, the school would have been closed. There is no quarantine in India where Yellow fever and cholera are there all the time. Inquiry was made by one of the members of the Association if there was any quarantine in Mexico, and he was told that there was not. I also asked the same question and the gentleman of whom I made inquiry laughed at me,--said he, "We never have quarantine in this country." And yet if any one should bring the cholera here, he would be arrested and a cordon of soldiers established to guard the territory from further infection,--and it is proper that it should be so.

Notwithstanding the fact that there is no quarantine in Mexico disease does not prevail there as it does in some parts of the United States. Why is that? In Mexico, as in India, you never hear of terrible epidemics which carry off thousands of people. When an epidemic of yellow fever gets into New York or London, or Paris, then there is a most deadly effect. But in

India it is present all the time . Now why don't they have terrible epidemics there, just as in this country? Why don't they have the same thing in Mexico? This is a very interesting question, and a question that I have thought of many times. After much study of the question, I have become convinced that the reason lies in the diet of the people. In Mexico, Yellow fever is not particularly prevalent, although they always have it there. And it is not contagious there. One man goes to Orizaba or Puebla and while there he takes the disease he will probably die. But if one goes down to Vera Cruz where there is plenty of fruit, he will be very likely to recover. A dozen years ago, when I was there, I could tell where I was by the odors. The gutters etc. were so filled with filth, etc., that the air was positively pestilential, and for this reason yellow fever extends from one portion of the country to the other. It is epidemic to some degree, but it does not become an epidemic as to require the absolute cessation of commerce or business and the number of deaths from yellow fever is not greater than the number of deaths from typhoid fever in this country in the large cities. Well, I thought, Why is that? Upon reflection I made up my mind that it was the result of diet, as related to the development of germs. Each particular variety of germ requires a special soil in which to develop. This is true of all classes of germs: One class of germ grows best in milk, another grows best in beef tea, another grows best in some vegetable production, while still another germ will seize upon any kind of material and rapidly develop. Some other germs will grow rapidly in the bodies of certain animals, while other germs grow better in other animals. You know that typhoid fever cannot be communicated to certain animals. You can't give a cow or an ox

typhoid fever. A man may drink a certain kind of water and have typhoid fever, and a horse or a cow may drink the same water and not have typhoid fever, because the soil is not favorable to the typhoid fever germ. There is a certain species of rat or mouse that is very sensitive to typhoid fever; a certain variety of field mice which are very susceptible to typhoid fever. Prof. Loeffler took advantage of this fact and went down into Italy where the crops were being destroyed by these animals; he took some typhoid fever germs and inoculated a mouse. Its neighbor mouse ate it up when it died, and in turn was eaten up, and so the poison of typhoid fever was propagated among the mice and they were destroyed by this simple measure. So you see bacteriology is made useful sometimes, and scientific facts developed in the laboratory can be utilized on the same scale. In the same way Prof. Riley proposed to destroy some insects which prey upon our crops, but, unfortunately his plan failed, since these destroyers change their diet, hence they are very hard to get rid of.

Now it is an important fact some germs will thrive in some soils and not in others. It is found, for example, that the cholera germ and the yellow fever germ will develop with great rapidity in infusions of beef tea, beef juice or any other kind of animal fluid which affords the best kind of soil for the development of yellow fever and cholera germs. The natives of India are vegetarians. They don't afford a soil which is favorable to the growth and development of these germs. The same is true of portions of Africa. They don't develop the germs of cholera. The same is also true of Mexico: The Mexican is a vegetarian,-- he is obliged to be a vegetarian by the force of circumstances. His

Habits of diet are necessarily very simple because food is so costly there. You will be surprised when I tell you ~~that~~ the cost of some of the necessaries of life down there. I went into a grocery and bought quite a number of articles for the sake of learning what they actually cost,--for example, I paid 50 cents for four lbs. of beans, and a big cake of sugar with a big crater in it (that is the way it comes from the sugar factories) for 50 (?) cts. The coarsest kind of brown sugar costs 10 cts. a lb. Corn is 4 1/2 cts. a lb. Potatoes were 5 cts. a lb (which would be about \$3 a bushel. Beans, you see would be about \$7 a bushel. Other necessaries of life were in just about that proportion, and the consequence is that people in Mexico, as a rule, must live on the very simplest food. Common people cannot afford to pay 25 cts. a lb. for flour, consequently they buy corn and then have it ground up. I will give you a little exhibition some time, and have a little Mexican girl grind us up some. In consequence of this state of things, as I remarked, the common people are obliged to live abstemiously. Their food is largely vegetable; they live on the cactus, and vegetable foods. In consequence of this, their digestive organs will not develop yellow fever germs,--they don't find a fertile soil in which to develop, and the disinfecting gastric juice quickly destroys them. So the vegetarian habits of the Mexican protects him and enables him to live right in the midst of it. But when cholera or yellow fever gets into this country, although the germs die in the winter, yet during the warm weather the disease spreads with great rapidity because the diet of the people is so unwholesome,--at least I think that must be the reason, because the sanitary and social conditions of the peo

ple are much more favorable than are those of other nations. The amount of meat consumed in the United States is prodigious. It takes the prairies of the West and of Kansas and of Texas, with ^{to supply Chicago} the meat which it consumes. When the population of this country becomes so great that all the country must be turned into agricultural districts, leaving no territory for the raising of cattle for consumption, it will be necessary for the people to become vegetarians, and then, perhaps, these diseases will not be so destructive in our country.

Some forty or fifty years ago, Dr. Sylvester Graham made a study of an epidemic which occurred in New York City. In his investigations he found that not a single vegetarian had the cholera--not a single one; he found that the vegetarian had the power to digest cholera germs. Germs of cholera didn't find a fertile soil in the stomachs of the vegetarians who swallowed them. You know some plants flourish in a sandy soil, while some seeds require a rich loam, while other seeds will not thrive any better in rich loam than in a sandy soil.

The Mexican government, as I have stated, received the delegates of the Public Health Medical Association with open arms, and for the reason that they hoped that here would be an aid to them in getting rid of these contagious diseases.

Another disease which prevails in Mexico is typhus fever. We found in Zacatecas great numbers afflicted with this disease. A Mexican constable was required to carry through the streets at night an iron vessel containing burning sulphur, and the streets of the city were disinfected in that way for the purpose of "scaring away the typhus fever demons;" but I cannot imagine that this

procedure would have any other than a medical effect; otherwise it would be of no benefit whatever and of no use as a disinfectant. It would be of no more benefit than a bull which was issued many years ago by the Pope against Turkey, the comet and the cholera which were all three assuming a threatening attitude at that time, his idea being to destroy them all at once, but they all went on just about the same as they had done before, notwithstanding the fulminations of the Pope.

Then, as to the Mexican methods of treating disease: Their methods, of course, are quite primitive. I found, for example, that a remedy which receives great respect, and which is considered almost ^{fallible} invaluable there, is the use of spiders. A large quantity of them is gathered up and they are dried and a decoction is made out of these, and it is believed that when administered to a sick man the result will be such as to frighten away the fever. This method of treatment is not peculiar to Mexico, however; it is employed in many barbarous countries. One physician told me that in China it is considered that any medicine, in order to have any effect, must have a bad taste. If a doctor's medicine had no bad taste, it is not believed that he has any skill, in China, and that his medicine has no potency. So that, in order to have their patients have confidence in their medicines, and take them, the Chinese physicians must compound their medicines in as noisome a manner as possible. They have a great quantity of medicines derived from the animal world, -- derived from the horns of hoofs of a rhinoceros or the hoof of a horse, great quantities of dried lizards, enormous numbers of dried toads, and numbers of centipedes. These and other things are compounded together to make a

medicine. When a patient comes into the office of a physician for a prescription, thirty or forty of these things are put together and stewed for awhile and the result is administered in the form of a decoction. This method still prevails in Mexico. Unfortunately it still prevails to a certain extent, ^{here} where doctors seem to be fifty years behind the times. Mexico certainly furnishes a great opening for medical missionary work among the poor, especially. I never saw so much poverty as I saw while in Mexico,-- but I will tell you about that another time. As I have said, this method of treatment is not confined to Mexico, but is found in this country; there is almost as much room for reform in this respect in some parts of this country as in Mexico. Some of the popular notions of treating disease are very strange,--some of which one of which being, that the doctor must be aged. however, are being exploded. Dr. Oliver Wendell Holmes says, in one of his poems, "Some patients like their doctors musty-- like their cheese." Some people think that the older the doctor and the more oldfashioned his ways and the more ancient his remedies, the more valuable they are. When, for example, old Dr. Chittenden stated that ^{if should advertise that} he had a collection of old Egyptian remedies discovered in the time of the building of the pyramids, thousands of patients would come to see him. We find that this idea gave rise to the enormous popularity of patent medicines. There is probably no country in the world where patent medicines are so popular as in this country. Tons and tons of patent medicines are sold. It is said that a whole R.R. train load of "Liver Pads" was carried to one city at one time. And we have kidney pads and liver pads and lung pads and every sort of pad. These pads are supposed to remove diseases by absorbing them. The manufactur-

ers give directions on the head of the box that when the disease of the patient is absorbed, the pad may be softened and applied again, but it must be applied to another person; it must not be applied to the same person, as the diseases might become mixed in that way, the disease which had been absorbed by the pad being communicated to the patient. People believe that whenever a patient wears a liver pad and gets better, that the pad cured him. It is really supposed that the thing that follows, in such cases, is the result of what preceded it, but that is not the necessary result. Where many different things are compounded, doctors find it a very difficult thing to show what produced the cure. (Repeating the story of the Detroit doctor who had the gout and sold gout medicine.) Doctors suppose that this or that remedy cures the patient--if he gets well. But sometimes he don't get well. Sometimes they use remedies quite opposite in character, and the patient gets well and the doctor is puzzled to know what cured the patient. But the truth is, that no medicine cures the patient. When patients get well, it is not because medicine has cured them, but because nature has removed the causes of the disease. It is nature that cures the patient. It is not the disease but the patient that should be cured. It seems to me important that people should get the idea thoroughly into their minds, is, that what should be done is, not to cure the disease but the patient; that the amount of curing that the doctor does, is, in a case that is curable, is, to take care of the patient, advising him what to do and what not to do; how much to sleep; how much to exercise,--how to behave himself generally, and that nature is curing the patient while the doctor is taking care of him.

Sometimes the very thing that nature is trying to do, the doctor is trying to upset..

What is disease? The old Egyptians thought it was the incarnation of a demon. The old Greeks thought the same. They considered disease as being an entity--something inside of a man--something that must be gotten out out of him, and so they tried every ^{way} to get the disease out of the patient. One of these ancient methods was to have a fragrant herb--sometimes a disgusting herb--~~and~~ burning it so that the fumes would enter into the nostrils of the patient and coax the demon out by their fragrance. Another method was to flagellate the patient in such a manner that the demon would leave. Others visited the mouths of caves with the idea that a *curative* ~~creative~~ Genius resided there, and with the idea that if they could drive the genius out the man would be cured,--that if the sick man would visit the cave where this curative genius dwelt, the genius would drive the disease out of the man, and if the man got well, it was because the disease had been driven out of him,--the idea was that the patient was cured by driving the disease or demon out of him. This same idea has existed all the way down to the present time. It is still supposed that medicine will in some way find and antidote disease and drive it out of the patient. But the whole idea is fallacious. The Tartar physician puts his hand into his bag to find medicine for his patient, and if he don't find the particular herb that he wants to give the patient, he writes the name of the herb in his book, and then if he can't find the herb, and if the patient is poor, the name of the herb is written on a little slip and the patient swallows that and it does just as well. If the patient is rich his doctor per-

tells him that if he will let him mount one of his best horses, he can persuade the demon to leave him. So he gets the consent of the patient, mounts his best horse and rides away. It sometimes happens in civilized countries also that the doctor gets the best of the bargain.

is an entity in the patient which
This idea that disease ~~disease~~ must be antagonized, is a great mistake. If a man is getting well, it is nature that is trying to make him better. Poison, for instance, gets into a man and nature tries to throw the poison out; ~~We do's~~ not wish to cure the fever produced by the poison but to get rid of the poison. We might cure the fever very easily, --and very likely kill the patient. I was in the New York Hospital some years ago and I saw a case in which the fever had just been completely cured but the patient was barely alive. His temperature was away below the normal and his pulse could scarcely be felt, and he looked as though he was just going to die. The fever was cured, but the man was almost dead. They had given him something to antagonize the fever. A large proportion of those patients who die might very properly have written on their tombstones, "CURED TO DEATH." Remember, it is the sick man that is to be cured, and not the condition disease. But, for instance, you have something about you that causes the headache, and you don't want the headache, so you go to the doctor to get something that will cure the headache. But if you yourself were cured, and well, you wouldn't have the headache. The medicine you have taken has only covered up your headache. you don't feel the headache, but your head aches just the same. So, when you want to have your tooth stop aching, you take chloroform so you won't know you have the toothache. In a surgical

operation we give a man chloroform or ether so that he won't know that he is hurt,--but he is hurt, just the same. I know of headache curers, but they don't cure the headache,--it is there all the while,--and will be there, till the man is cured. And what is true of such drugs is true of almost every drug. There are a very few drugs which help nature, but the great majority of them upset and defeat the efforts of nature. Nature is a most beneficent mother who does the best things for us, and we should have faith in nature. Nature helps us in the digestion of food; nature does the best it can in this respect. But the thing we don't want to do is to crowd indigestible food upon the stomach when it is not able to digest it. If the stomach is not able to digest the food, the stomach must be made stronger,--it should be made stronger if it is not able to digest good food. If we have been taking bad food which the stomach cannot digest, the thing to do is to stop taking the bad food. When one wishes to cure indigestion, however, the thing that is usually done, is to swallow something which will act as a whip or stimulus to the stomach,--the same as applying a whip to a poor horse who is just giving out and begins to stagger, and if he acts as if he were going to fall, you whip him hard so as to make him take along the heavy load which you are compelling him to carry. Then suppose that when you put on the whip you put more onto his load, adding to his burden. What should be done? The man should throw off some of the burden, instead of adding to it; instead of putting on the whip, he should take off the burden. The application of the whip makes the horse act as though he were stronger,--it makes him act

as though he were strong and vigorous, but he is really no stronger. So it is with a man with slow bowels. What is the common method of making them go faster? It is, to use laxatives and purgatives--whips. But these do not cure the patient; they only increase the trouble. They produce temporary relief, but they don't cure the patient. I at one time met a man who had been cured in that way. He said that when he was a boy ^{in the "Old Country"} his mother used to give him a dose of salts once in two weeks,--once in two weeks a dose of salts was administered to every member of the family from the baby up to the oldest member of the household. The good mother thought this was necessary, in order to keep her children thoroughly healthy; she proposed to give the family a good thorough "house-cleaning" every two weeks. This practice went on week after week and year after year, and as each boy got older his dose must keep getting larger, in order to be effective, so after a while he would have to take as much as a half a pound of salts in order to produce any effect upon his bowels. Then what was he going to do? His bowels were in the condition of an overburdened horse that had been whipped and whipped and whipped until his skin was so callous that the whip did him no good. At length, when this man came to this country, there was no purgative or laxative that would have any effect upon his bowels. His bowels had been "cured" so many times that they were almost destroyed. One woman, who had been a fashionable lady, came here for treatment. She used to get a little nervous and fatigued,--her ^{from Mearns Company} nerves were weak. She went to her doctor for advice and he said to her, "You need a tonic." So she took a "tonic" and that "cured"

her nervous weakness. She swallowed the tonic and was then ready to receive company again, and appeared to be as bright and charming as ever. But without the tonic she couldn't do anything; the tonic cured her languor. But by and by she noticed that she could not sleep. You see the tonic that she took had toned her up a high for the duties of the day, that at night she needed something to tone her down, so at night the nerves had to be toned down with a hypnotic. First the doctor gave her quinia; then he gave her bromide of potash to tone her nerves down so that she could sleep. But in the morning she had been toned down so much that she could hardly raise her head from the pillow. So she must be toned up again. But the doctor then had to give her something stronger, -- he had to give her strychnia, which is the king of tonics, -- I once toned a frog up with strychnia until he died; I then cut off his head and put him in a glass and set it on the table, and then by a tap on the table I made him jump out of the glass and off the table, because his nerves had been so well toned up. So you see what a powerful tonic strychnia is. -- Well the doctor began with strychnia, but after a while the lady must have something still stronger to tone her ^{a larger dose.} up, -- Then she must have something stronger at night to tone her down; so she had to have chloral or bromide of potash -- 10 - 15 grains of chloral at night and larger doses of strychnia to prepare her for the fashionable cares of the day. By and by the large doses of chloral left the patient in such a condition that she found herself ^{so} greatly distressed in the morning, ^{that} and the doses of strychnia had to be increased. At length the patient got into such a state that she

took quinia, iron and arsenic altogether, and doubled her dose of strychnia in the morning. By this time her digestion became pretty nearly upset, because her large doses had kept the poor stomach loaded with drugs all the while. She would take tonics several times during the day, and hypnotics several times during the night. Her stomach was kept busy all the time taking care of these drugs. She had no appetite and her nerves became so irritable that bromide and chloral were not sufficient, so she had to have morphia. So the tonic doses were not only enlarged, but morphia was added. Then the brain and nerves became more sensitive and irritable, hence the doses had to be made stronger still. Then the bowels became completely paralyzed. Then the patient had to take the strongest kind of laxatives,--Seidlitz powders, etc. When the patient arrived here she was taking one -twentieth of a grain of arsenic, one third of a grain of strychnia, and three or four grains of quinia three or four times a day. She was taking at night 20 grains (?) of chloral and 40 (?) more of morphia, and the doctor was giving her hypodermic injections, 12 grains, and before breakfast she took a table spoonfull of mustard seed to compel her poor bowels to act,--to make a little more action of the stomach and bowels and of the alimentary canal. That was the situation with this poor woman when she came here for treatment. The doctor was all the while treating her disease, and treating it with tonics, depressants and laxatives, each drug while curing one disease by producing another. So, in addition to the original patient's original maladies, she had half a dozen diseases which had been produced by drugs. The doctor visited his patiently to see if she didn't collapse, and we wouldn't do anything till after he got away, because he kept giving her hypodermic injections

on the sly. After the doctor went away we took away the patient's morphia and gave her good strong doses of water. She declared that she thought she would die. She had a little, but only a little, ^{morphia} as her vital powers were so prostrated that it was necessary to give her another chance to rally. Her bowels were so paralyzed by the drugs that her poor constitution was entirely destroyed; there was almost no vitality or reactive power left. The same drugs that paralyzed a certain set of nerves so that she could not feel pain also paralyzed any effort of nature to cure her. When the nerves ^{through} ^{which} the pain is communicated ^{is} ^{an} paralyzed other nerves and vital processes are paralyzed also. There is no drug which can paralyze the pain of a nerve without paralyzing other nerves at the same time. In this manner morphia will satisfy hunger. A man who chews tobacco, if he don't get his regular meal can take an extra quid. So the liquor drinker when he is hungry cures his hunger by taking an extra glass of ^{destroying the sense of hunger.} liquor. So, these anodyne drugs, while they cure a pain-sensation destroys a normal sensation by which nature tells us when we are sick. So we took these drugs all away from this patient. She said, "Doctor what shall I do, if these drugs are all taken away? I have just been kept up by them." I told her that was a great mistake, "for, the fact is, ^{said I} these drugs have been keeping you down, and now we must take those measures which will make you rise. These drugs were not props to hold you up, but they were weights that held you down. You must have these weights taken off, and then nature will begin to hold you up." When she started for the Sanitarium she was so low that her friends didn't suppose she could

get here, but ~~her~~ doctor brought her in in his arms. After ~~she~~ she had been under treatment here about a week, she began to have an appetite, --we had not told her she could spring up right away. In three weeks the natural processes of the bowels and stomach were almost fully resumed, and in three months she was well. We give you this example as a means of bringing before you a picture of the result of "curing disease" instead of curing the patient.

Another case : A doctor brought a lady from Ohio. Her husband and the doctor brought her on the train; they came with her to see that she was all right. At one time after that, I was lecturing here on the effects of medicine, and, among other drugs, of the effects of bromide of potash, --that the legs become paralyzed after taking it for some time. The lady came to me immediately and said she was going home. I told her she hadn't been here only about a week, and I wondered that she had got well so quick. Said she, "I hadn't been here two days before I understood what was the matter with me. My doctor had told me to take some bromide for my nervousness; that it would do no harm. But I kept taking it whenever I felt nervous, until at length I felt nervous all the while, and now I have heard your lecture about it, and I know what ails my limbs, and I am going home, and am going to stop taking bromide." So a drug that will paralyze the nerves will paralyze one's legs.. When the headache is paralyzed in this way, it is done by paralyzing the nerves. Now we don't want to paralyze the nerves but to strengthen them.

How is it then, that a sick man gets well?--But I didn't intend to keep you here but a few minutes this morning, as I have a

good deal to do. What then is the first thing to cure? What is the first thing to do in this process? It is to call out and aid the powers of nature. A missionary tells rather a funny story, illustrative of the recuperative powers of nature, while in the Sandwich Islands. (Repeating crab story.) This power is called by the ancients "the vis medicatrix naturae," the curative power in a man, -- the power that cures him. It is not what the doctor does that cures the patient; it is very often what the doctor does not do that cures the man. It is the doctor's business to take care of the patient, but it is nature that cures him. If one only gets a sliver under his skin, nature forms an abscess there, which gets full, bursts and the sliver comes out. Now suppose nature didn't make this effort and expel such things, -- the body would get stuck full of them after a while. So if certain poison-producing microbes get into the body, nature goes to work to get them out, and this effort, -- this process by which nature endeavors to bring the body back to its normal state is what we call "disease." Hence it is not the disease that is to be cured, but the patient. And the patient is to be cured by helping nature to do what she wants to do. If a man has the headache, for instance, that headache is simply an indication of nature's work. The headache is simply an ~~accident~~ incident in the train of nature's processes by which she is trying to make things right in the body, and while helping nature in making things right, the headache will disappear.

But patients get tired of this process, which is necessarily slow, and they say, "Why can't I get well quick?" The crab had to

wait six weeks for its new legs when it had destroyed its old ones, so a man, when he has destroyed his liver has to wait for a new liver to grow,--he must actually wait for a new liver to grow, or must wait for a new stomach to grow. We could make his nerves quiet so that he would feel well; we could make him jump ten feet high by the use of strychnia, the same as we could a frog, but that is not true strength; it is a deception. We must make new nerves if we would make the man feel well. It is like sowing a crop of wheat and waiting for it to grow; we have to wait for it to grow. This is a very fast country; it is a very fast age., as we say, and the man who is sick wants to get well quick,--especially if he is an American. He has some object which he wishes to attain; he is competing with some other man; he wants to "get there" first; he is anxious to attain his object at the earliest possible moment, and he wants to get this bad health away from him; if he can only get it out of sight, that's all he wants. He thinks he sees success ahead, and that is all he is seeking for, and so he covers up his diseases by the means which I have referred to. Now I think you have some confidence in rational methods of treatment. The majority of the people who come here know something of our methods and have confidence in and experience of their value. I hope that you are also convinced of this and that you are willing to wait patiently for good results. You know it is a great satisfaction to a doctor to help a patient get well. But that is something that very rarely happens to us. We seldom have the opportunity of seeing patients get really well in this Institution. I suppose it is not more than two or three times a year that we have this privilege. We ought to seek all

the health that it is possible for us to have. Almost any one can have splendid health, if they will only obey the laws of health— if they will only cooperate with nature. My friends, set your ambition high. Don't be afraid of spending too much for health. It is true it costs time and money, but it will pay you well to devote your energies and resources to this object; they will be expended in the best possible way. Improve every opportunity of getting well. I believe we can safely encourage ^{most if not} all who are present that by proper care and patient waiting you are able to get well, and I hope this may be the result with every one of you.

(Applause.)